

A Warm Welcome to New Members □□□□□□□□

This is Darryl D'Souza, the admin and curator of this group. Please save my number.

Here are the posting rules of this group. They are also in this group's description for your reference.

Don't post good morning / good night / jokes / philosophical quotes / other trivial things in this group. *Be on topic – Organic Food Growing at Home*

Interaction times on this group are between 9 am to 9 pm. Members should post or comment only on the topic of the day from 9am to 6pm. After 6pm members can ask other questions or share about their plot and veggies for sale, etc.*

This group is not for dairy / eggs / meat / honey making. It is only for plant based produce.

Here is the list of topics that we all are systematically working on, one after the other, so that each topic gets properly covered and all who have experience in it can contribute at the right time.

1. Type of plants for the season
2. Plants that grow in shade and sun
3. Seed sourcing / seed saving / seed storage
4. Preparing good quality compost from kitchen waste
5. Preparing good quality compost from garden waste / dry leaves & twigs
6. Making Vermicompost / Sources of Vermicompost
7. Making Coco Peat / Sources of Coco Peat
8. Making in-situ composting beds
9. Soil preparation for seed planting in trays / cups / soil
10. Preparing growing beds / ploughing
11. Seed planting in trays / cups / soil
12. Transplanting saplings
13. Mulching
14. How to build a natural fencing system that also gives produce
15. The difference between growing on settlement land and field area
16. Watering systems
17. Plant growth supporting systems
18. Pruning trees to maintain them well
19. Signs on leaves / stems / soils to watch out for before disaster strikes
20. How to eradicate attacks on your plants and soil
21. Natural pesticides
22. Harvesting techniques
23. Putting unused plant material back in your soil
24. Recharging your soil with nutrients that have been taken out
25. Shading systems for summer / covering systems for rains
26. Terrace Gardening
27. Selling your excess produce.
28. The difference between local natural / organic veggies and chemically grown veggies from other states.
29. Coconut oil and its Yellow colour and white clear crystal coconut oil.
30. Pricing / Marketing / Selling
31. Companion planting.
32. Important or unique herbs and ayurvedic healing plants, growing and using them.

Topic No. 1 - What are the type of plants that can be grown this season in Goa?

Considering winter is still going on till 1st week of March. After 12pm we can discuss the plants to be grown in Goa for the next season, that is summer. After 4pm we can discuss plants to be grown in other states. From my experience, the following can be grown in winter in Goa - banana, papaya, pineapple, pomegranate, chikoo, passion fruit, sweet corn, tomatoes, carrots, tambdi bhaji (amaranth), water leaf (thalinium / thai spinach, it's perennial), brinjal, french beans, beetroot, pumpkin, capsicum, cucumber, ridge gourd, bitter gourd, bottle gourd, ash gourd, snake gourd, bhendi, celery, cabbage, cauliflower, radish, tendli, lettuce, mustard greens, rocket, bok choy, kale, malabar spinach, malaysian spinach, tulsi, basil, turmeric, sour lime, curry leaves, string beans, cluster beans, chilly, knol khol (naab). ~ Darryl D'Souza

Refer to the Seed Sowing Calendar info here https://drive.google.com/open?id=1SQ4C_eQlcUDH11vmdyZ-SRAAA0laVqGK ~ Purvish Diwanji

I would like to know which plants will grow well if planted in the next 10 days ~ Angelo Pais

What are the seeds that one can plant now, (as in right now) and the kind of soil preparation that needs to be done, also would the saplings need to be transplanted or to be left where they have germinated? ~ Judy

You can plant, chilly, Brinjal, amaranth, lady finger, yard bean, radish, knol khol(naab). ~ Adcosta

Darryl, you have mentioned tendlis as one of the vegetables to be grown in winter. Is it better than growing them in June as the traditional farmers have been doing? ~ Avertano Nazareth

Yes Avertino, it is better to grow in June, but they are growing well now also if enough water is given. ~ Darryl D'Souza

I am about to plant some. Does the soil have to be kept constantly moist after planting? ~ Avertano Nazareth

No. Deep watering once a day in the evening is fine. ~ Darryl

No, only water twice for the first 3 to 5 days. ~ Vanessa

I suppose saplings of coconut and other fruit bearing plants can also be planted now. They will not be as stressed as in summer and will also have taken proper root by the time the monsoons arrive. Provided your water source is good. Turmeric is normally planted in June and harvested after 9 months i.e. in February. ~ S N Menezes

It's getting rather hot now. So planting veggies will not yield much and perhaps be a bit inefficient. One must also look at the input to output? Best to stick to the perennials and micro greens. Towards May end, after the first pre monsoon showers - can put down the monsoon crop. ~ Arjun Rebelo

Malabar Spinach is doing quite well in my garden. Self seeds, can't get rid of it. Highly recommended. ~ Karan

Cluster Beans too. ~ Angelo Pais

We have just planted cluster beans. But we put the seeds too close to each other. Is it okay to transplant them to space them out? ~ Avertano Nazareth

Now it's time for fruits like jackfruit, cashew and mangoes will follow ~ Savio D'Cunha

Fruits, you mean plant seedlings or grafts, right? Or do you mean sow the seeds now? ~ Giselda Menezes

If you have big trees it will flower and then enjoy the fruits, I'm not saying to plant. ~ Savio D'Cunha

One set of opinions is that if you can plant your fruit trees now and water them adequately and provide a tad bit of shade. They will establish root structures before the fury of the monsoon. This gives them strength and maximum growth during the rains. ~ Arjun Rebelo

When is Breadfruit season? ~ Karan

Should be now. My tree is fruiting. ~ William

Yes, the temp has gone up since 3-4 days in Goa, so we can start with the summer crops. ~ Darryl

What is summer crop ~ William

The plants that have resistance to heat or hot weather. ~ Savio D'Cunha

So, what about veggies during summer? Doable only if you have a good water source? And which vegetables are advisable. ~ Giselda Menezes

Yes. You have to plant before the monsoon hits. Around 15th May. This gives the seedlings heat to germinate and 3 weeks to grow sturdy stalks before the downpour. Also you will get an early harvest in August! ~ Arjun Rebelo

I had planted lady fingers and brinjal, the plants grew very healthy but the flowers were falling. Can you tell me the reason behind this. Did not get any fruit. ~ Ana

If the stem of their flowers or the flowers themselves look a bit dry, then they are not having much moisture in the soil. Do you mulch around your plants? Are you on high settlement land or low field zone? The winter makes the land very dry. What manure do you put in your soil? Is the soil hard? ~ Darryl

If the plant is still healthy, one reason is temperature fluctuations which can stress out the plant and cause it to drop flowers. This site has useful info generally -

<https://www.gardeningknowhow.com/edible/vegetables/okra/reasons-for-okra-blossom-drop.htm> ~ S N Menezes

The soil was hard. I used a lot of cow dung. They were planted during the rainy season. It was on a high settlement area. Thank you so much. ~ Ana

From my experience I had a similar problem of falling flowers of ridge gourd and bitter gourd though the plants were healthy. Agri department suggested that there was no cross pollination happening. Suggested a honey bee box. Brought one and voila problem alleviated. ~ Bosco

What are perennials please? ~ Augusta

Perennial plants are those that grow all year. Like this basella and spinach that we had at Darryl's place. ~ Arjun Rebelo

Yesterday we completed topic No. 1 - Type of plants for this season. It started with winter crops and because we are getting into summer soon in Goa, we talked about summer crops as well that need to go into the seed germination stage now. I hope everyone has got their answers on it. If not, you can ask your remainder questions on that also today.

Topic No. 2 - Plants that grow in shade and sun.

Full Sunlight :

1. Cucumber
2. Tomato
3. Pepper
4. Squash

Partial Shade :

1. Roots - Beets, carrots and potatoes

2. Leafy - Chard, Spinach, Salad greens

Full shade :

1. Beets
 2. Bok Choy
 3. Broccoli
 4. Brussel Sprouts
 5. Cabbage
 6. Carrots
 7. Cauliflower
 8. Celery
 9. Chinese Cabbage
 10. Garlic
 11. Kale
 12. Kohlrabi
 13. Leeks
 14. Lettuce
 15. Mustard Greens
 16. Peas
 17. Potatoes
 18. Radish
 19. Rhubarb
 20. Scallions
 21. Spinach
 22. Swiss Chard
 23. Turnip
- ~ Purvish Diwanji

So will the under shade plants, grow under mango or coconut plantations? ~ Judy

Yes ~ Purvish Diwanji

By Pepper, do you mean capsicum? ~ S N Menezes

I was told bush pepper plant can grow in shade. Not sure please correct. ~ Samson Da Costa

How about the gourds? Red pumpkin, bottle gourd etc. Normally grown in the monsoons but what are the conditions required post-monsoon? Any inputs of gourds? Sun or shade? ~ S N Menezes

Semi sun & shade works for the winter crop. For monsoon it should not be under any tree. ~ Arjun Rebelo

What about green chillies and capsicum? ~ Giselda Menezes

Chillies need full sunlight. Remember that all salads and other winter veggies that grow in cooler climates, the sun is bright but atmosphere is cool (Europe, Ooty and other hill stations) Here the sun is bright and hot. So specifically these greens need part shade. Shade nets etc. Capsicum therefore needs to be protected from the heat. Else they won't flower and fruit ~ Arjun Rebelo

How about tambdi bhaji and methi? Do they require full sunlight?

Yes ~ Arjun Rebelo

Daryl sir, just wanted some advice bought some kale & lettuces saplings have grown it in rectangular vase using organic mixture. Does it need sunlight because it's just about 5 inch tall, thanks ~ Danzil

Yes Darryl, most saplings are ready for sunlight once they cross 4 inches in height. To be careful, keep the saplings in their cup in sunlight from 8 am to 12 pm for 2-3 days and see if they are wilting with the heat. If not, then extend the time 8am to 4pm for the next 3 days. If they are still standing fine at 4pm also, then it's time to plant them in the soil. ~ Darryl

Topic No. 3 - Seed sourcing / seed saving / seed storage.

I source my organic seeds from:

1. Green Essentials, Porvorim 8698888683.
2. Green Goa Works, Khorlim, Mapusa 0832-2255217 / 9850101137.
3. Green Triangle, Parra 0832-2473811
4. Mr.Farmer, Porvorim 0832-6484848 / 9881247585

I always let a plant or two of each of my plant varieties mature fully and dry their seeds for 15 days in moderate shade. Then I wrap each set in paper and keep it in a cool place. I share seeds with organic farmer & friends and take their good seeds in return. I prefer this over buying seeds from stores. ~ Darryl

Good range of vegetable seeds are available now with us, please visit our website www.prakritopseeds.com. Select your choice of vegetables and write to us on info.prakritopseeds@gmail.com. I've tried them with good results. ~ Gloria Assagao

I have sourced seeds from these guys. <http://yarrowayfarm.com/index.php/product-category/organic-seeds/> ~ Glen D Costa

Not yet tried Prakrit from Pune. I have the following seeds to share - amaranth, thai spinach, ridge gourd, bitter gourd, chillies, okra, purple string beans, green string beans, green brinjal (small round / small long), purple brinjal (small round), mash melon, muskmelon, malaysian spinach (cuttings), sweet basil, thai basil, cherry tomatoes, papaya, malaysian spinach, cucumber, at my place The Rejuvenation Center in Candolim. A good time to come is tomorrow evening from 4pm to 6pm at the Earth Keepers Market where we sell organic fruits, veggies and groceries. Market details are here <http://becomehealthyorextinct.com/ekm> ~ Darryl

If any of you could share sources in the South end too. ~ Judy

The Pilar fathers run courses and are active in the field try them. ~ Gloria Assagao

Alphonso (Goa Agro Horticulture Centre)

+91 94220 58605

+91 83227 31037

+91 83227 15918

+91 94224 34908

Contact for South Goa seeds. Based in Margao. Next to Cine Lata. ~ Samson Da Costa

B R D Desai in Margao +91 832 273 1343 is famous for seeds. Old station road. The Bagayatdar store seeds of local vegetables. ~ S N Menezes

India's first farmer owned seed company selling Desi, OPV, Organic seeds. www.sahajasamrudha.org
<https://www.sahajasamrudha.org/Sahaaja%20Seeds.htm> ~ Purvish Diwanji

Hi all. Just a quick note on seeds in general. There are different kinds of seeds - heirloom, hybrid, organic? Some of the commercial seeds are treated with pesticide / fungicide / poison so that they don't get attacked by pests while in storage. You need to read the description when you buy. Also you will see them coated with a shiny pink / red colour. Not all hybrid seeds are bad. The h1 hybrid are essentially 2 good strains that are cross pollinated in a controlled environment. These are safe. Don't store seeds of h1 hybrid plants. The seeds will have a 1/3 probability of being a hybrid. ~ Arjun Rebelo

When your seeds or produce is not a chemical one, all insects or honeybees come close to it for nectar and pollen
~ Savio

Good gyan on seeds. Tell us more about heirloom, hybrid seeds. How to identify. Yes many are treated, becoming pink. So are these not organic having been treated with chemicals. ~ Gloria

Heirloom seeds are quite difficult to maintain since cross pollination usually affects the original strains. Hybrids are developed by cross pollination in a controlled environment between two plants. So seed companies do this commercially. When you buy seed packs they will specify 'h1' hybrid. If the seeds have been treated with chemicals they are no longer organic. Seeds that we save are termed as 'open pollinated'. ~ Arjun Rebelo

Topic No. 4 - Preparing good quality compost from kitchen wet waste.

I just joined this group. Can someone advise how to start preparing the soil to start a vegetable garden from scratch. I have a sizeable backyard and plan to convert a small portion of it for vegetables. ~ Naveen

It's very easy. We use the clay composter from Green Essentials (8698888683) in Socorro. It's a 3 storage bin. You put food waste and add a little of earth or old compost. You add every day. Once the container is full you start with the next one, leaving that one and not touching, then next. By the time the last container is full, compost in your first one is ready. It'll be full of white worms but that is ok. They are good ones. You actually can even simply use any 3 big containers, but make sure it has a lid so rats do not enter, some oxygen also should enter. Refer to the 3 storage waste composter here <https://drive.google.com/open?id=1u1rHnuvLe3W0DerA7bTszxopWjWDawnp>
~ Martushka Fromeast

So you don't sprinkle with water or anything? Just waste and mud / compost? ~ S N Menezes

Do you use EM on that? ~ Savio Dcunha

What is EM? No I add only little of earth or compost, like two big spoon for say 3 wrist of new material to decompose. ~ Martushka Fromeast

EM - Effective Microorganisms kills smell and speeds up composting. ~ S N Menezes

No I don't add anything extra, I don't need it. I think they gave me a bottle but it finished and since then we don't add, composting still happens. ~ Martushka Fromeast

How long does it take for first container to be ready, have you timed it in days or weeks? Do you keep moistening it to accelerate decomposition. ~ Gloria Assagao

Along with the white worms, we used to get 1.5cm black worms that started roaming around the house. Not sure if the white ones grew to these black ones. ~ S N Menezes

We keep compost bin outside the house. I don't recommend inside as the smell is there. Keep it in the balcony or in the garden. If the worms is too much and they wander around, it means you have too much moisture inside, start adding little more earth. Time is around 4 weeks for normal, big pieces like arbutus cover full or avocado seeds take longer, like twice. ~ Martushka Fromeast

I used to compost kitchen waste along with some grass clippings in a bin. The kitchen waste of fish scales etc used to attract ants which ate up the worms. Anyone else had such problem? How did you circumvent. ~ Gloria Assagao

Ants are coming also like everywhere in goa, maid just sweeps them once a day. We don't bother too much about them. It's really easy ~ Martushka Fromeast

Ants in my bin were definitely a problem. Could not be swept away ~ Gloria Assagao

I was not sweeping them from the bin but from around, ants also are natural and I think they help the compost. Maybe just compost for some time vegetarian / vegan waste and see what happens, always better to compost then just give up. Non veg waste you can give to street dogs? ~ Martushka Fromeast

May be but they bite us bad. They killed the worms that are so hard to get and which helps decomposition of waste ~ Gloria Assagao

Keep the bin in water. This will stop the ants from entering the bin. Easiest way is to buy a plastic ghamela, put water in it, put 2-3 brick pieces in it and place the bin on the pieces of bricks. Ensure that there is no contact of bin with ghamela. ~ Abhay Kesarkar

You have to keep the composter in a trough of water so that the ants don't get across. ~ Arjun Rebelo

Are you vegetarian. Non veg waste kicks up problem. ~ Gloria Assagao

Yeah we are vegetarian, mostly vegan diet ~ Martushka Fromeast

We get maggots in huge numbers in our bins. They lay eggs and as soon as garbage is put, they come alive in hundreds. Helps in composting faster too. ~ Rajat Nagpal

Yes maggots are very important. If it's too many then your compost must be more dry. Add more earth. ~ Martushka Fromeast

Are maggots not eggs of flies. Tried building a moat around but they fell from the covered roof. ~ Gloria Assagao

Maggots are worms helping decomposition and they appear by itself, not difficult to get at all. I think you just move your composter to a place ants will not disturb you. Accept them for 4 weeks and see what happens. But cover the container, if you do not cover you'll call the rats. ~ Martushka Fromeast

I don't think that maggots in compost are a good thing. The question is what are they going to turn out to be? If it's a bee or butterfly that will pollinate flowers, then good. If it's a house fly or grasshopper that eats away leafy produce, then that's bad. I have always noticed that maggots come when the water content in the compost is excess and that's when it begins to stink. I don't find maggots when the humidity & heat in the compost is right. It is actually the microorganisms that do the real composting. Yes, earthworms do breakdown organic material, but some energy of that material is lost to the earthworm's daily work. Why shouldn't our plants get that energy? I do agree that earthworms are a farmer's best friend – but that's only for making the soil porous so that more oxygen gets into the soil for the microorganisms to multiply. ~ Darryl

I can vouch for this part. I've noticed maggots are more when the water is in excess. ~ Gloria

What about the soldier fly? And could you please advise on tea leaves and cooked rice water and fish water, on how it can be used? Whether any of these will cause trouble or help bacterial or fungi to infest? Thanks ~ Judy

The soldier fly is generally used so that its larvae feed on compost and then their worms become food for the chicken, pond fish, etc. So if you don't want your nutrients to go back into the soil but in their tummies then its ok. Someone posted a video here of a man giving a demo of a plastic water composting tub where the liquid would drain out at the bottom and the worms would crawl out at the top through a pipe and fall into his hen pen. I use tea leaves in my compost. Don't think there is any problem. Anyone wiser, please advise on this. We hardly have any black tea. I mostly have herbal teas, so put their leaves in the compost. I think fresh cooked rice water is fine to add. I know if it is fermented for a few days it becomes a natural pesticide to be sprayed on plants and fruits and at the roots. Fish water I don't have since I'm vegan, so don't know the results of using it. ~ Darryl

I've recently started putting tea leaves straight onto the plant, there's some leachate since I do so on weekly basis. Guess that should be ok. So what will happen if I bury the worms with my compost for a plant? Please need help. □
~ Judy

If the burying is quite compacted, the worms will die and their nutrients will go to the ground. If not, then they will continue to eat the compost material and other leafy material on the ground and then turn into soldier flies □ ~ Darryl

And these nutrients are then available to the plants? ~ Giselda

Yes, once the worms die they will naturally decompose into the soil. But mind you, even the white fat ones that look so soft, can really burrough hard. But once they hit dry soil all around their skin dries up and they die from dehydration. If the soil is wet and soft, they will survive. ~ Darryl

What is the Remix powder referred in the booklet? ~ S N Menezes

Soil or compost you add. ~ Martushka Fromeast

Hey guys you people are lucky I may sound out of date but what is a clay composter? You guys up north are lucky I wish we had clever dudes in the south as well, so please go slow ladies, we in the south don't know this. ~ Vita Falcao

Vita you may check this number 9158372738 - Clinton, for the clay composter. Had got mine from him, he supplies from Margao Ind. Area if am not mistaken. ~ Judy

Try www.dailydump.org Clay composter is the thing I'm using. I think you can get it online. I was trying before making my own like a hole and it called rats, what put me of from composting. Then I got clay one and I recommend. In North Green Essentials in Socorro sells it. Probably other places too. Otherwise must be also online. ~ Martushka Fromeast

But it is not necessary. You can take any 3 containers with cover and make small holes on side. There are also ways of making composter in ground but as I was saying, for me it called the rats and I can't live with them... So I prefer that option ~ Martushka Fromeast

This is excellent will check it out. You begin with veggie waste and then regular soil and what else? Is it hot, to be kept wet daily? Like sprinkling water? ~ Vita Falcao

I just add veggies, then little soil. you can also add these additives but I'm not adding. Water is not needed, veggie waste is a little wet. At least for now it is enough. ~ Martushka Fromeast

Any particular type of soil needs to be used? - Carlton

I take my kitchen waste, like fruit peels, veg peels and put them in a mixer and make a paste, this paste I put in a bucket with a lid and add water, some EM and stir daily for 10 days. Strain and use for your plants as a manure. ~ Lourdes D'Souza

If you are composting in your garden. You can later pile the leaves, cow dung, green matter. It will start to decompose. But you need to get the proportions right. Too much of raw organic material will result in fast combustion. Most of the mass will be lost in methane. Try 5 parts of dry to 1 part of greens and 1 of cow dung . Spray a bit of water. It's important that the compost does not dry out. It will also produce its own moisture and heat. After its part composted, you can fill in barrels. Add worms and seal. In a few months you will have high quality vermicompost. Refer to the composting image here
<https://drive.google.com/open?id=1LTK7y0TGBtW2XHLohUzXh5QQoB0MmGCL> ~ Arjun Rebelo

Can we add worms when the white maggots are still in there even though it's half composted? ~ Saira D'Mello

You can add worms anytime to compost. But there are a few things that you should avoid (acidic). Every compost needs a starter. Something with good bacteria to get the aerobic combustion going. Even cow dung slurry fermented for a day works. ~ Arjun Rebelo

Right. We used to use EM since it was more convenient than cow dung. ~ Giselda Menezes

Even curd can be used as a starter. ~ Smita Sen Khambaswadkar

We had a very nice practical composting session today, me and my son Ethan. Simple easy to implement, no high funds, just good old wire mesh costing Rs.350 a meter, so 2 meters of that, leaves and a wonderful attitude. Private message for any queries, not to disrupt the flow for others and plant on with a smile ~ Vanessa

No Vanessa, someone else suggested the same. Because I would burn the dry leaves, I was asked to do like this and put all the dry leaves in it and water it everyday. ~ Vita Falcao

A lot of nutrients would be lost by your method Vanessa. ~ Gloria

But what we learned today does not need a starter, other than water for humidity. ~ Angelo Pais

It will take longer. As in all methods, there are those that are more efficient, have faster turnaround times and of course better outcomes in terms of nutritional value for plants. Plain leaf compost does not contain as much broken down components of say phosphorus etc. For that fish bones, greens etc make all the difference. Even leaves, sticks etc that are cut into small pieces compost faster as compared to larger bits. ~ Arjun Rebelo

The carbon to nitrogen ratio is the most important factor that determines the composting technology.

https://drive.google.com/open?id=1afy8pLjDtmY-4Y_tkgiek5iAUEreMNGi ~ Saieesh

How would one determine the composition of the compost, the carbon to nitrogen ratio? Any pointers? ~ Judy

More the leaf higher the carbon. Higher the wet waste like fish waste, meat waste etc higher the nitrogen.

Organic farming FAQ http://agritech.tnau.ac.in/org_farm/orgfarm_faq's_compost.html ~ Saieesh

My experience is that fish / meat waste attracts ants. Any other way to get nitrogen balance. How about vegetarians. ~ Gloria

Food waste, but anything high in nitrogen attracts bacteria, smell, flies. So there is a trade off that you need to make in selecting the type of waste to treat and the method that you choose based on your comfort. There are multiple methods to compost based on your conditions. But you need knowledge and experience.

Refer to Rapid Composting Methods here

https://drive.google.com/open?id=1W0qCml8wB_RM_x0zbnAm3gM_X6wHPBNk ~ Saieesh

Refer to the Wet waste composting unit here

<https://drive.google.com/open?id=1knaZ6NtXzmy2uFOvT4XvWxKowrNTtA8E> ~ Eleuterio Carneiro

Just to get a rough idea. Let's make a list of waste generated. Everyday kitchen waste. ~ Nestor Sanches

Sorry for the late response to this discussion. I would like to share with others what I do. I grind all kitchen waste and dilute it with water and add to plants directly. The difficult to grind stuff like watermelon peels etc. I cut into pieces and put in a drum. To this I add sawdust. I have seen a noticeable difference in flowering as well fruit plants. I do this throughout the year except the monsoon season. In this season I add to the drum. ~ Shilpa Mense

Please be careful about the compost being sourced from govt agencies for organic farming. These could be from the sifting from segregation machines that separate plastics, garbage from the organic decomposed matter from

dumps. These have a lot of inorganic matter that has leached into it. Compost has great absorption capabilities. So it can be contaminated. ~ Arjun Rebelo

Members just wanted to share my knowledge sorry it's lil late now. I've been trying this method since 2015.

1) I used composting tub from Shakti tanks. They also provide info about how to do it. It cost me 5k.

2) Bought earthworms from Malcornem about 500 nos. Just once.

3) Cowdung from the cow shed.

Procedure -

Base of the tub to be covered with rubble. To get the filtered vermi wash.

Keep water containers under four legs of the tub to prevent ants from entering into the tub. Since the tub comes in 2 compartments, I used to fill it in layers of neighbours lawn and another neighbors cow dung.

The second compartment is used for daily kitchen waste.

Don't -

Never used citrus remains in the composting tub. It kills the worms.

Never use cashew leaves as it slows down the process.

Can try using Azolla from the ponds as its the highest in nitrogen concentration and available for free as it grows on the ponds surface.

Any corrections will be appreciated.

Thanks ~ Samson Da Costa

Topic No. 5 - Preparing good quality compost from garden waste / dry leaves & twigs

It's an extension of yesterday's topic, so we can continue with both topics intertwined today if it makes sense. ~ Darryl

I did a shallow pit to compost leaves and twigs and roots from wild plant growth after the monsoons. It had already gone through 1 month of composting. Then I harvested my tambdi bhaji and opened up the pit at the top level. Left the lower half composted material in the ground. Layered the waste of the tambdi bhaji on top. Then added some diluted panchagavya water on top and closed the pit with a thick layer of leaves on top. Used panchagavya on top because I did not have much cow dung or cow urine that time. The micro organisms from the bottom layer will climb up and compost the top layer. Opened it up a month later and it was all ready compost. I did do a weekly diluted cow dung water / cow urine water on top because dry material in it was more. Refer to image here

<https://drive.google.com/open?id=1-kqn2WDIqqxaBd4iPHf7LSFkaDztnIMf> ~ Darryl

Topic No. 6 - Making Vermicompost / Sources of Vermicompost.

Refer to the earthworms that are specially for vermicompost here <https://drive.google.com/open?id=1m0-agwN-QLQGPWbV89af4wfafIGnMvOH>

Refer to a crude composter made from recycled materials here <https://drive.google.com/open?id=1OU-KgaQtOVKZNuOly4O78PpqcubAh7OK> ~ Arjun Rebelo

Can earthworms be used in a similar manner in these pots? And where can I find earthworms. Not a single one even in monsoons in this yard. ~ Judy

These are different types from the ones we find locally. Ideally don't let them escape into the garden. Keep them contained. ~ Arjun Rebelo

What's the difference between the two?! ☐ So, locally found earthworms aren't ideal for making vermicompost?! ~ Giselda

No!! The vermicompost ones are a different sub species of earthworms. They ingest organic matter and they excrete castings which is the vermicompost. ~ Arjun Rebelo

Oh that's news indeed. Didn't know. Thanks Arjun. And can the earthworms and soldier fly worms be in the same pot? ~ Judy

Yes. Most other species live in harmony ~ Arjun Rebelo

The species *Eisenia foetida* and *Eudrilus eugenia* are most suitable for our climate in Goa. I personally found *Eisenia* more adaptable and fast multiplying though many will not agree with me. They are tiny as against *Eudrilus* which are large. They are available with Mohan Tendulkar from Malcorne. Of late I've been looking out for *Eisenia* without much success. ~ Ambrose Vaz

A word of caution - Shri. Subhash Palekar in his book "Is Organic Farming a conspiracy" has cited many scientists and papers 'against' the use of *Eisenia Foetida* claiming that they feed on Heavy Metals and are mostly used to remediate them from the soil. They are not earthworms and their castings contain heavy metals which enter our food and ultimately our bodies. Further reading is suggested ☐☐ Though I'm selling Vermicompost out of *Eisenia Foetida* myself to farmers. I just wanted to show the other side of things ☐☐ ~ Purvish Diwanji

Hi good morning I do supply vermicompost with home delivery up to Panjim if anyone is interested please call me on 8796484494, you will getting worms too but only after March. ~ Deelip Narular

Just read through the last 3 days posts and comments on composting. Here is what I do and my view on some comments on the topic by others. Refer to my compost pit here

https://drive.google.com/open?id=1sZHI0gh_U0bRe7C9dAjBrgia4L5Xe59R It is raised and not a hole in the ground. The bricks not cemented together allow for air and oxygen for aerobic composting. When you don't get enough air in, it becomes anaerobic composting and then some unhealthy bacteria & fungi grow in the compost. That's why I don't recommend a deep compost pit. In nature, like the forest, composting happens in a pile up. When anaerobic composting happens, it begins to stink and you find grey water around.

In this method I cut up all kitchen wet waste and mix it with crushed dry leaves and tiny dry twigs to get a moist mixture - not a wet one. The carbon / nitrogen ratio in this turns out to be fine when done like this. Though this mix already has some microorganisms from the wet waste, it will compost very slowly. To make it compost faster, my microorganisms starters come from the following choices – previous compost powder (this I say is compulsory because it has a big qty of the organisms). Then I also use 3 days old diluted cow dung (1 to 5 parts of water) or 3 days old diluted cow urine (1 to 5 parts of water), or cultured veggies (probiotics recipe in my book) or topsoil from under the leaves of a big tree if I don't have any cow dung or cow urine. In monsoon, this raised pit is covered with an aluminium sheet. In other seasons it is covered with a wire mesh so that rats and birds don't get in. If anytime I feel that the compost is getting too dry on the top (1 inch below the top leaves that I put – these leaves are put to prevent sunlight cutting into the compost. If sunlight goes in then the top layer won't have any living microorganisms), so if it is dry 1 inch below, then on top I use either 3 days old diluted cow dung (1 to 5 parts of water) or 3 days old diluted cow urine (1 to 5 parts of water). Now the excess water goes down into the earth (lost forever). So I've changed this a bit to reclaim that highly nutritious water that can be reused or put for your plants. Will post the pic of the new setup later - The vertical clay composting bins with 3 layers and holes for air breathing is such a system – very good. I would get good black compost powder almost like very fine tea leaves when sifted from this system in 45 days (with rainy season earth smell). Then realized that if the material put is chopped up very fine, it composts in 1 month. But these chopping machines are so expensive - 50k on average. So now looking for faster composting methods that can do it in 20 days. Yes, you do get those units that compost in 1 week which use a lot of composting powder (microorganisms culture) expensive but I've not used them as yet. ~ Darryl

Darryl. Why are there 2 compartments? (as shown in the image) ~ Saira D'Mello

1 pit per month. If I had 3 pits that would be great but I did not have more place, so 2.

So once I mix the compost of the day with the right carbon nitrogen ratio, I place it in one corner, then next time in the center, etc. generally 1 inch high and this goes on till all the floor space is covered. Then I do the next layer on top of it. The height of this structure is 1 foot. For me it fills in 1 month. Once it reaches the top, I layer it with leaves and only water with diluted cow dung / cow urine water if I see it getting too dry. I don't turn it up and down every week. After its composted for 25 days, I mix it all up slowly and leave it again for 15 days again well covered with leaves and doing the watering only if needed. ~ Darryl

What do you mean by previous compost powder which you say is compulsory. ~ Gloria

Its compost powder from my previous batch of compost. It has a lot of good microbes if it is less than 1 week old and kept covered. ~ Darryl

Darryl, so u mix the wet and dry waste. Not the layer method. Also, do u turn the compost periodically? Is the bottom of the pit open? ~ S N Menezes

Yes, I just explained it in my previous reply. Yes, the bottom of the pit was earth. Some earthworms came up... the usual slim Goan ones and not the fat vermicompost ones. But like I mentioned earlier, the excess water is lost to the ground, so I'm doing something different now. Will send a pic after lunch time today. ~ Darryl

I think turning will be good to ensure aerobic conditions. Right Darryl? ~ Giselda

Aerobic was ensured by the bricks that could breathe. Like I mentioned before, I layered and then turned once after 25 days and left it for another 15 days. ~ Darryl

Whats benefit of three days old cow dung urine? ~ Gloria

It's more fermented since the microbes have multiplied. Keep it in a bucket covered, not sealed. On the first day I just put 1/3rd of the water, on the 2nd day 2nd part of the water, on the 3rd day the 3rd part. These microbes get a shock of environment if all that water is dumped at once. This does not happen in the gut of the animal. ~ Darryl

I don't consider vermicompost to have more nutrient value than kitchen compost that I've explained above. I've seen the difference in growing plants on both soils. We operate a vermicomposting unit at the community farm in Calangute. What are the earthworms fed? All sorts of leaves and grasses. Fruit and sweet vegetables are not recommended for them because then more ants and rats go to eat the worms. Yes, the unit has the water layer all around it. So when we give quite a limited nutrient range to our worms, how do we expect that their poop will be highly nutritious? More nutritious than good kitchen compost? I don't think so at all. Yes, the earthworms have microbes in their guts and multiplication of microbes happen in their guts - it also happens in the soil. In good soil, faster! and more microbes because it is anaerobic. So in general, I don't spend time trying to vermicompost. If someone has it, then I'm happy to buy if I don't have enough compost / manure. For carbon I use dry leaves and twigs. Not newspaper with its chemical print ink. I also use coco peat sometimes if I don't have any dry leaves. Saw dust is also ok. Some people who get it from a saw mill may get white ants from it, so be careful. I never use curd – lacto bacteria are not meant for soil. They are for human gut biology through breast feeding of babies. I don't use EM either – it has all that info about non-local cultures propagating in our soils. I never add burnt leaves / twigs ash to compost. ~ Darryl

But Yogita from Green Essentials told me to put curd to the soil. Am I right yogi? Darryl please discuss with Yogita. ~ Sarita Winnifred Peris

Ok Sarita, will do. In principle, I do not do anything that does not occur in nature naturally. Never seen curd in the jungle 🖱️ all our farming lands look 3 times worse than any jungle area where growth is abundant. ~ Darryl

Curds as a source of Lactobacillus? As in the Bokashi method of composting? I was reading about it and am intrigued. Has anyone here tried it out? ~ Giselda

How to make Bokashi Bran :

Wheat Bran - 1kgs @Rs.90/Kg = Rs.90

Water - 600ml (dechlorinated)

Blackstrap molasses (without preservatives) - 15ml @ Rs. 1650/Kg (SG - 1.45) = Rs.36

EM - 15ml @ Rs.600/Ltr = Rs.9

Total - 1 Kgs = Rs.135

Market Price = Rs.385/kg

Once initial mixing is complete, never mix the contents again after they are bagged, to ensure that the fermenting bran stays anaerobic and oxygen isn't introduced into the mixture.

Let the bags ferment for 2 weeks in a warm place away from direct sunlight.

While the bags are fermenting they may expand because of the gases created during the fermentation process. If they do expand, no extra action is needed, just let the process run its course.

Smell Test : sweet, sour, yeasty, cheesy, vinegar, faint alcohol. If you notice a musty or moldy odor fermentation has failed.

Sight Test : white mold like mycelium is ok. Green or Black mold means fermentation has failed.

Failed batch : add to any Aerobic composting pile or spray 1:100 EM and bury in a trench with 6 inches of soil on top.

Drying :

Spread it out evenly on a tarp, turn it daily till dry. Preferably keep away from direct sunlight. Shelf life of dry bokashi compost is 1 year when stored in airtight containers, dry conditions and away from direct sunlight.

Lactobacillus Culturing :

Wash rice, use that water, take in a glass, fill to about half and leave it half covered in shade for a week so air can pass.

Once you see a thin film on the surface strain the liquid into a bigger container and add 10 times milk.

After 7 days you'll have solids floating on top, filter it and solids can be composted. You will be left with a yellow liquid which is the Lactobacillus bacteria.

Add equal amounts of Biofeed or Molasses to keep bacteria fed. Store in fridge until you are ready to use.

To use, mix with 20 parts of non-chlorinated water and spray on plants, soil and compost. ~ Purvish Diwanji

Topic No. 7 - Making Coco Peat / Sources of Coco Peat.

Sources of cocopeat:

Any big nursery sells the 5 kg blocks of compressed coco peat for Rs. 250 to 300. I was told that in Kundaim industrial estate you get it in loose form. ~ S N Menezes

How much should cost coconut husk per sack please? ~ Martushka Fromeast

Lesson for composting of coco pith <https://www.youtube.com/watch?v=iogmJr0hGfU>

The Pros And Cons Of Growing In Coco Coir

Many hydroponic and soil growers prefer coco coir for a variety of reasons, but you have to keep track of important details to maintain your grow. Details such as how the medium is made, its general properties, and what coco coir nutrients are needed to keep your crop healthy. Managing nutrients is particularly important when working with coir.

Here are all the facts you need to know about this grow medium, plus how Advanced Nutrients makes it easy to manage pH and nutrient balance for your coco coir-grown plants. In this article, we'll cover:

What is coco coir and how is it produced?

The basic types of coco coir.

The advantages and disadvantages for growing in this medium.

What coco coir nutrients are necessary for hearty growth?

What Is Coco Coir And How Is It Made?

Coco coir is a byproduct of coconut fiber. It was first used in gardening in the West in the 19th century, but fell out of favor because the low-quality coco available at the time degraded when used for short-term growing. Toward the end of the 20th century, it was rediscovered as an organic, environmentally sustainable substrate when new production methods made it possible to create a harder product.

Coco coir is manufactured using fiber that's torn from coconut shells. The tiny grains of coir are extracted from the coconut shell and pulverized into a packable growing substrate. First, the coconuts go through the retting process, a curing method that naturally decomposes the husk's pulp. Traditionally, coconut husks were immersed in water for six months or longer to decompose. Today, the retting process can be completed in a little over a week using modern mechanical techniques.

Next, the coconut fiber is removed from the shells by steel combs, in a process known as defibering.

Once the fiber, or coir, is gathered from the husk, it's then dried, pressed into bricks, discs, coir pots. or bagged as a loose mulch. In this dried, processed state, the coir is ready to sell and use.

Basic Types Of Coco Coir

There are three basic types of processed coco coir: pith, fiber or chips. Using a mixture of the different types has its benefits.

Coco pith, or peat, looks similar to peat moss but is a rich, brown color. The density of this product means it retains water extremely well — so for this reason, you might not want to use just coco peat, because it could swamp the roots of your plants.

Coco fibers are stringy bundles that allow oxygen to easily penetrate a plant's root system. By itself, the fiber is not very absorbent and will break down over time, which decreases how much air gets to the roots of your plants. However, it is hardy enough for reuse.

Coco chips are small chunks of coir that combine the best properties of the peat and fiber. Coco chips retain water well, but also allow for air pockets, too.

If you're an experienced grower, you can prepare your own mixtures from these different types of coco coir, but companies provide premixed products to eliminate all the hassle of doing it yourself. Dried bricks are common — all you have to do is add water — but most coco in brick form tends to be of a lower unprocessed quality.

The Benefits Of Using Coconut Coir

Let's take a moment to cover the pros of this grow medium.

Quick harvests and big yields: When used for drain-to-waste growing, coco coir gives excellent results. With the right coco coir nutrients in your water bath, your plants spend less time searching for food and more time growing. Learn more about using the right coco coir nutrients here.

Plenty of room for the root system: Coco coir offers a rare combination of excellent water retention, reliable drainage and ideal aeration. It gives the roots plenty of room, allowing for optimum air exposure.

pH-neutral value: Coco coir has a neutral pH range of 5.2–6.8, but you'll still need nutrient support because this range will fluctuate over time. Learn why maintaining a balanced coco coir pH is so important here.

Minimizes harmful pathogens and reduces the risk of pests: This medium boasts antifungal properties, which keeps the roots happy. It can repel some pests, meaning your grow is easier to maintain. (If you've experienced plant pests or diseases in the past, here are some plant protection tips to help up your game.)

Environmentally conscious product: On average, a coconut tree produces 150 coconuts annually. Coco coir uses parts of the fruit that used to go to waste.

Reusable medium: When properly treated, coco coir can be reused. It's durable, but you need to make sure you prep it correctly for the next growth cycle to guarantee a hearty crop.

What Are The Drawbacks Of Using Coco Coir?

Any grow medium has its limitations, and you have to understand the traits of coco coir to ensure you develop the best crop possible.

Possible high salt content: Make sure you research how the coco medium you choose is produced. If the husks were soaked in salt water, confirm it was rinsed with fresh water by the manufacturer, or learn how to properly do it yourself.

Chemical treatment: At the end of the drying process, coir bales might be treated with chemical agents to ensure pathogens didn't bloom inside. Learning how it was treated may help you manage your crop, since the chemical residue could affect plant growth. Read the product label or refer to the manufacturer's website to learn more.

Can lock out calcium, magnesium and iron: Because of its high cation exchange rate, coco coir stores and releases nutrients as needed, but it tends to hold calcium, magnesium and iron. This means you'll need use specific coco coir nutrients to boost Ca, Mg and Fe levels for healthy crops.

Coir pith has gained importance owing to its properties for use as a growth medium in Horticulture. Because of wider carbon and nitrogen ratio and lower biodegradability due to high lignin content, coir pith is still not considered as a good carbon source for use in agriculture. Coir pith is composted to reduce the wider C:N ratio, reduce the lignin and cellulose content and also to increase the manorial value of pith. Composting of coir pith reduces its bulkiness and converts plant nutrients to the available form.

So it is very important that the raw coir dust is composted and turned into peat before it is used. ~ Saieesh

The need to buffer the coconut coir / peat :

Washing coconut coir/peat with water will change the EC but not the CEC. CEC sites have a preference for some cations over others. Because the cations on the exchange sites are held reasonably tight, washing coco does little to change the makeup of the cations on the exchange sites.

When coconut coir/peat is buffered using Coco-Wash, it creates a lower K and Na percentage on the exchange and adds the benefit of Ca and Mg to the CEC. This results in much lower K and Na levels on the exchange.

As a grower, if you are using an un-buffered coco product, a well-balanced nutrient solution goes into the coco and starts to buffer the coco as well as feed the plants, instead of all of the nutrients going directly to plants. So, the CEC in the coconut coir/peat is exchanging some of the K and Na for Ca and Mg.

The idea is to use a better coco product from day one, ensuring all of a nutrient mix goes straight to the plant versus amending the coco's CEC. If anyone is interested in knowing the procedure and product to wash Coco products do let me know, I'll send via DM ~ Purvish Diwanji

We also sell the 5 kg coco peat block for Rs 200. We are based in Margao, Rawandfond, Opp. military camp, On Margao Quepem road. ~ Viplav Prabhugaonkar

About Coco Peat – Coco Peat is the husk powder of what's outside the coconut shell. After you open up a full coconut, scratch the coir to get the cocopeat powder and use the hard coconut outer for in situ composting in your garden (we will work on this topic later). Even the coconut shell is to be used in in situ composting. No part of the coconut needs to go to waste. I did a demo of it for the 35 people who came to my place for the TEDx xplore event. We added twigs and grass and leaves too. ~ Darryl

I have good Coco peat blacks@ 220 for 5 kg block. Pm me if anyone wants. I am based in Tonca, Panaji, behind Hotel Goa International. ~ Angelo Pais

Topic No. 8 - Making in-situ composting beds.

How about in-situ composting for big areas?

As in, just bury the waste in small pits in different parts of the garden. Add cow dung and cover the pit. Over time, will it not improve the soil quality. I guess this is something that was done in the past without any thought going into it. Dead rats, snakes etc. would be buried near plants that aren't yielding fruit. Even fish water and fish heads were just thrown at the foot of big trees such as breadfruit etc. ~ Giselda

This is Anaerobic Composting ☐☐ better than Aerobic one when doing large scale composting.

Advantages :

1. No Labour as no Turning required
2. Output / Yield is more
3. Less GHG emission

Possible to do using Effective Microbes

Many farmers are composting cow dung using this method as it shortens composting time. ~ Purvish Diwanji

Oh. Ok. Thanks ☐☐ Makes sense. Although, for flat dwellers, aerobic composting would be more convenient, I suppose. ☐ ~ Giselda

Hence I've mentioned "large scale" and "farmers". ~ Purvish Diwanji

In-situ means 'at the very place'. So in-situ composting means composting right at the spot you are growing your food. Refer to the image of my food garden here

<https://drive.google.com/open?id=1Yj8YT3A1ZAP4Qfacl6jHohLVJzq6hmeQ>

You can see 3 feet wide growing beds and on all 4 sides of them there are walkways that have pressed down leaves (because I walk on them to water and also harvest my veggies). I chose 3 feet wide beds because it's easy to sit on each side and harvest and pick weeds out too. If I do 4 feet wide beds, I may be able to harvest, but won't be able to sit and pick out weeds easily. One never steps on the growing beds because that will compact their soft soil. That block in the middle goes to my underground water tank, so it's not in the middle by purpose. These pathways all around my garden are my in-situ composting beds. So what's in them? Refer to the image from the TEDx xplore day here https://drive.google.com/open?id=1EBLqsVkO4JDtHv_2NkNtrDtNfa57j8P We created an in-situ composting bed. 1 foot of soil was dug out on the previous evening in it you can see me placing coconut outer shells, coconut coir, dried tree branches, twigs, dry grass and all sorts of green and brown waste matter from my garden. Then I and another gentleman are walking on it to compact it. Finally on top we layered it with dry leaves. From that day onwards I watered the bed every evening for a whole week. Then intermittently in between so it does not dry out. So what does this bed do? Well, it becomes a rectangular pit all around your growing beds

that hold water and moisture that seeps into the ground vertically and laterally also for about 1 ½ foot on both sides. Voila! There's the watering system for your veggie beds. In this kind of system you need 1/3 rd the amount of water to grow veggies, because the water is not on top to get evaporated easily by sun rays. All this matter in the bed is also going to compost automatically in 2 months, if you have not added any cow dung / cow urine water in when making the bed. If you had added them, then it will compost in 1 ½ month itself. I have this ALL OVER my garden. Can you imagine the amount of compost I'm going to get in 2 months over my 200 sq mtrs plot? It's the equivalent of 50 clay vertical 3 stage composting units!! Personally I do not choose to put the cow dung / cow urine water on top because I walk bare feet everyday on my in-situ composting beds. You can add kitchen wet waste also to this in stages... area by area and enrich the nutrient value of your compost bed. The liquid leach is only going into your growing soil, so that reduces the work of you collecting it everyday from your khambas and pouring it on your soils. Now coming to whether it is aerobic on anaerobic composting. It will be aerobic if you limit your bed depth to 9 inches or so and water it moderately. If you water too much and do it everyday, then it may go anaerobic. The indicator is the smell. This kind of water table creation is a must for people growing on settlement land... basically that's the place your house is... if you're not living in the field itself. Settlement land is much higher than the water table that is available at our fields in Goa, so it is drier and so it needs methods like these to retain and hold water. You can channel your rain water harvest partially into it. There should be an on / off system because you don't want excess water in it. This is for gardens like mine where I cover my veggies with a plastic sheet on top, so rainwater is not falling on them. If your garden is open to sky in the rains, no need of doing this. When it's not raining, you can also channel you kitchen waste water into it, provided you are not using any chemical detergents.

I just opened up this 15 day old composting bed upto 3 inches only. Refer to the image here

<https://drive.google.com/open?id=1DbUHxz6SwnTot3lQaGxYleDttX1RLdww> Can you see the black powder in the leaves? That's ready compost in just 15 days! It smelt of the earth in rainy season. No larvae or white worms down there And you can bet it's even more composted 3 inches further down. The bed is soft to walk on and every day you will feel like you're walking in the forest ☐

Here is a very important concept – The only thing that should be leaving the boundaries of your food growing plot is fresh food for you. All the rest green and brown matter that you are not going to eat must be buried in the plot itself. That's how you conserve the nutrients of your living ecosystem.

The next question you need to address is – How do I get back the nutrients into my soil that left it as my food? Because if I don't get them back in some form of the other, my soil will always have lesser than what it had before! This is the root cause of why people grow stuff on their land and as time passes, lesser and lesser food grows on it. If you can bring back more nutrients back to your land than what it had before, then you will be able to grow more than what you did before, period!

Here is where I got my extra nutrients from 20 days back, my neighbours un-maintained plot. Refer to the image here https://drive.google.com/open?id=1RTctF7OpWI3ZFArAs_nCQUBE3zaiLHGV at the bottom of pic is my soil that was taken out to make the in-situ composting beds. He got his plot a bit cleaned up. Did both of us a favor!
~ Darryl

Hi Darryl, thanks a lot for the info! At home we normally burn leaves, twigs,etc. The ash maybe be used as manure? Or is it better to bury it in the ground as you are doing? We don't have very good soil at our house... space is a bit limited and soil a bit hard..is it advisable to get some soil dumped from outside? Thanks! ~ Carlton

Burning is perhaps the worst thing to do in terms of loss of mass. The ash that results is generally a poor substitute for the benefits of mulching or composting. Using compost will soften your soil and retain moisture. The actual mineral content in ash is very low. If you have limited space, burying or making the trenches is best. ~ Arjun

But I think some ash does help in arresting certain pests in the soil? Doesn't it? I wouldn't recommend leaves to be burnt year round for the purpose though. ~ Judy

Thanks a ton for your insights Arjun!☐☐ Do you suggest getting a truck of soil dumped around the house to improve the soil quality/quantity? In addition to composting I mean. ~ Carlton

Really depends on how bad your current soil and terrain is. If you are composting, mulching etc. the soil will improve. I don't know what sources the garden shops use for soil. Digging it up from the forest perhaps? ~ Arjun

Thanks again! Our house was built on a hill and at the time of construction (a long time back) and we had brought a couple of trucks of mud to dump around the garden at that time ~ Carlton

You're welcome Carlton. Don't burn anything of the land to use as manure. Like Arjun said, it's nutrient value is very low. Put the dry leaves and twigs back into the in-situ composting pit. Spare some dry leaves to be crushed and used in your kitchen compost pile or khamba. Even if one just has a 5 feet x 5 feet plot, then also in-situ composting all around it will be the best practice. If you do it after plants are already rooted, you may cut some roots in the bargain, but that's ok, the plants will make more that go downward. No need to get soil from outside. Most of it in Goa Rs.500 / 1000 a truck comes from digging for house / building foundations. It needs to be dumped somewhere and that's why you get it cheap. If you ask someone to get you forest soil, they will quote Rs.5000. See how you can create compost & manure as soil from all around your place. Chop up leafy things around your plot and put them in the in-situ pit. You don't need to dry them out... nitrogen and water will get lost. Generally if you are growing small shrub kind of veggies or creepers, dig 1 foot deep and see if your watering is reaching there. If not, then loosen up all that soil till 1 foot deep and mix crushed dry leaf and twigs in it. Add the cow dung slurry, vermicompost etc in it. Give carbon and nutrients to the soil. Normal Goa earthworms too - but rats if around may come digging for them. ~ Darryl

But I think some ash does help in arresting certain pests in the soil? Doesn't it? I wouldn't recommend leaves to be burnt year round for the purpose though. ~ Judy

How do I deal with the weed grass growing between the veggies please? Refer to the image here

<https://drive.google.com/open?id=1i2P1QY4Frmo5yptnvlolilVnFFiuxQWY> ~ Saira D'Mello

Pull it all out and lay it at the bottom of the in-situ compost pit. It won't get enough sunlight to grow again 9 inches below. If you're walking on those in-situ beds regularly, then that will do the compacting and ensure it works fine. ~ Darryl

Won't twigs in the in-situ compost beds attract white ants? ~ Rashmi Rosario

If you have white ants in your garden, then yes they will get into the in-situ compost beds just a bit. But because you are watering the bed regularly and you're also walking on it daily because it is your harvesting and weeding pathways, it gets compacted every time. So the white ants don't stay in. I have white ants in my garden and they make their mud pathways on my leaf mulch around my plants, but they are not there in my in-situ compost beds. ~ Darryl

Thanks. Very good insight into in situ! After 2 months do u dig up the compost or do u grow on it in the next cycle? If I have the space but poor soil, could I improve it by making 3 feet wide beds and troughs, use the troughs for composting in 1 cycle and grow on it in the next? The beds of the 1st cycle will become troughs in the 2nd. ~ S N Menezes

This is the right concluding question ☐☐ it means you read through all of it with an intent of seriously implementing it and you got the hang of it ☐☐ Yes, after 2 months, I dig it up. Then I sift it to get the fine grade black powder that I use for my sapling cups with 50% cocopeat. The thicker grade of powder I use for the soil. The leftover black pieces (if any of twigs etc) I put at the bottom of the in-situ pit and then do the fresh pile up as I did in the beginning. Now the cycle is complete.

In your idea of using the 3 feet composted in-situ pit for growing new veggies after 2 months, the soil will be too soft to support plants that will grow to 3 feet height or more like tomatoes, zucchini, capsicum, cauliflower, etc. It will be fine for small plants like bok choy, palak, lettuces etc and creepers, all the gourds, watermelon etc. ~ Darryl D'Souza

Topic No. 9 - Soil preparation for seed planting in trays / cups / soil.

I just joined this group. Can someone advise how to start preparing the soil to start a vegetable garden from scratch. I have a sizeable backyard and plan to convert a small portion of it for vegetables. ~ Naveen

Starting with soil preparation for seed planting in grow trays or paper cups these will have to be transplanted in soil later. I use a mix of 50% kitchen compost or vermicompost mixed with 50% cocopeat. The former gives nutrients and the latter retains moisture for germination. The porosity of the soil allows for quick germination and growth of roots. Watering usually once in the evening or when I see the top layer of soil looks dry. Hole at the bottom of each cup for water drainage. The 2nd ratio of soils I use sometimes is 1/3rd kitchen compost or vermicompost + 1/3rd cocopeat + 1/3rd normal mud anyone doing something like this? Have you seen better results? I have not monitored this soil growth closely, so can't make up my mind about it.

The 2nd sub-topic of today is soil preparation for growing plants directly in pots or open soil on the land we can work on this one post 3pm today, so comments are not confusing as to which format we are referring to. ~ Darryl

Have just tried doing this about 15 days back. Can't say about the results, as I did it for transplanting, not for germination. (with reference to the above mentioned 'The 2nd ratio of soils') ~ Angelo Pais

I was thinking of trying out something new for pots; pieces of coconut husk at the bottom with a little normal yard soil, top it with kitchen compost and sand. How do you think that will be, or anything else that should be paid attention to? Thanks ☐ ~ Judy

I do the same way but right at the bottom before putting the pieces of coconut husk I put small pieces of tiles on the holes. ~ Nathan D'Souza

For pots, you'll need to see how soil won't drain out through the holes at the bottom, so a flat stone over each hole will be necessary. Coconut husk at the bottom means that water will retain only there. Yard soil in between will compact itself and not allow roots to propagate easily downward from the top kitchen compost layer. Sand on top will catch heat and eventually seep into your kitchen compost soil below. You actually need to mulch with leaves or grass on top so that heat does not hit your soil surface and the soil below the leaves remains soft and holds moisture and therefore beneficial soil organisms. So my advice would be to - place the tile pieces below - use a mix of 50% kitchen compost + 25% yard soil + 25% cocopeat - on top mulch with leaves or grass (in circles). ~ Darryl

My method of seed germination is 100% successful with 50% cocopeat and 50% Vermicompost. Sometimes I use dry seeds and sometimes I use the veg seeds directly from the fruit n they sprout excellently. ~ Maria Nifa

What should be the material for the tray? Plastic, clay or can we reuse tetra packs? Which one is to be avoided if any w.r.t. seepage of chemicals in the plants and or other factors. ~ Siddharaj Nayak

The best is clay. I have so many old earthen cooking vessels from my parents & grandparents time lying around the house. They crack on our gas burners, so I can't use them for cooking, so I make a hole at the bottom with a drill m/c and use them. Please avoid buying plastic and tetra packs because of the environmental damage they cause. Any food that comes in a tetra pack is unnatural food with toxic preservatives and other flavor and coloring and stabilizing chemicals. Use the half of coconut shells that we scrape out. I often use the paper cups leftover from my workshops. Yes, they do have a thin wax coating on the inside. Anyone done the research on that wax? Is it biodegradable? ~ Darryl

Yogurt cups can be reused again and again. ~ Alice

I find the plastic curd tubs are quite durable. Have been using them for close to 3 years each on an average 2 growing seasons in a year. We also use and reuse plastic growing bags a number of times. People in margao who would like the access to paper cups - they come in for recycling from clinics and can be made available for our use.

Refer to saplings in curd tubs here https://drive.google.com/open?id=1YPFSQkvUg4Qesp4_CIWERaikUDmd-jhO
~ Arjun Rebelo

Are these soft drink crates? ~ Tony Cardozo

Old soft drink crates. Makes for good separation. You can also carry the whole lot of seedlings in one go. Refer to saplings in soft drink crates here <https://drive.google.com/open?id=1veZ2e4ZKqWnrmpa9mM6nD9N3LPy3341m>
~ Arjun Rebelo

Which plants are these please? (with reference to saplings in the plastic cups) ~ Augusta

Winged beans ~ Arjun Rebelo

Also these (with reference to saplings in the soft drink crate) ~ Augusta

Corn ~ Arjun Rebelo

Does corn grow easily from corn cobs? ~ Augusta

What kind of soil does this need and light? Thank you. ~ Judy

Soak seeds overnight. This hastens the germination. Also you can separate the bad seeds which float. Plant as usual. Corn needs full sunlight preferably. Any kind of soil works. ~ Arjun

Are these chilli plants? Refer to image here https://drive.google.com/open?id=14-u96rRI-g8QVPC2lavqxi03M_sAnOVz ~ Augusta

No, it is hemp ~ Darryl

Which plants are these? Refer to image here <https://drive.google.com/open?id=1QWr48WLmzCesFErt0U2jpJ-BriXGso1c> ~ Augusta

Thalinium (thai spinach) and coloured lettuce and tambdi bhaji. ~ Darryl

Yes! My growing beds (3 feet wide and long rectangular plots, like I shared earlier) are generally 3 inches higher than my walkways all around them because all my walkways are in-situ composting beds that keep sinking as their composting happens. When they go lower I layer them with fresh dry leaves to make up an inch. I get to work deeply on each growing bed afresh when I harvest the veggies on them completely (eg taking out all the palak or tambdi bhaji). When they're out I dig upto 1 foot deep and add some kitchen compost / garden compost / vermicompost + a bit of cocopeat (if the soil and sand is more) + cow dung water + cow urine water + a trace of rock phosphate. People having fish bones / chicken bones can also crush them and add evenly in the soil. Crushed egg shells too, if you did not put them in the compost. Instead of cocopeat one can also use crushed leaves or tiny dry twigs. For plants that I do not take out like bhendi or brinjal or tulsi or the gourds & melons, I take off the top 2 inches of soil, saving the roots and add the same above mix. Good amount of leaf mulching on top I always do in both cases. I keep it like this for a week and then bring in the saplings to put it. Anyone with another system, please comment. Thanks! I don't have fields, so I've not ploughed as yet, so can't advice on that. So people who have any questions on it, please ask. Other farmers in this group will reply. ~ Darryl

For mulching on the soil, should I use dry or wet leaves? ~ Saira D'Mello

I normally use dry. But sometimes if I have less dry leaves, I use wet leaves. Generally put the wet leaves to compost and get their full water & nitrogen value. ~ Darryl

Ploughing: our soil is sandy so we use the disk Harrow (multiple small plates). This turns only the top 6 inches. Then we use the rotavator which chops up the remnants very fine.

The very first time that we had to plough the barren field, we had to use the disk plough (3 large plates) that uproots all the plants and turns the soil.

The MB plough is also useful for ploughing barren or hard land.

So first time, you may have to use the MB plough or disk plough, disk Harrow and rotavator.

During normal operations, they do a cross ploughing i.e. first in one direction and then perpendicular to it. (Depends on the mood of the tractor driver!) ~ S N Menezes

Where can one get cow urine? ~ Vanessa

Green Essential ~ William

Cow urine can be picked up from your neighbouring cowshed - the ones that sell milk daily. I give them a container to collect it & pick it up later. ~ Saira D'Mello

In this & all other pics, I noticed that the soil is free of unwanted grass & weeds. What is being done to keep it so clean, please? (with reference to images attached by Nathan D'Souza) ~ Saira

Do you really think the soil is clean of grass and weeds? This above picture is of some time back but we remove the weeds when they grow. ~ Nathan D'Souza

Wow Nathan, that's beautiful. Where is this veg garden of yours? (with reference to images attached by Nathan D'Souza) ~ Judy

Taligao ~ Nathan D'Souza

Fantastic. Yes of course perfectly clean. Thank you. Would mulching help prevent growth of the unwanted weeds & grass? ~ Saira

Yes, mulching reduces weeds. If one does weeding once a week, or once in 10 days, the weeds get a chance to get to pollination stage and they multiply. If you do weeding twice a week initially, then you will see lesser and lesser weeds progressively. Then later even once in 5 days is enough. ~ Darryl

Darryl, there's something wrong with this post. "the weeds get" or do not get? 10 days, later 5 days? ~ Angelo Pais

If one does weeding once a week, or once in 10 days, the weeds get a chance to get to pollination stage and then they multiply. If you do weeding once in 3 days, then over a period of 12 to 15 days, you will see lesser and lesser big weeds. Then because you are plucking them at their baby stage, weeding even once in 5 days is enough. ~ Darryl

If you plant in a pot, Do you need to change the soil after the produce?? ~ Naina Ray

If you are taking out the plant completely from the pot, then yes, it's a good chance to recharge your soil with nutrients. Approximate all the nutrients that got used up from the soil for your plant and its produce. Add that much nutrients back to the soil via compost and other things I mentioned earlier. ~ Darryl

Full soil or only part ~ Naina Ray

Full soil if you have taken out the plant fully from the soil. ~ Darryl

The first time I planted in that soil, it was weak from grass growth and pesticide use. My plants were attacked by pests and disease. Instead of applying insecticides etc, I decided to create a balanced environment for more insects and microbes. The balance was the key. My first few cycles of plants did not do well, but as I saw more insect life in my soil, the plants started doing even better. So using grass mulch and home compost I attracted all kinds of moulds, fungi and insects which benefited the soil a lot. The whole process took a year. Also crop rotation to avoid draining the soil. Planting beans and other nitrogen fixing plants to condition the soil. It's all about soil. ~ Karan

Topic No. 11 - Seed planting in trays / cups / soil

For growing in cups or trays I use a 50% cocopeat + 50% vermi compost / kitchen compost mix. Small drainage hole at the bottom. I put in the mix and then place the seed in the middle on top of the soil and finally over the seed, I add a level of mix equal to the height of the seed. No pressing down. When water is added on top, it will automatically compact the soil. Watering just once a day in the evening. Not adding anything to the water. You also don't want to end up watering your sapling too much. So look at the top of the soil in the cup. If it looks dry, then it's time to water. If it is damp to the finger touch, do not water, wait for it to look a bit dry. ~ Darryl

Good morning. Would it help to treat it with Neem water? ~ Judy

Nope. Not at this stage of putting the seed in. You could have done it with the soil 15 days earlier and you can do it for the soil your planting the sapling into later. ~ Darryl

Darryl. What about preparation for planting coconut / mango's? Does this topic come here or elsewhere. I need to plant some. Thanks. ~ Casey (I am Blessed)

Yes it does Casey.

Savio / Augustine / Ambrose / Antonio / Tulsidas please reply to this question. Thanks! ~ Darryl

Great. THANKS DARRYL. Also Pineapples. What about Stevia? ~ Casey

Hi, coconut requires sandy soil, mango tree requires red laterite soil, pineapple requires red laterite soil, stevia plant requires sandy loam soil or compost. ~ A Dcosta

Do we put just one seed per cup? ~ Saira D'Mello

Yes. Do a few extra cups in case a couple of them don't germinate. If you put 2-3 seeds in them, when they grow in the soil they will compete for nutrition. If they are small plants upto 6 inches height, no problem, but if they are supposed to grow to 1 foot or more, then they will get less nutrition. ~ Darryl

I mean salad seeds which are extremely tiny. So still 2-3 seeds per cup? ~ Saira D'Mello

2 seeds per cup ~ Darryl

Regarding seeds in a cup, should the seeds be 1st soaked in water & for long? ~ Saira D'Mello

Just soak them overnight from 10 pm to 7 am that's all. Then put them in the planting cup or directly in the prepared soil bed. ~ Darryl

Topic No. 12 - Transplanting saplings

Most saplings are ready for sunlight once they cross 4 inches in height. To be extra careful, keep the saplings in their cup / try in sunlight from 8 am to 12 pm for 2-3 days and see if they are wilting with the heat. If not, then extend the time 8am to 4pm for the next 3 days. If they are still standing fine at 4pm also, then it's time to plant them in the soil. Plant saplings in the evening time when it is cool between 5pm to 6pm... before you do your daily evening watering for the growing beds. Dig your small soil pit to put in the sapling. Bring the sapling cup to that place. Place your palm on top of the cup with the sapling standing up between your index finger and middle finger. Hold the rim of the cup. Turn upside down and tap the base of the cup for the soil and sapling to fall in your palm. Grip the set soil come out of the cup softly and put it in the hole. Now level the mud on top. Do some leaf mulching around the sapling. It's time to water it now along with the other plants. ~ Darryl

The strawberry plants need to be in hot sunlight. Made a mixture of coco peat, sawdust, grainy sand & ash collected from the house help and soil and repotted the saplings I picked from kolhapur. Soil needs to be porous and not too compacted, collect and keep khadi bits to mix in your soil mix to allow drainage. I get 3 to 4 berries per pot every 2 days. ~ Vanessa

Hi from where did you get your saplings ~ William

Sometimes along the guirim highway with the bengali nursery vendors ~ Vanessa

Topic No. 13 - Mulching

For those who don't know what Mulching is, it is the practice of putting dry leaves or grass on top of your growing beds and between your plants so that you cannot see your soil at all.

Benefits of Mulching:

1. Using up of fallen dried leaves from your property or neighbours property instead of burning them.
2. These leaves will eventually decompose into your soil after a month or two because of watering and they will give nutrients to your soil.
3. They prevent sunlight from directly hitting the soil, so the soil does not get hot. Due to this, the soil will retain more moisture from the watering that you do daily.
4. Because sunlight is not hitting the top of your soil, beneficial microorganisms will be living at the top layer of your soil also, converting the leaf matter into nutrients. This is how the forest floor is. You hardly ever see the ground, unless a pathway has been made.
5. Because mulching helps retain water and moisture in the soil, your daily watering needs will come down... maybe even to just half or in some cases 1/3rd.
6. Mulching will prevent weeds from growing easily because the germinated weed seeds will not get sunlight.
7. Mulching and in-situ composting beds are a must for people growing on settlement land, because generally the settlement land is much higher than the field land where the natural water table is available. So settlement land is mostly dry below as all its water eventually goes down to the water table level.

If you don't have enough dry leaves, use fresh leaves, no problem. They will dry up on your land in 4-5 days. ~ Darryl

We put down coconut leaves and then transplant in between. This time we grew corn, watermelon, basil, brinjals using this method. Refer to image here <https://drive.google.com/open?id=1rl4BBKLjfhJzno5Bi9bRIIqldnjPEG9s>
~ Arjun Rebelo

Coconut palms take very long to disintegrate, don't they? ~ Gloria

Good. You will not need to replace the mulch soon. I use thick leaves for mulching, thinner leaves for compost, so they break down fast. ~ Darryl

Once they come into contact with water, like any other leaf. ~ Arjun Rebelo

Oh wow. I was about to ask coconut leaves. Can mulching be done for spinach? ~ Saira D'Mello

Depends on the density. You can use straw ~ Arjun Rebelo

I suppose the coconut leaves can be pulled away from the main stem & then used. ~ Saira D'Mello

Yes. But best place them as they are. Easy to put down. ~ Arjun Rebelo

Yes but the broomstick parts take long to disappear into soil. ~ Gloria

Mulching is to be done for all plants. For tiny plants like methi, throw small wood shavings in between. Refer to image here https://drive.google.com/open?id=1LVreK3Tm0rJaSUK_mLFmhJrqJBQEfgj3 ~ Darryl

What are the green containers? Grow bags? ~ Saira D'Mello

This is from Clea's terrace garden. We just had a demo on top. Yes! They don't have holes for drainage, so lesser watering is required. ~ Darryl

Why are they so tall Darryl? - Casey

Did you notice the Okra saplings in them? They surely need that depth. The methi is the live mulch ☐☐ ~ Darryl

I live in an apartment, and I have ample space in the verandah for plants. I've just begun to start rounding up dry leaves for mulching. Teaching my mother too. Thank you for this information and whatever else comes along! ~ Shay

You can mulch your pots as well. Use coconut husk chips. ~ Arjun

Yes. Many people use straw in pots. They wind it around the stem of the plant. ~ Darryl

Straw? I don't think I understand. ~ Shay

Dried Hay ☐ ~ Darryl

For those living in Panjim - the municipal keeps sweeping up leaves from campal. They keep them on the roadside in big bags. Just pick up as many as you want for your garden! ~ Arjun Rebelo

Darryl I do mulching for all my trees. e.g Banana, Ratan Abolim, breadfruit as the pics above. Sometimes it saves me trouble of watering everyday. I do it alternate days. Refer to image here https://drive.google.com/open?id=1_OUJqLJW_ywrmGNcsYfQ9qGODEjNqTUw ~ Maria Nifa

Can you do mulching for lawn? ~ Nathan D'Souza

What do you want to grow on the lawn? Isn't there grass already growing there? The fat kind of grass are a live mulch for trees that will grow deep roots in the lawn. They both feed on different layers in the soil, so that is ok. The thin grass does not cut much sunlight. It is not an effective live or dry mulch. ~ Darryl

So when we plant seeds directly in the ground, do you mulch right at the start or after it has grown 4 inches above ground? Or do you light mulch with straw first and later put the heavy mulch like coconut leaves? ~ S N Menezes

The best would have been if you had mulched you ground 15 days before you put the sapling in. That way the soil would already be cool and have the right microbes in it and your plant will grow well from day 2 itself over there. ~ Darryl

I also had the same question? Maybe we have to wait till the plants grow up a little, right? ~ Jessie

Depending on the kind of plants. If the seeds are very fine like salads, flowers, red amaranth etc don't mulch, it will inhibit the sprouting. Light straw (hay) mulching for beans and larger seeds works. Since the plants can push through a layer of leaves. ~ Arjun Rebelo

Mulching is good that it avoids grass from coming up. But sometimes the humidity in the dry leaves breeds mosquitoes. ~ Ivone

What about snakes will they settle inside the area, asking as we have many around? ~ Sophia Fernandes

Use flat leaves for mulching and not mango leaves etc that curl and give space for snakes. ~ Darryl

Or maybe could crush the leaves and use? ~ Judy

Righto! Not too much or nothing will be left. Only enough to iron out the curls. But then this is too much work. Best is to take mid sized leaves for mulching. ~ Darryl

Oh if you crush too the nutrients are lost? Hmm. □ ~ Judy

Nope! Nutrients are not lost. In fact they will be available to the soil faster. ~ Darryl

As you water the beds the grass or leave will settle down, there no gaps remain. ~ A Dcosta

Is it ok to use cut grass clippings? Along with dry leaves? ~ Naveen Chandar

Grass clippings are excellent for mulch / composting. ~ Casey

I also heard of live mulching? Is anyone aware of its practice? ~ Shilpa Jadhav

Ok. So garden leaves are best used for mulching and composting. But our locals burn them and use the ash to prevent attack by pests. Is that effective? Or should we be using wood ash for that? ~ Giselda Menezes

Yes, you can use wood ash but only in places where you see an infestation of fungus or bacteria or mold or aphids etc. Do not use it in all your soil or you will kill a lot of good microbes as well. ~ Darryl

Thanks Darryl. I used to use all over the wowchi bhaji and ultimately the plants died. ~ Augusta

That's learning from experience. □ ~ Darryl

I have lots of white ants / termites here. They attack the dry leaves & twigs. Any remedy? ~ E

I've been trying neem oil water spray and cow urine water spray and it has helped but not eradicated the problem. Anyone doing something else that's working? ~ Darryl

Salt. We always had this problem, (still have back home) but we used salt and somehow they were contained, ash too sometimes. ~ Judy

But won't too much salt kill the plants? ~ E

No the watering perhaps dilutes it down. And sea salt please. ~ Judy

Try keeping fowls. ~ Cyril D'Souza

Chickens are a help, to some extent, but then, they create other problems like eating the leaves & digging up the beds etc. ~ E

Oh yes they dig up the whole place you can use them before planting. ~ Judy

I had been using Gobor that is ash that we get after burning wood or dry leaves. Use just a little on the leaves. ~ Ana

Are there any leaves that should NOT be used for mulching? Have noticed that stuff does not grow around bamboo plants. ~ S N Menzes

I think there are some, but don't know which as yet. ~ Darryl

Topic No. 14. How to build a natural fencing system that also gives produce.

I've not yet done anything good with this except noticed that traditionally in Goa we used to grow cactus around the farm plot or built the mud walls around them. There's got to be something better we can do here. I've heard of thai ginger. Some live fence that we can get produce from. Anyone done this? Please share. Thanks! ~ Darryl

Fencing should be sturdy. Thai ginger has only leaves above ground. How does it help? Btw, I have a patch of Thai ginger that is 2 years old. How is it to be processed? Normally, Gliricidia plants are used for live fencing. They are planted around 2m apart and barbed wire attached to them. Fact sheet - Gliricidia Sepium

<https://goo.gl/images/N4Bmfi> ~ S N Menezes

Sorry, not tried thai ginger as a fence myself, so will ask a friend who said she used it. Will share the details here. ~ Darryl

I've planted katuk as a natural fence. Leaves are edible. Even can add to your mulch if it's too much to consume. Well it does turn out sturdy but effective against house dogs. ~ Gloria

Any suggestions for keeping pet dogs and moreover pet & stray cats away from plant beds & plants? ~ Eva

Please could you post a picture of katuk? ~ Clara Vaz

Sauropus androgynus a.k.a Katuk <https://g.co/kgs/TAjZsx> ~ Gloria

Does cows eat them? ~ Naina Ray

I'm sure. If we can eat cows will. ~ Gloria

We use Gliricidia extensively for natural fencing. Prune it in June for green manure and then again in September. Refer to image of someone's farm here

<https://drive.google.com/open?id=1zSDUFbW4qSQVGffZZnExZnPyd11BUGK> ~ Arjun

When do u plant them? ~ S N Menezes

Best time is when monsoon hits . Else mortality is high. Plant 1 foot apart to create a dense fence. ~ Arjun

I want to know which are the plants cows don't eat. ~ Naina Ray

You could try the Multivitamin plant as a fencing. Dual purpose edible as a vegetable, chutney and 3 - 4 leaves in morning as a multivitamin. Also serves as a fencing coz it spreads densely. ~ Maria Nifa

I have lots of the multivitamin plant in my garden. Used it mainly for nitrogen fixing. It is also called sweet leaf. Like some plants, it has toxicity, so don't eat it more than once a week. We cook t like a normal bhaji, with onions and garlic and dal. They need height trimming once In 15 days. Only the leaves are to be cooked. Problem is that they are very thin stalks and even if you plant 2 inches apart, they will still need wire binding to make a fence. Cow will be able to knock it down easily. So this one doesn't qualify for me as a fence. ~ Darryl

Please suggest one of its kind. ~ Sattam Kakodkar

Does this multivitamin plant yield small berries? ~ Gloria

Yes creamish pink. ~ Maria Nifa

Multivitamin? The one having white in the middle. Is this multivitamin plant? Please answer me as one has just cropped up in my garden. Refer to image here https://drive.google.com/open?id=1JOt98t326J7Svt7BYKrr-96JA_Xavdbq ~ Sophia Fernandes

Any input on Katuk, Darryl? ~ Gloria

No sophie I don't observe the light variegation. But i've forwarded from google a picture of Katuk. It grows quickly. You can keep making cuttings and add to the density of your fence but it is not sturdy like gliricidia. I've used gliricidia as living posts. White ants don't eat them up as fence posts. But they need to be kept in trim. But can

grow wild and take over your garden. The leaves are good for my mulch so I keep cropping them. What is botanical name of vitamin plant please? Can you post clear picture? ~ Gloria

What I have heard. Gliricidia is also a nitrogen fixer. Very good for the soil. ~ Casey (I Am Blessed)

Yes, we have used Gliricidia for fencing and for nitrogen fixing in the soil at our community farm in Calangute. In between the nonmetallic barbwire. ~ Darryl

Secondly, I don't mind having something nutritious which the cows can eat too, at the boundary. What are the options. After all their cow dung makes my soil rich. ~ Casey

We also use mulberry plants as bordering. They grow from cuttings and produce fruit. You need to water them though. ~ Arjun

Somehow no satisfied with solutions for yesterday's Topic No.14. How to build a natural fencing system that also gives produce. Has anyone grown bora trees as a natural fence? It's a pretty nasty tree that will keep cattle out, only thing we need to do it trim it regularly I guess to allow it to grow till 1 metre height or more for fruit bearing. Anyone done this? ~ Darryl

I have seen decorative bamboo as fencing very pretty but expensive. ~ Saira D'Mello

Thought of that, but the price was the problem. ~ Darryl

Or Zomgam plant. They are the red berry sort of fruit. The plant has spikes. ~ Edwin Pereira

Zomgam trees is difficult to grow, it will be thorny unless grafted, difficult to handle in long run when it will grow big tree. ~ A DCosta

Can you share a pic? Their growth will be limited by pruning, so no worries hopefully that they will become big trees. ~ Darryl

We have a couple in our backyard at Calangute. I Am in Australia at the moment but will try to ask someone to click a photo. ~ Edwin Pereira

But doesn't this become a big tree? ~ Marizitchagas

Well, you can also plant normal bamboo. S N Menezes

Thought of this too but then wondered I've never seen bamboos grow in a line. The moment they're established, a big circular colony comes around them just like banana trees. Bamboos suck hell of a lot water from the ground. But still open to bamboo variety that grow singularly, anyone got these? ~ Darryl

We remove those that step out of line. But you need 2-3 rows for it to be effective. We have it on the border but not as a fence. ~ S N Menezes

A neighbor of mine in Bangalore used to grow the moringa as fencing. Of course she trimmed it time to time. She wouldn't allow it to grow tall as a result even the drumsticks could be plucked and yes it served as a fence as well, all neighbors had a fair share of the produce. I am not sure though but I think cows don't eat those leaves. ~ Judy

Ok. An option, but cows eat those leaves. That's why you won't normally find any moringa tree that has leaves below 5 feet. ~ Darryl

Sounds good. Cows may eat the leaves but they might still keep cattle out, once they are sturdy enough ☐ ~ Giselda Menezes

I just got this info from Somnath Jha in another group - Darryl, I'd recommend the Lawsonia Inermis shrub (Henna or Mehendi). It makes a robust (upto 2 metre high) and dense hedge. It's a natural pest repellent, while it's fragrant white / mauve flowers are a favourite with bees. It's a useful plant to have in your garden, not just for the henna, but also it's useful ayurvedic applications. ~ Darryl

Ohhh. Pest repellent too!!! Didn't know that!! ☐☐ Actually my parents used to have mehndi plants as fencing. They still do in fact, even though they've now put up a brick wall. Dunno why I didn't think of it before! ☐ But it wasn't really effective at keeping away the pigs and dogs. They used to manage to damage the plants and squeeze through. We used to have bougainvillea too. That was thorny and seemed to help better if I remember correctly! ☐
~ Giselda Menezes

My neighbor here in Margao has mehndi as fencing and I didn't think of it earlier. And thanks to this message I now know it's other benefits also. ~ Judy

Can bougainvillea plants be used for fencing? Just a query ☐ ~ Sujata & Sahitya

Sure. But need to be maintained as they keep growing out of control with long branches. ~ Angelo Pais

I tried. It's too lanky and grows in different directions. Though it can be trimmed, but the stems are not good support. ~ Darryl

Thorns that grows to these plant, one day will poke someone who trim these. ~ A D'Costa

There is one plant that grows bushy, smells bad, gives bunches of beautiful small flowers, known to be not eaten by animals. They are called Ghareniam, meaning stinky ones. Sorry, "ghaneriam" in Konkani. They are firm, hardy and very good for hedging. Saligao Seminary had these and probably still have. ~ Angelo Pais

Yes Ghareniam or Camara Lantana comes in different colours. Could be used as a fencing plant. Refer to image here https://drive.google.com/open?id=1SaNV97n26Ro7i_2n7y3aaSm5cu32B9Bq ~ Maria Nifa

It's used as hedges in gardens in Delhi. Recognised the pics / flowers. Look lovely. ~ I am Blessed

What about pineapple plants as a fence? ~ Lourdes D'Souza

Please advise how pineapple has to be watered and cared for. Also how long does it take to fruit after the flowering begins? ~ Augusta

They take two years I think. ~ Gloria

It takes 1.5 to 2 years. Some fruit every year or alternate year. I will post some pics tomorrow. Watering is required at least alternate days. Not much care required. You have to plant the side shoots of the crown they fruit faster. ~ Maria Nifa

Hedge plants ought to need less watering. ~ Saira D'Mello

Pineapple plants need good watering. And not much care. ~ Lourdes D'Souza

What about mother in law's tongue for a fence. Cows don't eat them. ~ Sarita Winnifred Peris

Wow! Send a picture of this one please. ~ Darryl

Refer to image of Mother in law's plant here <https://drive.google.com/open?id=1FRRBVilgdNsPdAv5MJ1tPPkX6DsSpOa> ~ Sarita Winnifred Peris

It does not become a tree. Only decorative purpose. Some claim that it repels snakes but I have seen one wiggling through them. ~ S N Menezes

Gives oxygen while cleaning the air. Good to have inside the house. ~ Casey

Btw, yesterday I saw the bhende tree used as a fencing. Fast growing but since it is trimmed you will not get economic value. ~ S N Menezes

Topic No. 15 - The difference between growing on settlement land and field area.

Settlement land is much higher than the normal water table that is available at our fields in Goa, so it is drier land and needs some system to hold water, otherwise the land will need more watering daily. My house is on settlement land and 10 feet higher than the field level. People who are growing bananas, coconut trees, beans, turmeric, chillies and all sorts of other veggies water the field once in 2 days or 3 days, while I have to water every day. That's why I used in-situ composting beds all around my growing beds, so that they retain water that will be available to my plants at the rooting level – 3 inches to 1 foot in the ground. Settlement land has much lesser problems of cattle coming in and eating your produce, or peacocks or snakes etc. but it does have the rats problem since we throw food around the place. Anyone else would like to mention some more considerations for settlement and field areas? ~ Darryl

Settlement land is normally red soil while fields are sandy or soft soil. I had problems of cattle, pigs and dogs in both areas and have now fenced them both. In settlement, you can grow longer duration crops or fruit bearing trees while your field produce has to end before the rains. ~ S N Menezes

Not necessarily true. The beach belt is all sandy soil even in settlement areas. We have major issue with water retention on account of sandy soil. Even nutrients get washed away since the absorption power is low. Good point. Certain trees and plants requiring more water can be grown on mounds in fields. This gives them access to water and prevents rotting in the monsoon. ~ Arjun

On settlement area close to the beach you get a sandy top soil with red mud after 1 foot depth. Inland you get red mud. Solution for both is dig to 1 foot deep or more and mix 50% vermi / kitchen compost + 50 % cocopeat or crushed leaves and small twigs with it. ~ Darryl

I suppose in situ composting and mulching becomes the solution. Over time, it will change the character of the land for the better. ~ S N Menezes

For first time cultivation use 5 kg vermicompost and 5 kg coco peat per sq. mt. - heard this in a kitchen gardening workshop. ~ Siddharaj Nayak

So far a 200 sqm plot like Darryl's, u would spend $200 \times (5 \times 15 + 5 \times 200) = 55000$ besides labour??

I suppose it would make sense for say a 20 sqm plot but not viable for bigger areas where other composting methods may be better. ~ S N Menezes

Ofcourse. ~ Siddharaj Nayak

Something is wrong with this equation = 5kgs vermicompost + 5 kgs cocopeat. 5 kgs cocopeat is too much. When you break down the cocopeat block or use loose coco peat powder then 5 kgs is so much. We need to mix by volume 5 kgs of vermicompost + equivalent volume of cocopeat. The cocopeat usage price will come down. ~ Darryl

Ah, yes! The 5 kg block will expand to 75kg (theoretical claim). So, for a 200 sqm plot, cost is $200 \times (5 \times 15 + 5 \times 200/75) = 17,667$ ~ S N Menezes

And this much also I'm not prepared to do because I'm doing in-situ for free □ it for someone who is ready to wait for 2 months in the beginning. After that every week one can take out ready compost and put in wet kitchen waste + some dry leaves n twigs + cow dung water + cow urine water + some bone meal etc into the same spot from

where the compost was taken out. Next time do this for another spot. Go round and round your plot take out nutritious compost every week (that had been sitting for 2 months). We've already jotted down our pathway the first in-situ pit that was made 2 months back, comes out first ☐☐ ~ Darryl

Could you share what is the normal coco peat and soil ratio generally. 1 is to 2. 1 cocopeat to 2 soil? ~ Vanessa

Absolutely! In 1 month's time I will be shutting down my composting pit and will also give up the use of vermicompost in favor of the more nutritious kitchen compost being layered inside my in-situ compost pits. Will also be adding cow dung water in and cow urine water in for fast composting. This is better as the dry leaves and twigs in-situ compost is nutrient deficient. Please note this comment everyone. ~ Darryl

Topic No. 16 - Watering systems

We still use the traditional system. Have been conflicted between shifting to drip or sprinkler for plantation (trees and veggies) and field (veggies). Some say that in Goa heat the water drops from the drip evaporate before they reach the ground while sprinkler leads to excess growth of weeds. ~ S N Menezes

Can you explain what you mean by the traditional system of watering. Hosepipe / watering can? ~ Darryl

Yes. I have laid a PVC pipeline throughout the property and the watering is done by connecting green flexible hose. ~ S N Menezes

Oh yeah, a crazy amount of weeds. Also sprinklers do not suit all types of veggies. And can often become obstructed as the taller veggies grow. ~ Kenelm Santana Lopes

Also, contacts of reliable person who can set this up. When we joined this group there was some info of drip kit packs floating around for small areas. There is something called as drip tape too that is cheaper but lasts for 3-4 years. ~ S N Menezes

So the reasons why I stopped can watering / hose pipe watering - began to see flowers drop of from the hit of the water stream - some plant leaves like tomato began to get fungus on them due to the humidity - too much time spent for watering - moving the hosepipe around began knocking down some of my saplings. So I went to Vasco to the drip irrigation dealer and listened to his big talks of their person first coming to see the plot, then their charges for drawing up the layout and fixing the piping system (their team not available easily etc) and finally having to buy the expensive black flexible pipes with the pre-fixed holes. So I got fed up of all that and just asked him to give me the 16mm black flexible pipes 200 mtrs, some tee junctions and angles and drop down adapters and walked out of there. Then next day me and my helper went and got pvc pipes from the market and completed the piping for 100 sq mtrs within 4 hrs. Next day we finished the next 100 sq mtrs in 3 hrs. Punched in the holes with drawing pins exactly at the location where water was needed. It is no big deal. If anyone wants to come over and see my setup, please come! Ok, I'm going to start the watering in 1 hrs time. Will shoot a small video and share it here for all of you ☐☐ ~ Darryl

When holes are punched. 1.Do the holes at the end of the pipe get less water? 2. Do the holes at the start get more water? 3. Can a pressure pump be used? ~ Saira D'Mello

So now it takes 45 mins of drip irrigation in the evening time to water both my garden patches (no evaporation of water drops happens because the temp is down. Anyways, watering when the sun is there is not a natural principle (it never rains when it suns). I don't use any pump. Just the overhead tank at a height of 5 mtrs does the job. Sometimes I do a bit of can watering when I feel dust has got onto the leaves and they need a bath.

1.Do the holes at the end of the pipe get less water? - No, you will see this in the video. The full line gets pressurized first then the flow comes out of the holes.
2.Do the holes at the start get more water? - No, the holes with the bigger diameter get more water coming out. So at the end of the line you can make the next size hole. Will show my 3 sized hole pins in the video.
3. Can a pressure pump be used. - If you have an overhead tank even at 3 mtrs head, it will do. No pump required. Save electricity. ~ Darryl

Pretty much what we did Darryl. To reply to Saira's query, it would depend on the strength of your pump and the distance the water has to travel. Trial and error really to find what works for you. ~ Gloria

I've had for a few years now a watering system of sprinklers run by a pump and a timer, 15 minutes every evening. Now that I have removed my lawn and changed to a vegetable garden I am planning to fix drips and remove the sprinklers. I feel that besides too much growth of weeds, sprinklers may also reduce fruits as they would wash off the pollen from the flowers. I'm wondering if what I think about the pollen being washed off is correct! ~ Angelo Pais

Ok. Yes, the drip system will be better. Sprinklers will cause a bit of pollen drop off and the water hose system and water can system also causes dropping of flowers, so finally the fruiting is less. ~ Darryl

Why not devise your own home grown drip system. We have set down black irrigation pipes and punched holes accordingly. When pump is put on, the garden gets watered with the watering hose manually while the drip system simultaneously drips in the beds. Tried sprinklers did not work for me. ~ Gloria

That's what I have done for part of the garden. I want to know if the concept of losing the pollen with sprinklers is correct. ~ Angelo Pais

Need to check from a beekeeper. ~ Gloria

Melvin in mapusa. ~ Vanessa

Not heard about it. ~ Carmen Desouza

Suprajit Raikar Honey +91 96899 24767, Melwyn 9890961831. The 2 beekeeper contacts. ~ Vanessa

Intensity of honey gathering gets reduced in monsoon so there could be a connection. Pollen is food for the bees. ~ Gloria

Even the flowers could get knocked off?! ~ S N Menezes

Yes. But which watering system do you recommend? ~ S N Menezes

Drip irrigation ☐ ~ Giselda Menezes

To be on a safe side I would have sprinklers putting water on the roots and not on the plant. ~ Carmen Desouza

Drip system? ~ Savio D'Cunha

I second that. Plants need water at the roots. ~ Gloria

So this is my drip irrigation system at home. Refer to video here

<https://drive.google.com/open?id=1UhRp1MuAoP4mKzp5JSCvWi0V5KL6cf20>

To make one yourself, you will first need to draw out your piping layout, measure the amount of pipe you need, how many tee junctions, how many angles, reducer adaptors etc, and then go shopping. In the video I forgot to show you the pipe ends. These are the pins I used to make the watering holes. Refer to pins here

<https://drive.google.com/open?id=1YBSNZdtaLg8Cs6yfr6EwqGU2azHFfJ01> Small pin for the closer holes. Bigger pin for the far off holes.

Refer to the pipe end here https://drive.google.com/open?id=1_RF7AfKdEqAV1auQ8XKdtlhFx85JsrRc that yellow circle in the pipe is actually a drawing pin shoved in an extra hole that I made by mistake. ~ Darryl

☐☐What was your approx. cost for setup of the pipes and drips? I was given a quote for 45,000 for 1000 sqm some 3 years back. ~ S N Menezes

I think Rs.3000 for my 200 sq mts. I did it myself, so no labor cost. ~ Darryl

16mm pipe was how much Darryl? ~ I Am Blessed

If I remember correctly, I bought the 100 mtrs bundle for Rs.800, so Rs.8 per metre but I'll need to check the bill, don't know if I'll ever find it. Please call up the supplier Kartik Enterprises Ponda 9822020591. Sorry! The supplier was in Ponda and not Vasco as I mentioned earlier. ~ Darryl

Darryl. In your veg patch (example just 1 patch) do you have several capillary like pipes coming out of the main pipe to feed every inch of earth / every plant? Or does just 1 pipe leading into the patch feed the entire patch? ~ Saira D'Mello

I have 2 plastic pipes of 16mm running lengthwise of my 3 foot growing beds, with drip holes at every 9 inches or so. The pipes are placed so that the dripping covers the width of the bed. ~ Darryl

Hi Darryl, have you clamped down the pipes? Or do they just stay in place? ~ Carlton

We've first laid each pipe. Then taken a 8 inch bamboo stick and shoved it 6 inches into the soil touching the side of the pipe. Then tied the pipe to the bamboo stump with nylon thread. Instead of bamboo you can use something else also. Drip holes with closer proximity to plant roots were punctured on top after the entire pipe was laid. ~ Darryl

What I did is took a 16mm pipe the required length. Keeping the longer on top I made two holes on the sides at 8" distances along the full length of the pipe. Then laid it along the bed. My plants are planted at 8" intervals. So with one pipe I get two rows of plants watered. ~ Angelo Pais

What is the size of the tank and how much water is needed for the patch? ~ S N Menezes

My overhead tank is 1000 litres. We used to use up almost the entire capacity earlier with once a day watering. Now with in-situ composting pits we are trying to limit to 500 ltrs. ~ Darryl

Darryl. For the drip system, would the pipes have to be free & liftable? So as to allow lifting to add soil/ compost to the plants? Or else the holes will get clogged. ~ Saira

Yesterday I had explained that I make the drip holes on top, so yes, the top of the pipe should be free of soil. Secondly, I also explained that after every 1 meter I anchor the pipe in the ground by sticking a bamboo piece in the ground next to the pipe and tying the pipe to it with a nylon piece of string. This will allow lifting the entire pipe at a later stage for soil filling etc. After filling new soil just lay the pipe back in place and push the bamboo back into the ground. ~ Darryl

Topic No. 17 - Plant growth supporting systems.

By support systems do you mean structures or companion planting? ~ Arjun

Physical supporting systems for creepers, like a trellis or just ropes, or bamboos supports etc.

On this, I've been doing the following in my garden:

1. I have thick GI wire above my garden patches, on top of which I put a thick plastic sheet during the rains, so that Goa's heavy rain drops don't bash up my vege flowers. In other seasons I take off the sheet and the wire remains, so we tie thick nylon strings or ordinary rope to it and bring it down to the ground level and tie it to a short bamboo stick that is shoved in the soil and this becomes the support for a creeper. Refer to image here

<https://drive.google.com/open?id=1p8MCR5q7lXmkfD55AxATWYPdvcFuVxt>

2nd support system is just 1 foot away from the wall, we stuck bamboo sticks in the ground and tied a rope from them to the roof beam and that allowed the passion fruit trees to creep. Refer to image here

https://drive.google.com/open?id=1y3d4SuUzfoP3umT_WPoJK1WvoaxflRXD ~ Darryl

Could this be a concern? We have had snakes coming up to our window sills and passion fruit provides a good habitat. ~ Arjun

Oh! Then I should not do more than one closeby. And also should not allow them to creep up to the top where they can get into the tiles. I should have given them support only till some height by putting a bamboo support across. The bamboo gets its support from clamps in the wall. Refer to image here <https://drive.google.com/open?id=1DTL75roSBd0QC2Utqe5OEE2GTdSDehH9> ~ Darryl

3rd supporting system is we just shoved 4 feet bamboos in the ground here and there to support the tomato trees and a couple of longer bamboos to reach the top wiring system, so that any creeper can get to the top supporting lines. Refer to image here <https://drive.google.com/open?id=1awsxYzdxrGbOQZ4NpokkmViFW4oM8egI> ~ Darryl

We let the passion fruit grow on a guava tree that we did not like. Otherwise we grow on the "matto". ~ S N Menezes

Yet to make a trellis system like this where max sunlight harvesting happens on top and filtered sunlight below for plants that don't like too much sun. Refer to image here <https://drive.google.com/open?id=17kTCTE5C2dbmg51ovp0ClbGZkpycbWo2> ~ Darryl

We use branches of mango from pruning. Refer to image here <https://drive.google.com/open?id=1I2u8IqMLmSN93HMorlUD5e4tkgY6-oSJ> ~ Arjun

□□ They don't dry up and break from the weight in some time? Or maybe you're putting thick sturdy branches? Anyone else can share an interesting tree support system you use? Anyone here having a nice trellis system? Post pic please! ~ Darryl

For climbers like Valchi Bhaji I use of net or two bamboo or any other poles fixed vertically and tie waste cable on zig zag manner between the two poles. Can't send a pic now as I'm not at home. Fiber optic cables are very strong and freely available as waste on the roadside in Panjim. Old telephone wire can also be used. ~ Angelo Pais

Would it not be better to use organic supports? I'm not trying to rain on your parade. Just taking on more objectionable stuff to dispose off later. ~ Gloria

Since it is long lasting, you are actually doing a service by reusing rather than it going as waste right away. ~ S N Menezes

I suppose I should have made a mention yesterday, so please excuse me; - Our pepper plant grew very well on the teak, just be careful when you happen to trim those teak branches. A sturdy tree as a support. Thanks. ~ Judy

Here is useful info on one of our earlier topics - supporting systems for plant growth by Robert Graves on Facebook pic below□□

"Garden supports" enthusiasts can fashion them out of reclaimed materials such as bamboo, baling twine, untreated wood, netting, fencing, gates, chicken wire, a discarded bed frame or a ladder. □

Even with no growing space, gardeners can take advantage of vertical gardening by transforming a wall into a living wall. Living walls absorb heat, reduce noise, improve air quality, and can rival beautiful works of art. When installed outdoors, they also create habitat for hummingbirds, bees and butterflies. □

This type vertical gardening is great in urban areas where many homes and apartments have limited outdoor space. Want to multiply the number of plants you can grow in a garden or on a patio or deck? Grow up! Vertical gardening, a technique to cultivate plants up surfaces or supports, is the perfect way to squeeze lots of plants into a small space. Growing up, rather than out, offers countless other benefits beyond higher plant yields. □

"Le Mur Vegetal" (or Vertical Garden) by Patrick Blanc in Paris. Blanc is known as the father of the vertical gardens, through which he combines artistry and botany to accomplish astonishing transformations of urban spaces.

..... □ Vertical Facts

- Higher plant yields
- More plant diversity in less space
- Less weeding
- Less bending and squatting
- Easier tending and harvesting
- Plants have better air circulation and access to sunlight, which means fewer diseases and pests
- Better access for pollinators
- Less need for expensive soil and amendments
- Visual intrigue and the ability to hide unsightly views
- Beautiful art
- Using sunflowers can serve as sturdy supports for cucumbers. To grow these companion plants together, plant cucumbers around sunflowers when the flowers are about 12 inches tall. With some creativity, gardeners can devise any number of other unusual, beautiful vertical gardens. No matter which garden you construct, you're sure to benefit from growing upward.

These are very good ideas for a terrace garden. Pots at the bottom and creeping systems on top. They can also be close to each other as there is ample sunlight on the terrace. Please ensure that your terrace waterproofing is of good quality or you may see water seepage after a couple of months. Refer to supporting systems for plant growth here https://drive.google.com/open?id=16fBq1BeRe0D7XRYxeroPoqaM_aGWWICg ~ Darryl

Has anyone here made a vertical garden? ~ Yolanda

Topic No. 18 - Pruning trees to maintain them well.

I have a lime and guava tree which I would like to prune. Please give me your suggestions on how to do so and when is the right time to do it. Thanks ~ Melita Frank

I have not done pruning regularly but had attended a session on pruning at kvk 2-3 years back. They covered guava and mango. The suggestion was that after pruning you will get the fruit of guava in 6 months. So you should calculate when you want the fruit and prune accordingly. While pruning, remove all weak and dead branches and anything that criss-crosses. If your guava tree is too tall, hard prune it to 1.5m above the ground. (Personally, I am always apprehensive about the hard pruning). If there are big branches knocked off, apply cow dung slurry or Bordeaux mixture as fungicide. If you do not want the branch to grow again, cut at the joint. Else cut just after the nodes. After doing the pruning, manure the tree. ~ S N Menezes

We prune mulberries also in a similar fashion. The best time to prune is before the monsoons and in late early September if you miss the summer pruning. For larger trees. Do not cover the chopped branch. It needs to dry out, so the summer heat is the best. Cuts have to be made at a 45 degree angle so that water drains off and does not enter the tree where it will cause rot. Apply the Bordeaux mixture as suggested. Before the rains hit. Use fevicol and seal the cut portion to make it waterproof. Sometimes we wrap in plastic which can be detrimental. Use a saw to get a clean cut. If you are keeping your mango graft trees to a small size. You need to cut off the main branches that are at say 4 MTs height. Once the shoots appear. Select a few sturdy ones on each branch. 3 max. And cut off the rest. Otherwise you will land up with thick foliage. ~ Arjun

Happened to my chikoo tree. Now how to remedy it? The tree stopped profuse fruiting since my cropping. ~ Gloria

Trim the excesses. ~ Arjun

There is no benefit in pruning chikoo unless it is harming you in some way. Refer to pruning of chikoo here https://drive.google.com/open?id=14FqAmROQD7Dbdpb5K7dH_kpTB41fl85Z ~ S N Menezes

We cut only the top branches which are difficult to get to. ~ Arjun

Same problem we faced four years ago. For two years no fruiting and then we had plenty of fruits. ~ Augusta

While cutting, make sure you have made an incision on the underside maybe an inch deep. This will ensure a clean cut. ~ S N Menezes

What is Bordeaux mixture? ~ Joe PrestigeGoa

It's basically a copper and lime mix. Anti fungal. ~ Arjun

Is it readymade? And if it is where can I get some? ~ Joe PrestigeGoa

Garden stores. ~ Arjun

For large trees, you may do the pruning in parts i.e. half or one third tree every year. So you will get some fruits at least. ~ S N Menezes

Need someone to prune trees. Any contact? ~ William

When is the right time to prune trees ? ~ Sarita Winnifred Peris

You can prune right after you harvest the fruit provided there is no threat of rain or cold weather. So oct-nov and end Feb to early May. Another point to be noted while pruning large mango trees: Prune if you notice marked reduction in yield. 30% sunlight should come through the canopy. ~ S N Menezes

Topic No. 19 - Signs on leaves / stems / soils to watch out for before disaster strikes.

Any idea why this papaya tree of mine is suddenly dying with yellow leaves? I tried trichoderma in the soil also neem oil, when I planted it, but it has not worked. ~ Darryl

I have been trying to grow papaya for the last 25 years. One grew well, gave me lots of papayas for about three years, started dying. I put salt around, it survived, gave me papayas. Started dying after about a year. Again I put salt, it survived and gave papayas. Started dying again after about a year. I put salt, but this time it died. I have tried planting many times. They grow beautifully, healthy! They give papayas, but even before they ripen, the tree dies. I tried to find out from ICAR. The officer told me that they were aware of this, but still did not know either the cause or the solution. I'm still trying. This time I want to bury neem leaves around, every 15 days to wade off white ants. If I succeed I'll let you know. ~ Angelo Pais

Do you transplant them or allow to grow where they have germinated? ~ Judy

Tried both. ~ Angelo Pais

Oh, coz many times they do not grow after being transplanted. ~ Judy

American Phytopathological Society

<https://www.apsnet.org/edcenter/intropp/lessons/viruses/Pages/PapayaYellow.aspx> ~ Atchut Kamat

Darryl, If you could ask Miguel. ~ I Am Blessed

Miguel's solution is to spray milk on the leaves. ~ S N Menezes

Ok Thanks! ~ Darryl

Raw cow's milk which hasn't been pasteurized, if I remember correctly. ~ Giselda Menezes

My two fully fruit laden papaya trees of one and a half year started to die similarly with two weeks. We had eaten several fully tree ripened fruits and we're disappointed to see the trees dying at such a fast rate. Both were ten meters apart. ~ Augusta

White ants could also be one of the reason for it. ~ Tariq Perviez

All out trees start out in a similar fashion. Healthy and then die out. Apparently it's some kind of a viral that can't be cured. ~ Arjun

Yes. So we were told. ~ Giselda Menezes

This is what the agricultural dept told me some 4 years back. I was advised not to plant papayas for couple of years. But even now it is a hit and miss. Anyway, we get only one cycle of fruit before the tree dies off. Someone had suggested planting Tulsi around the tree. It worked for him but not for me. Darryl, could you add a topic on manuring - frequency, type, quantity... ~ S N Menezes

Yes please some of my leaves are scorching I suspect on account of over manuring. ~ Vanessa

If that is the case then we would not be getting papayas in the market. ~ William

Most of them are from Karnataka? ~ Arjun

Or places that aren't affected by the virus. ~ Giselda Menezes

Yellow mosaic virus in air, no papaya are growing or will die and the fruit will be tasteless. Only red Lady papaya variety will grow. ~ Savio Dcunha

Farmers in Kerala use coconut oil for yellow mosaic virus. I've tried it successfully twice here in Goa and in once Nagpur. The affected leaves don't turn green again but it gets new strong growth which is not having the disease. Maybe we could try and share the results. One tablespoon of coconut oil in one litre water add one or two drops of liquid soap. ~ Ambrose Vaz

Nagpur climate is very harsh. How did you manage? ~ William

Was visiting my sis in laws' family and I noticed this plant in their garden and tried. Don't remember if it was summer or winter. ~ Ambrose Vaz

Spray on the entire plant or only affected leaves? ~ S N Menezes

Spray on the entire plant. ~ Ambrose Vaz

And is it to be done one time or repeatedly? ~ S N Menezes

Maybe do it when you notice any sign that disaster is about to strike. ☐ ~ Giselda Menezes

Yes. Spraying Coconut oil won't harm the plant. ~ Ambrose Vaz

Where to get saplings? ~ William

East west nursery in Verna said that they had them 70/- each I think. ~ Arjun

Any place in bardez? ~ William

Those who are dealing with zuari agro company, in mapusa find out with Dahanukar. ~ Savio Dcunha

For red papayas? ~ William

Seeds ~ Savio D'Cunha

What is the cause of blackening and hardening of custard apple fruit? Any solution? ~ S N Menezes

Xmas tree in front of our house is shedding its leaves. Never happened before. What may be the reason and what are the remedies. ~ Sujata & Sahitya

Some reason may be because of over hitting of soil, rocky area, cover it with coconut outer shell or mulch with leaves. If termites are there in soil put mintox insecticide will find in Goa Bhagyadhar Mapusa or Panjim. ~ A Dcosta

The leaves of my avocado plants dry in the summer, already started , I think they require water n shade. ~ Ivone

Yes ~ Arjun Rebelo

Can't transplant them now, but I have a teak tree close to them an cashew tree too. Must be they emit heat ~ Ivone

Nothing will do well close to teak. ~ Arjun Rebelo

Oh, but I have a coconut tree there too. ~ Ivone

Oh didn't know this. What about veggies close to a teak tree, would it affect those? - Judy

Reason please. How close is too close? ~ Gloria Assagao

You should not plant teak wood plant close to your house, those are jungle trees, also the wood or furniture made should not be used in homes, as said to have health problems. ~ Savio

Teak pollen is known to be problematic for people with allergies and asthma. ~ Arjun Rebelo

Thanks for that input, heard about it before but I think Australian acacia is even worse for pollen so I have a neem tree to counter it ~ Ivone

I've heard that it's roots competes with other plants for nutrients and water. As in, it kind of sucks up all nutrients. ~ Giselda

Besides that it's not good when it's seeds and leaves fall into wells. ~ I am blessed

If so then I do not understand how the pepper thrived on it. ~ Judy

Maybe because pepper roots are not as deep. ~ Giselda

Would like to know why my tomato plant dies even after getting fruits as in the pick. They grow well started giving tomato's and suddenly start drying. Any suggestions. ~ Charles D'Silva

Wilting tomato plants. What causes tomato plants to wilt and die? The veins of the leaves are lighter. I think its a fungal wilt. Check this article <https://www.gardeningknowhow.com/edible/vegetables/tomato/wilting-tomato-plants.htm>

While watering tomatoes, try and avoid watering the leaves. Because if moisture remains on the lower leaves, they get susceptible to fungal infection. I read this somewhere, long ago, but can't find the link. ~ Giselda Menezes

Quite possibly over watering? ~ Arjun Rebelo

Soil nutrients got over or too much watering. ~ Darryl

My simla mirchi forgot to take colour. Can someone tell me why? ~ Gloria

Simla mirchi, these are green variety, some are with yellow & red hybrid variety. ~ A Dcosta

Very right. It depends on your seeds. Most local varieties are green. The colored ones are hybrids. ~ Darryl

Can we grow red capsicum out of seeds from the red capsicum we buy from the market? ~ Augusta

Yup! If your soil nutrients are good, it will come out red. If it was from a grafted plant, they it may be just light red or even completely green. ~ Darryl

To get a good crop of Simla mirchi bury a full match box near the plant. ~ Lourdes D'Souza

How does this help? ~ Nathan D'Souza

Phosphorus I guess...☐☐♀ ~ Giselda Menezes

It's the sulphur ~ Lavina Periera

Topic No. 20 - How to eradicate attacks on your plants and soil.

Topic No.21 - Natural pesticides.

So basically it is an extension of yesterday's topic Signs on leaves / stems / soils to watch out for before disaster strikes. Thanks to all who contributed yesterday with some good practices. ☐☐ So we'll continue with this topic today also pest detection, elimination and natural pesticides. Please share everyone. ☐☐ ~ Darryl

Hi all this morning I found all my pepper creepers died out. I don't know if it's a coincidence, the custard apple and bulls heart same issue. This is the issue we were facing on papaya. What could be the possible problem? ~ Arjun

They do shed their leaves. So maybe they will recover. Did you check for life in the branches? ~ S N Menezes

I'd be grateful for guidance as to planting new pepper cuttings. I've made the mistake of planting pepper on a coconut tree. It grew well but poses problems when plucking coconuts. This time want to plant around the arrack nut trees. Was trying to see how your pepper touched the ground arjun. Pic you posted does not show. ~ Gloria

I think it is not watered properly. But if it dried up all of a sudden, it could be that the plant got cut off at the bottom of the tree. This is according to the Agriculture Dept. of Goa, refer here

<https://drive.google.com/open?id=1bLan0PwjgZqeMopDXqMT5j7qhBhq4Ujk>

<https://drive.google.com/open?id=1R8abFIBbh4eKGpCiqWqzT7nsC2aGlz2P> ~ Angelo Pais

Omg! ☐☐☐ Something like this happened about 2 years ago to our 3 year old nutmeg trees. I think it was during the onset of monsoons and we still don't know what it was. ~ Giselda

How do you save them from the bats, squirrels etc? (with reference to bulls eye fruit / ramphal) ~ S N Menezes

Slit a plastic bottle & slide fruit into it. Definitely keeps bats away. 98% effective. I have used the same method for custard apples etc. Too dark to take a picture now, will try tomorrow morning. Refer to image here

<https://drive.google.com/open?id=1f68sONtmITcCcYrGF5FwcuNG3ls1ZR3g>

<https://drive.google.com/open?id=1h9kHld35E-bYpW-YJki63f4hCImGa-8N> ~ E

Excellent idea. ~ Arjun

How to make plants and soil resilient to diseases. Download link to the Plant Health Pyramid chart for a legible copy : <https://www.advancingecoag.com/plant-health-pyramid>

Refer to chemistry of vegetative growth, reproductive growth, photosynthesis, protein synthesis here

<https://drive.google.com/open?id=10E8mipPIG1p5wFTx3TD1SBKNDpafAQLa>

Specific nutrients that trigger specific activity in plants, deficiency of any "one" compromises that function. This chart also gives you answers to why plants are dwarf, why there is flower drop, why some plants don't bear fruits, etc. A few tests that farmers should do by themselves on regular basis :

1. Check pH and EC of water
2. Check pH and EC of soil
3. Check brix level of leaves (very important for building resilience) ~ Purvish

Sharing links below to a few articles which maybe of interest to many.

Why is testing soil pH important? http://www.direct2farmer.com/index.php?route=blog/post/view&blog_post_id=16

Why is testing soil EC important?

https://www.direct2farmer.com/index.php?route=blog/post/view&blog_post_id=26

How to use Brix meter to build resilient crops?

https://www.direct2farmer.com/index.php?route=blog/post/view&blog_post_id=15

Hope the above is helpful to all. ☐☐ ~ Purvish Diwanji

Sure is. Big help! I'm beginning to feel i've been doing so many things wrong for so many years. ~ Gloria

Please is possible to simplify the various charts for us ignorant growers? ~ Saira D'Mello

Will have to explain it in person or maybe make an audio file for each chart. Darryl D'Souza you need to start a podcast channel. Here's a link to the webinar on Plant Health Pyramid, it explains in very detail and simple to understand. <https://youtu.be/D1wJefaFrVI> ~ Purvish Diwanji

Bottom line is we are home farmers with no agri college background. ~ Gloria

Yep, what I've shared if you go through those link, you can pick it up very easily. ~ Purvish Diwanji

Hey! Maybe someone can do a workshop on it if they've understood it properly. What say? A paid workshop also is fine. ~ Darryl

Is it true that if a mango tree has an obstruction such as a Bougainville touching it, will not bear fruits? ~ Leonard Joseph

Mango needs bright direct sun. So overhanging shade can be a problem. ~ Arjun

Why to choke the mango tree, keep it free from Bougainville runners. ~ A D'Costa

GM all, I've just planted Lemon grass, any particular precautions / tips please? ~ Carlton

I've seen that lemon grass grows very easily with practically no care, need to water it well till it catches root. ~ Angelo

If it's just one bunch, then ok. If it's more, please keep them 3 feet apart or more. Otherwise if they are 1 foot close to eat other, it gets bushy and rats and snakes like to hide in between. ~ Darryl

Thank you Angelo and Darryl☐☐ It's planted in the shade sort of but does get sun. Hope that's okay. ~ Carlton

Mine is in the shade and it's fine. ~ Angelo

Dogs love it. Protect from them. ~ Gloria

Yes! They eat it when their stomachs go bad and that happens to street dogs every week. ~ Darryl

Can we do something with it if our stomachs go bad? ~ Carlton

Yes! Pluck them and wash with salt water and have. Make herbal tea! ~ Darryl

Yes, cats too love to eat them it definitely must be having a lot of benefits for them, so have been regularly making some lemon grass tea for us in the evenings. ☐ ~ Eva

See the benefits of Lemon Grass Tea on my webpage <https://becomehealthyorextinct.com/tea> ~ Darryl

I had posted a query on blackening of custard apple. ~ S N Menezes

Natural Pesticides <https://drive.google.com/open?id=1EHDmUYCA48no29VYnhEZYG-JfIE3xRFn>

A document I prepared by collating from the internet some years back. Unfortunately, the soft copy is gone. ~ S N Menezes

Help! The vines of the pumpkins are dying off. Is it normal because of the increasing heat? They were planted in January. ~ S N Menezes

Yes. Also check if the stems have been eaten by insects. ~ Arjun

Can someone advise me, what can I spray on the ants that are already in the compost pots? I had added leaves coz it was too moist and now I have ants. Never had this problem before. Please help. Thank you. ~ Judy

Ash collected from where the water is heated you could ask your house help to gather up for you. ~ Vanessa

I need help in keeping the monkeys at bay from destroying my bullsheart, banana and papayas. Please someone tell me. ~ Sophia Fernandes

Refer to video for keeping away monkeys, bats and other animals -

https://drive.google.com/open?id=1D1e4eQYN8tm64XJde_B37jYe0k1p6on4 ~ Purvish

Cool! But what about constant noise pollution every time the wind blows ~ Gloria

That's can't be avoided, this device is being used by commercial farmers to prevent animals from ransacking their farms. This one is in use at a Nashik vineyard to prevent bat's, dogs, monkeys and other animals. Costs about 750/- ~ Purvish Diwanji

Don't the animals get used to the sound? ~ Nestor Sanches

They don't, it's working efficiently as of now though. ~ Purvish Diwanji

Topic No. 22 - Harvesting techniques.

Harvesting techniques: How do you identify when a vegetable is ready. For example, ladyfinger is considered "zun" if the tip does not break cleanly but it is not practical to break all the tips especially if you are taking it to market. Similarly, for bottle gourd, you poke it with the nail. But is there a way to determine readiness visually? ~ S N Menezes

For bhendi, if one does not want to break the tips, then get an idea from the size. Don't let it get to the stage when you see the seeds bulging. When I used to harvest mine, I would look at the size and would harvest them 1/2 inch before full size as compared to some of them that got full size and hard. For bottle Gourd you have to see the color. When the light green surface starts becoming whitish, it is getting over ripe. ~ Darryl

Ok. And you have to harvest on alternate days? Which one do you leave for seeds - the first lady finger / brinjal or the last one on the plant? ~ S N Menezes

I leave the healthiest & biggest ones for seeds. That generally happens 15 days or 1 month after first produce, if it is a plant that will give produce for 3 months. ~ Darryl

We harvest everyday but still sometimes we get Zun ladyfingers. ~ Nathan D'Souza

Topic No. 23 - Putting unused plant material back in your soil.

This means how you optimally use any excess matter that comes from your garden, so it does not go outside it and to waste. Try to remember that your plot is a living ecosystem and how much nutrients go out of it and how much do you put back in it, so it does not get depleted. So whatever excess leaves and stems are there in my garden whether plucked off the trees because they are yellowing / weak / excess or after harvesting (I use the roots too), I pile them up in one cool corner for later use in composting. Once I get some amount of wet kitchen waste, I take those excess leaves / stems / roots and cut them up and mix them with the wet kitchen waste + add cocopeat / crushed dry leaves (if the mix is too wet) + cow dung water + cow urine water + some black compost powder (from my stock for more living microorganisms) and then all of this goes back into my in situ compost pit. I dig out an earlier pit (2 months old), harvest the powder compost and refill it with this new mix. ~ Darryl

Any ideas on how to reduce the pile of leaves faster? Peeing on them not feasible ☐☐♀. ~ Gloria

Do what I just explained - mix them with wet kitchen waste + add cocopeat / crushed dry leaves (if the mix is too wet) + cow dung water + cow urine water + some black compost powder (from your stock, for more living microorganisms) and put all of it into an in situ compost pit. ~ Darryl

The best way I found, be if you have a lot of leaves, buy about 2.5 meters of thick GI mesh of about 1" x 1.5" or 1"x1" holes, about 1 meter to 1.2 meter wide. Roll it round and join the two ends. Keep it standing. Better to tie at ones place to a tree of something steady. Keep filling it with leaves, and keep pressing. Make sure you keep it moist by sprinkling water every day. It's a simple method. The holes in the mesh aerate the leaves, and they decompose faster. ~ Angelo Pais

Won't I lose some nutrients in the runoff water? Darryl I was told the living organisms don't stay alive for long if not put into soil? If your compost is left open it kind of dies off? ~ Gloria

Yes you will. Yes, the living organisms need a bit of dampness and cool dark space to survive. They will die if the pile is too dry and sunlight hits it all the time. ~ Darryl

Is it advisable to put lime peels or any citrus fruits etc as manure. ~ William

Don't put them directly on the soil. Compost them let them break down with other material too, that way their strong acids are diluted. ~ Darryl

I used plant matter for mulching. Lot of insects like millipede and centipede thrive under the mulch. My only concern is snails. Even after adjusting soil pH, some snail do remain. ~ Manoharan

Yes, I have millipedes too because of mulching and have not found a way to get rid of them as yet. ~ Darryl

Are the millipedes harmful? ~ Saira

Not to us. But they do eat the salad leaves that touch the ground. ~ Darryl

Millipedes are harmless. ~ Manoharan

Can you decode stock for more living microorganisms? ~ Gloria

Compost powder of kitchen compost / vermicompost you have made or bought from somewhere. ~ Darryl

Is it advisable to leave tubers in the ground till the next year? Will they become fuller? ~ Gloria Assagao

Yes, it is advisable. It is their natural cycle. They will come in their season once again with better growth and immunity. ~ Darryl

Today I harvested my pineapple, should I remove the plant? ~ William

If you are happy with the size and taste of the pineapple, there is no reason to remove. On the contrary, you can grow the suckers, slips and crown and enjoy more fruit next time. Don't let them become clusters. They did not yield for me. Then I spaced them out and ensured they got full sun. ~ S N Menezes

Also water them well. ~ Giselda

Someone harvested pineapple. Question for you, how long did it take to bear fruit? Did you plant just the top of the pineapple? Any special caution or care? ~ Gloria

At least 6 months. Yes planted the crown of the pineapple. Just regular manure. ~ William

Thanks William. Was told it takes 2 years. I buy and eat pineapple regularly so was wondering how many heads I would be planting? ~ Gloria

Regular meaning? Compost? ~ Giselda

Only six months? I planted a crown one and half a year ago and it's just begun flowering now. I don't know when fruit will be ready. Daily watering. Planted in normal soil ~ Augusta

This is more realistic. Fruit will be ready in June-July. ~ S N Menezes

Sorry I misunderstood, around one and a half year and flower to harvesting, 6 months. ~ William

I read on another forum that crowns take 2 years while plants from the suckers (from base of fruit) take 18 months. ~ Arjun

I grew pineapples from crowns. They gave fruit in 15 months. ~ Darryl

Im encouraged. I see so many crowns thrown in the market so decided to try planting them when I buy for myself. I may eventually get myself a pineapple for free. ~ Gloria

I ask the vendors for crowns, whenever I go and take what's thrown aside. ~ Casey

Since we are talking about pineapple crowns, can we share how you do it? I take off few lower leaves and keep the bottom bare portion standing in a bowl of water. It sprouts roots. Then I plant it. ~ Gloria

Topic No. 24 - Recharging your soil with nutrients that have been taken out.

So it's about having good nutritious soil on your plot. Good nutritious soil does not look brown in color or red in color. It looks black in color much like good kitchen compost. Do you have this soil on your plot? We've already discussed how to make nutrient rich soil from composting. Anyone here knows where to take your soil in Goa for testing to see if it's got good nutrients? How long do they take? How much does it cost? ~ Darryl

The agricultural dept at Ela does this testing for free. You should get the report within a week. ~ S N Menezes

The agricultural department, kvk has soil testing facilities. But I am a bit skeptical about them. They appear to give standard results and prescriptions. ~ Arjun

You can check at agricultural dept, mapusa. ~ S N Menezes

Good Morning Darryl. Whats the fastest way to get things moving, if the soil is reddish-brown in colour. Can't wait for the composting to complete. Don't mind spending a little to put in good soil at the start at least. Thanks. ~ I Am Blessed

Good Morning Casey! 1/3 soil + 1/3 kitchen compost / vermicompost + 1/3 cocopeat / crushed leaves + cow dung water + cow urine water + bone meal powder. Mix all together and leave in the land for 5 days. Start planting after that. First plant your seeds in cups (50% kitchen compost / vermicompost + 50% cocopeat). ~ Darryl

Darryl, what about soil nitrogen fixing? Best plants to do so. Which plants benefit? ~ I Am Blessed

Soil nitrogen fixing plants - gliricidia and sweet leaf / vitamin plant. These tall lanky trees in my garden are the sweet leaf / vitamin plant. Yes they get red flowers below their leaves ~ Darryl

I use the cardboard inside of toilet rolls /kitchen rolls. I don't need to disturb roots. The cardboard is biodegradable. Gloria

Yes Gloria, I am doing that as well. ~ Casey

I plant two seeds in each and plant the whole thing when I see two leaves peeping out. ~ Gloria

Hi Darryl, Just coming to the end of a very successful first attempt at veggies planted. How do I now keep the soil healthy for growth? Had a lot of weeds uprooted over the last month or so which are dried up with the hot Aussie sun. Have covered part of the soil with them. Is it a good idea? Do not have a compost bin yet. Baby steps. Thanks. ~ Edwin Pereira

Weeds dried up in the aussie sun have lost their water content and nitrogen. It would have been better if you had composted them in situ as I had explained here. Keep adding kitchen compost / vermicompost and cow dung water / cow urine water and bone meal powder / composted (fish or bones or meat scraps) to your soil. ~ Darryl

One of the problems faced by me is topsoil getting washed away. Slopes are all over goa. How do others contain their soil? ~ Gloria

One way, is to have a ditch at the bottom part of the land where the water drains towards. It can be like a U or better still like a W with the middle part slightly lower. The mud settles at the bottom, which needs to be recovered every few weeks. Saw this on a few farms and it's very effective. Their ditch was at least a metre deep to accumulate the soil. ~ I Am Blessed

You need to create a bund and a swale to slow down the flow of water so that it seeps in. ~ Arjun

The width is about 60 mts. Slope has been terraced slightly but I still lose soil every monsoon. Digging huge trench not feasible. Any easier way. ~ Gloria

1. On slopes people take care to see that they are always growing plants on them, season after season, so that the plant roots retain soil... especially before the rains. Plants need to be 6 inches tall at least by the start of the rains.
2. Mulching on the soil prevents water drops hitting the soil directly and washing away soil.
3. Grow a few tall plants in between your growing beds. They will take the hit of the rain.
4. Cover the top of the soil with small broken tile pieces or any light but flat stone pieces. You may use similar materials. Plants will grow up in between the cracks.
5. Cover your plot with a temporary roof in monsoons, like I do. Harvest the rainwater at the edges and direct some of it into your in situ composting pits.
6. Make small 1 foot trenches after every 3 feet distance (perpendicular to the direction of your slope). Use these ditches as in situ composting pits. They will slow down soil erosion considerably. The 3 feet gaps are your growing beds. Mulch them well. ~ Darryl

I try to stall the rain water but any innovative ideas. ~ Gloria

Is potassium humate considered as organic supplement? ~ Manoharan

Topic - Manuring - frequency, type, quantity.

Can we discuss manuring now? For chemical fertilizer based farming, the instructions are pretty clear e.g. 50% while planting and 25% after a month.

However, for organic farming, what is the best way since they say that your organic inputs are slow release? Also, do you use foliar sprays? Those are to be applied every 15 days. ~ S N Menezes

□ Sorry I don't know much about big field crops growing and their practises. Have only been doing the small plot multi cropping model and have earlier shared all the manuring methods I use. On the frequency of manuring, I do it once in 15 days for fast growing veggies like methi, palak, kale, bok choy that are harvested in 45 days. For slower growing veggies, once a month. Cow dung / cow urine water once in 10 days. ~ Darryl

How much quantity do you use, approximately, Darryl? ~ Giselda

Refer to difference between Manure and Compost here

https://drive.google.com/open?id=1NaHPxJdlHfsi61bUv5MUSPA41_XNdBq9

Refer to different types of Manure and Composts here

<https://drive.google.com/open?id=19JOX9Ks4hhc3rQNY6MMUjgUtLJQxsQKi>

Organic N Sources :

Alfalfa meal : 2-1-3 (lasts upto 4 months)

Bat Guano : 10-3-1 (lasts upto 6 months)

Blood Meal : 12-0-0

Cottonseed Meal : 6-0.4-1.5 (GMO problem)

Corn Gluten Meal : 9-0-0 (GMO problem)

Cow dung : 3-2-1

Feather Meal : 7 to 12-0-0 (last upto 6 months)

Fish Emulsion : 5-2-2 (lasts upto 4 months)

Fish Meal : 10-6-2 (lasts upto 4 months)

Fish Powder : 12-0.25-1 (fast acting, immediately available)

Hydrolyzed Fish : 4-2-4 (expensive)

Human Urine : 15-2-2 (not for food crops)

Soybean Meal : 7-2-1 (GMO)

Organic P Sources :

Animal Bone Meal : 3-15-0 (readily available, lasts upto 4 months)

Bat Guano : 3-10-1 (lasts upto 4 months)

Rock Phosphate : 0-2.5-0 (lasts upto 2 years)

Crab shell meal : 2-3-0 (high chitin, good fungal food and fights nematodes)

Organic K Sources :

Wood Ashes : 0-1-3 (lasts upto 2 months)

Organic Ca Sources :

Limestone

Dolomite (Ca and Mg)

Gypsum

MicroNutrients :

Shrimp shell meal : 5-8-15, Ca 15%, 20% chitin and Micros (lasts upto 6 months)

Kelp Meal : 1-0-4 with 60 elements (nutrients available after 2 months and last for 5 months)

Kelp Powder : 1-0-4 grounded meal and readily available (lasts for a month)

Liquid Kelp : 1-0-4 readily available (lasts for a month)

Biofertilizers :

N - Azotobacter and Azospirillum

P - Bacteria - PSB (Bacillus Megaterium/Subtilis, Pseudomonas Striata) - called Phospho Bacterins

P - Fungi - Penicillium species and Aspergillus awamori. They free up P by releasing organic acids which break the bonds that tie up P in the soil.

Mycorrhizal Fungi :

P, Cu, Zn, Mo and N. They deliver upto 80% of a Plant's P, 60% Cu, 25% N, 25% Zn and 10% K

PGPR - Plant Growth Promoting Rhizobacteria :

Pseudomonas fluorescens - aid synthesis of nutrients, influence root growth, plant nutrition.

Depending on what is the stage of the plant at different times, you give the relevant Organic Input - Minerals, Manure and Compost

The best amount of nutrients in Organic Foods and organic fertilizers -

Animal feces and gutters

Organic Substance	N%	P%	k%
Moist	0.40	0.20	0.10
Goomutra	1	0.02	1.35
Lindi	0.75	0.50	0.45
Goat sheep			
Human stool	1.00	0.82	0.43
Human emit	0.60	0.15	0.25
Chicken			
Vinart	1.40	1.40	0.25

Plant residues

Rice straw	0.48	0.09	2.30
Jowar			
Kadba	0.52	0.23	2.17
Bajri	0.65	0.75	2.50
Wheat	0.53	0.10	1.10
Mugh	1.40	0.25	1.20
Groundnut	1.70	0.30	1.50

Wastewater

Sugarcane			
Digit	0.40	0.18	0.72
Tur	1.10	0.58	1.28
Kapus	0.44	0.10	0.66
Banana	0.61	0.12	1.00

Organic fertilizers

Fungi	0.84	0.61	1.00
Landline	0.60	0.50	0.70
Compost	1.00	0.70	1.20
Fish	5.95	5.20	1.36
Bone			
Fertilizer	3.88	21.56	000
Slurry	1.40	1.10	0.84

Food and Piglet

Peanut			
Pay	7.10	1.40	1.30
That is	7.00	3.00	2.00
Castor	4.55	1.72	0.70
Karde	5.01	1.63	0.62
Mohri	4.50	1.50	1.80
Necklace	5.00	1.00	1.50
Jaws	4.7	1.70	1.30

Sesame	5.2	1.80	1.30
Karang	4.1	1.00	1.30

Green manure fertilizers

Trunk	2.30	0.51	1.7 9
Dash	3.50	0.60	1.20
Giripeshp	3.65	0.52	2.11
Muig Pala	0.71	0.18	0.53
Seaming	4.04	1.93	1.65
Karanjpaa	3.87	1.36	0.72

Other

House shelter	0.50	1.60	2.30
Spent wash	1.31	1.80	2.28
Pressed	0.57	2.51	0.54

So to put it in simple words :

1. Boost Organic Carbon at all times
2. During Vegetative Growth - use products with higher N and K
3. For root development, use products with high P
4. During reproduction (flowering and fruiting) use products with N and high K ~ Purvish

What is this please? Seems confusing. ~ Saira

These are organic / natural sources of agricultural inputs. You may call it organic fertilizers as there are chemical fertilizers now but in the days when there was only the term "fertilizer" these are the original products that were used. Just like All farming was organic until there was chemical farming and all food was organic until we started using chemicals and laced our produce with them. ~ Purvish

By "lasts for ...", Does it refer to the period it remains effective after putting in the soil? Do u have similar data for chicken and pig dung? ~ S N Menezes

Yes. Sorry I don't have additional data. ~ Purvish

What is the frequency to use Panchagavya as well as compost for the veggies please?

Please. What organic material produces natural P and K. Are the NPK tiny pellets available at govt Agriculture Yard organic or chemical please? ~ Saira

10-26-26, 18-46-0 and the like are chemical. Purvish has given natural sources of P and K also above. ~ S N Menezes

Refer to rates and timing here https://drive.google.com/open?id=1jvo5xbOBWUg10ILvFVMdS17X_xlwXGym
<https://drive.google.com/open?id=1kYYkDNub9PnjThTq4OJMybQfcQ9Vjge-> ~ Purvish

Thanks. So in general, 1 tonne per acre and its effect lasts for 3-4 months. ~ S N Menezes

Yes ~ Purvish

What would be the dosage for rainfed vs irrigated coconut trees? And when would u apply? ~ S N Menezes

Topic No. 25 - Shading systems for Summer / covering system for rains.

This summer I am trying to make a trellis over some parts of my garden and on top I plan to put creeper plants that like a lot of sun. Below it on the ground I will put plants that do not like a lot of sun. Let's see how it works. In the rains I cover my garden with a sloping thick plastic canopy to prevent Goa's heavy rain drops from bashing up all

my plant flowers. In the morning even when its raining outside, I see bees in my garden doing their pollination work. The canopy is on top of thick GI wires and tied to them at some places. After rains I lift off the canopy and keep the GI wires and they become my supports for creepers to grow all along. Refer to the image here <https://drive.google.com/open?id=1d5veF1iGDz7Yu-rbSxZaP7WZn7GlzpXZ> ~ Darryl

Topic No. 26 - Terrace Gardening.

My terrace garden where I've kept the pots on Mangalore tiles. Refer to video here https://drive.google.com/open?id=14_Kw2UFpKlott0joO1WzIRwm8JbAFgY1 ~ Chris

Topic No. 27 - Selling your excess produce.

Everyone here is welcome to sell their organic produce at my two Earth Keeper Markets on Sundays. One market is at The Rejuvenation Center in Candolim, the detail is here <https://becomehealthyorextinct.com/ekm> And the other Earth Keepers Market is at Saraya in Sangolda <https://becomehealthyorextinct.com/ekm/s> ~ Darryl Please advise the fees to be a part of the earth keepers market. ~ Augusta

At Candolim there is no fee. At Sangolda the fee is 10% of sales the seller makes. ~ Darryl

Where and how do others currently sell their excess produce? ~ S N Menezes

Any surplus we have, we sell to neighbours, friends and some regular customers by intimating them via a WhatsApp broadcast group. In addition we also have a FB group for this purpose <https://facebook.com/groups/808222122624193> ~ Giselda

Hi, here I am sharing a link of my farm, where I have attempted to grow organic vegetables and getting a reasonable demand for them. Please share & like my page on FB www.facebook.com/organicveggiz ~ Vincent The Phoenix

Topic No. 28 - The difference between local organic and commercially grown veggies.

Of course we all know that the commercially grown produce has harmful chemical based fertilizers and pesticides and also chemicals sprayed for preventing ripening in transit and many of these substances are carcinogenic, meaning cancer causing and that's why cancer is on the rise in society. ~ Darryl

What are the norms that are set to label produce organic? Is there any way to be sure you are buying organic? ~ Gloria

If you want to say your produce is certified organic or label it so, then you will have to get each product tested and approved with an organic certifying authority. If you only want to say its organic on your own testimony, you can, and it's only the trust of the buyer on you. We say all our produce in the Earth Keepers Market is organic because I know that the operations are organic of the farmers who supply produce to our market. People can trust me or not and buy or not its their choice. I do give them a choice of going to each farmers place and verifying that their operations are organic. That's the solution to any doubt in their minds. ~ Darryl

I have this question too. Also, if I grow organic produce but people around my area use chemicals, could that affect my produce? As in, wouldn't these chemicals seep into the ground water? ~ Giselda

Yes, their chemicals going into the soil will seep into the groundwater and that could affect your produce. Generally keeping a distance of 10 meters from their plot and then growing your produce will work. In that 10 meters space, you can build storage sheds, cow sheds. farm cabin etc use up that space. Your short plant vegetable produce that will have roots go down to not more than 1 meter will generally not take water from the groundwater system, but they will take water from your watering system. SO they will be safe. But yes, your mango trees and other big fruit tree roots will go down to 4-5 meters. Papaya tree roots will go down to about 2 meters and that may not reach that

lower water table. But yes, if your growing in the low lying field are then that bad water table may be at just 2 meters. ~ Darryl

So, ideally speaking, my watering source should also not be a well? Cos it could be contaminated? ☐ ~ Giselda

Yes, the well water will definitely be contaminated with their bad water. ~ Darryl

You could have the water tested time to time. ~ Casey

That's right. If it's good water, keep that proof laminated for any enquirer. ☐ ~ Darryl

But would recommend checking water supply every 6 months, if not 4 months. ~ Casey

Any idea where we can get this done?! ~ Giselda

Pillerne water dept. on top of the hill has a lab. Also all Panchayats are supposed to keep a water testing kit which one can use. And if they don't have, give a letter to sarpanch to have it kept. Cc to Dir of Panchayats. ~ Casey

Thanks Casey! Anyone else knows other water testing labs? Please share with us here. ~ Darryl

Eureka Forbes in porvorim test water. ~ William

I think Ita labs in Margao. ~ Giselda

Ela farm. ~ S N Menezes

The best place to test water is the NIO that is the Institute of Oceanography just after Betul or Dona Paula. ~ Khaama Kethna

True. But when selling out produce, can we still label it organic and charge the rates that are usually charged for organic produce? ~ Giselda

Yes, you can label it organic and put your name or farm name (some identifying word) and be ready for any proof to be given to the enquirer. But you can't say certified organic till its certified by the authority. ~ Darryl

Where are you located? ~ Vanessa

Panjim. Farm in Agassaim. ~ Giselda

Topic No. 29 - Coconut oil and its Yellow colour and white clear crystal coconut oil.

Is there any difference between crystal clear coconut oil like this one and Yellowish colour coconut oil (image to be attached). Coconut oil has to be like this and in cool season like cream. (image to be attached) ~ Savio

This shows that the oil is pure when it freezes in slightly cold weather. The full bottle usually freezes if kept near an open window in the night. ~ Casey

That's right. Happens to our coconut oil everyday. The whiteness lessens once its closer to 12 pm. Then again at 9 pm it starts becoming whiter this season. ~ Darryl

When coconut is crushed and oil extracted a little residue of the coconut gets into the oil. When you sun it the residue comes to the bottom called murum. Then you pour out the clear fluid. ~ Smita

Very good quality coconut oil ☐☐☐☐☐☐ (reference to image) The yellowish coloured one has some kind of microbial contamination. If it's yellow, it's likely it has turned rancid. ~ Giselda

We tried to extract oil but it came out with a yellowish colour not clear some suggesting to boil the same, any helpful tips welcome. □ ~ Carlton

Put Jaggery and keep it in the sun. All the solutes will settle at the bottom. Filter and put in bottle. It needs to be sunned till it clears. ~ Smita

Is it sugarcane jaggery? ~ Augusta

Also difference between traditionally extracted coconut oil, cold pressed coconut oil, virgin coconut oil and refined coconut oil. ~ S N Menezes

Yes, the cold pressed oils have living enzymes in it that give coconut oil its nutrient value, antibacterial properties, antifungal properties and capacity of being a curative treatment for Alzheimer's as the liver converts it to ketones for the brain. But once you heat it above 53 deg C (as is done in refining), the living enzymes die and all these good qualities are lost. So refined coconut oil is dead oil. It will not even kill the bacteria in head scalp that causes dandruff but it will only keep the head scalp moist so that dryness and flaking does not happen. ~ Darryl

People have to know to identify what is good and buy. Only Farmers understand and know what is good and bad sold in the market. Now people are buying yellow colour coconut oil from market. ~ Savio

It's adulterated with other oils and comes from Belgaum. I had checked with a wholesaler. It's slightly cheaper also. ~ Casey

Most of the things are adulterated since people are unaware and due to cost. ~ Vincent

Can anybody share the best way to extract pure and good quality coconut oil starting from scratch? □□□□ ~ Carlton

The traditional way of obtaining coconut oil is from copra. Personally we call this Coconut oil, or 'khobrea tel' in konkani. Does this oil also classify as cold pressed coconut oil?

Virgin Coconut oil (VCO) is obtained by extracting coconut milk n then separating the oil out. This separation can be achieved either by fermentation, heating or centrifugation.

However, I do not know how much of a difference (chemical composition or efficacy) there exists in the oils obtained by different methods of extraction. When coconut oil is refined it loses lauric acid, which is the beneficial fatty acid in coconut oil. This oil does not solidify if placed in the fridge. ~ Giselda

Break coconut into halves, check for any rancid ones, avoid those. Dry out in the sun, when it starts coming off the shell, pry with a table knife and lift them off the shell. Then dry again till the moisture is all gone. Cut into pieces, take to a coconut oil extracting mill. Voila your coconut oil. Healthy and adulteration free. Bring it home, let it cool completely and preserve in clean well dried bottles. □ ~ Judy

Add a small piece of coconut jaggery to preserve it, not to become rancid. ~ Angelo

Put one to two pieces of clove in them. Helps. ~ Casey

Thank you, for the second drying (after taking off from the shell) how long to dry approx. for the moisture to go? Some saying here that too much drying not good also when taking to the mill, if it's too hot (due to the workload of the mill) will it affect oil quality? Yes Savio, please provide your inputs on this too. ~ Carlton

Normally by looking at it you can make out it will be oily when cut not juicy. Haven't done this in recent years, my mum used to, so cannot remember how many days after shelling. Maybe a day or two I'd think, under direct sun. ~ Judy

The quality of the oil will depend on how long the coconuts are dried (not too long or too little), then the method used to extract - the less friction / heat produced the better and then the traditional method of removing the moisture is by keeping the oil exposed to the sun along with some nagereli leaves (used in pan). ~ Khaama Kethna

I've heard about adding these leaves, does it help in moisture removal?! ~ Giselda

Yes it prevents the oil from getting rancid. ~ Khaama Kethna

Also request if someone can share how to extract coconut oil from coconut milk. Smita Sen

I tried with a few coconuts, but frankly speaking don't find it convenient and since it's heated, I doubt the veracity of it being healthy. Anyway this is what I did, first extract the juice, then left it in the refrigerator, next take the thickened pulp and heat it on a flame, keep stirring, be careful when it bubbles. When you see the oil floating, lower the flame and keep draining it off into a clean, well dried jar. The initial one I took off was a bit cloudy, later was clear. Since it was little got used up quickly, do not know how long it would remain. But a tedious job, wouldn't recommend. ~ Judy

How to make virgin coconut oil at home. <https://youtu.be/qEZMm2NAwpo> ~ Giselda

Yes Savio. Please share how you make ur coconut oil. ☐☐ ~ Giselda

It appears to be virgin cold press oil from fresh coconut. I dry in the Sun for several days coconut pieces (after cracking open coconuts without water). Then take it to the mill to grind. I get dark oil which settles into light off white coloured oil after 3 days, never Crystal white. ~ Saira

I know that coconut oil has to be crystal clear and has to freeze like cream when weather is cold. ~ Savio

I recently threw away some. The oil was clear at first, but I made the mistake of letting my maid handle it and it turned pale yellow first and then darker yellow. ~ Giselda Menezes

We wanted to know how you get it clear and not pale yellow. ~ S N Menezes

If coconuts are of good breed, secondly matured coconuts and using the best copra. ~ Savio

Hey Norvin! Did the oil turn milky cause you kept it in the fridge? Same oil? ~ Marizitchagas

Yes ~ S N Menezes

The coconut trees before 1960 gave good coconut oil, also the taste of coconuts was sweet. ~ Savio

What about their offspring? ☐ ~ Giselda

Copra has to be sorted to remove any bits that might have developed fungal growth etc. Right? ~ Giselda

Yes. If u want clear oil. ~ Marizitchagas

Coconut oil is best for home consumption , as its the only natural oil, and low cholesterol. ~ Savio

Coconut oil in Goa has always been natural. It would be just pressed. No heat used. Whatever heat we get when we get the oil from the mill is from friction. No heat is added. I'm talking of the traditional mills. I don't know if any new ones have come that use heat. The last I made oil at the mill was about a year back and am still using it. It was white. I always put a piece of coconut jaggery to preserve the oil. It did not change the colour of the oil. The oil is always clear. ~ Angelo

I've heard about the addition of jaggery. Must try it out. ☐☐ How much do you add? Just any size? ~ Giselda

We used to put a piece, about one inch cube into a jar that held about 15 litres of oil. At the end we used to really enjoy eating that piece of jaggery. ~ Angelo

Topic No. 30 - Pricing / Marketing / Selling

Dear team we need to discuss on vegetables pricing for organic farming, we need to have different market places. Let's discuss rates of organic vegetables 1 by 1 and set a uniform rate table. ~ Vincent

I agree with you, we as producers find it difficult to rate the product and thus making losses or no profits at all. ~ Val

We finally didn't discuss pricing, did we? ☐ I guess we need a topic on pricing and economics of farming. ~ Giselda

Pricing has to be done by the farmer as he is working continuously in his farm in addition to the other inputs in growing. ~ Savio

But how does a farmer derive to the rate, not jeopardizing somebody else's hard work by setting skyrocketed rates. ~ Val

Get the labour cost down, so the farmer can give cheap else people would have chemical produce at less rate. ~ Savio

So the community farming module should also have the labour aspect sorting it, should be a SPOC (single point of contact) for all queries from the seeds to labour, to manure, to marketing, to sales and even storage. ~ Val

An alternative app or something should be made by someone with knowledge of apps where farmers can present their produce and buyers can bid. All bids should be public in such app. ~ Nestor Sanches

An app would solve the marketing issues not the sales. ~ Val

Can you explain, I didn't get exactly what you mean? For eg. amazon as an app kinda does marketing and sales both in one go. Buyers and sellers meet and transaction can be completed. ~ Nester

Not everyone would be interested in an app, probably the Gen. next or tech savvy would prefer, but if a nominal rate card is set up even a lay men would be able to sell his produce even to those consumer irrespective of the usage of apps. ~ Val

How about selling as a community? Like all farmers following same quality standards get together and pool their produce and work towards selling it as a whole? ☐☐☐♀ Might be a bit tricky though. ~ Giselda

So marketing and rates should be discussed separately as two issues? Or is it one issue itself? ~ Nestor

I think Choraos farmers are doing something like that. Community farming? ~ Giselda

Makes sense, but a lot of compiling is required. I guess they are not completely organic. ~ Val

True. Lots of thought and work involved to start and maintain this concept. But just makes lot of sense. ~ Giselda

Choraos, whether organic or not, the rice is grown from the start as one group from what I understand. It's not grown individually and then got together.

Yes. It's community farming. There is a certain criteria to be fulfilled, plus there are real schemes and loans available. I actually read about it long back. But don't remember properly! ~ Giselda

Val I think you are talking about how a no. of farmers can sell at a kilo of their own rate? ~ Nestor

For those who see the high price of veggies in the market and are wondering what the fuss over pricing is all about, it works something like this: A farmer will spend on labour, seeds, water, electricity, pesticides etc. Then takes the produce to the market. If it is a small quantity, he might find a vendor ready to purchase. If he has a larger quantity, he has to get in touch with a middleman. The market price of a vegetable may be Rs. 10, the farmer would have spent Rs. 3 - 3.50 on it, but the middleman/vendor will offer him Rs. 4. This is the experience we had 3 years back. We then have to question the type of vegetables we are growing from a returns perspective. In any other venture a 25% return would be great but in agriculture it is not because if any variable changes especially the weather, you lose everything. Again, if you are doing everything yourself, it may be ok but if you employ workers, there is that cost. ~ S N Menezes

We sell the surplus veggies that we produce to friends. We don't add any premium. We keep the price the same as the market. It's important that price does not become the differentiator. People will then go out of their way to buy from you. Currently with the markups in organic, I see people choosing the convenience of buying at the market. So the task is to make the market more sustainable. Creating an organic market like the earth keepers market or a farmer's market which runs twice a week and figuring out how to get produce to that location People will have produce but no ability to sell. ~ Arjun

We have a farmers market for organic produce once a week at Dabolim. If any one wants to market their produce get in touch with me at 9819821172. ~ Walter

As a suggestion, can different people pool in their abilities so as to promote organic produce? Like I don't have a field but just a backyard with a surplus now & then but don't have a way of selling anything I grow. Similarly maybe a person with a field grows but has no access to perhaps an outlet or distribution & maybe I have a shop that I can rent for a cheap rate so anyone can sell their organic produce? The whole system needs to be streamlined wherein organic farmers get a better chance at competing with mass commercialised agricultural produce. I think if we all get together we might be able to do something? ~ Eva

We did this the last year from my office space in margao. It works well, but we need a full time resource. ~ Arjun Rebelo

I have a small shop in Calangute, if one can guide us on a collective path I'm willing to offer any help that I can. ~ Eva

It works as a delivery only against confirmed orders for perishables so that the shop owner does not need to keep a steep margin to cover potential losses which is currently the case. I think the ecoposro concept with an extension for home grown and organic fruits and veggies. ~ Arjun

The new project of Don Bosco Agriculture College plans to buy b organic vegetable produced by others. ~ Angelo Pais

Are they buying from others? I thought they were selling their own produce. ~ S N Menezes

Yes. I had a talk with the one in charge. He said they want to get farmers produce organically and they would buy their produce instead of them spending the whole day selling their produce on the road side. ~ Angelo

For organic certification there are two agencies when I had checked a few years ago. One Indian and one international. Their rules, regulations and procedures are available as pdf on the net. Reading them is a very good idea. they have random inspections and tests. Their inspectors will come for random checks. Plus you have to follow a lot of set procedures, you also have to keep a detailed log of all materials brought and taken out of the farm. If you successfully complete all these things, then you can legally sell you produce as organic. You can also display the logo of the certification body on the packaging of your produce. This logo gives assurance to customers that when they are buying food labelled organic. Without any logos from any certification body there's no guarantee that it is organic. However if you trust the farmer, or you can pay a visit to their farm to see how they run things and you are convinced and trust the farmer then that's the only other way to get organic food that is

really organic but not labelled organic. The best way however is Organic Home Farming, if you do it yourself. ~ Nestor

Topic No. 31 - Companion Planting.

Hi, maybe today we can discuss a topic that Arjun brought up i.e. companion planting meaning growing of plants that are compatible and help each other. One attribute to consider would be the canopy and the other would be the root depth. ~ S N Menezes

Does anyone know companion plant or trees for mango trees? Which was planted by the Portuguese. ~ Savio

In short companion planting is one of the techniques used in organic farming, where certain plant groups support each other. For example certain combinations of plants keep pests away. Flowers attract bees that help other plants with pollination. Tomato and basil are a classic combination. The red indians used the 3 sister combination - Corn, beans and squash. We can adapt - corn, beans and pumpkin. The corn provides support for beans, which provide corn with nitrogen, while the pumpkins keep the ground cool. Marigolds, cosmos good flowers to have in your veggie garden. ~ Arjun

Does any know, for mangoes, if any old Bhatkar? ~ Savio

I am not an old bhatkar but I suppose you can plant turmeric in the first rains under the canopy. Watering will be through the rains only. We also plant pineapples for no reason other than, it has shallow roots and so there is no competition with the mango roots. ~ S N Menezes

We use coconut, pepper and pineapple as one combination. ~ Arjun

Black pepper on the coconut trees? The pluckers have huge problem with that. Also the pepper does not attach to all trees. ~ S N Menezes

For canopy trees like mango, it's a bit difficult to have companion planting? We have the gliricidia around which we use for green manure. We use the mango grafts for growing konkan dudhi in the monsoon. (Refer image) ~ Arjun

Yes, the gourds and melons can be grown on and around it. On the net, they say the best results are intercropping with paddy! ~ S N Menezes

Sorry, intercropping meaning? ☐ ~ Judy

Crop between other crops. ~ S N

Simultaneously? Interesting. ~ Judy

Noticed yesterday that we have a pepper plant growing on a teak tree quite well. They also grow on jackfruit. It seems there is an old Konkani saying which implies that pepper and drumsticks are a good combo. ~ S N

Since teak we have to prune off the branches now and then, the pepper gets disturbed. Think coconut is a better choice. ☐ ~ Judy

We keep it trimmed to ladder height. ~ Arjun

Not a good choice. Our pepper tree is growing since two years upto one and half meter on the coconut tree and then dies and grows again from a shoot and again dies. It's a cycle since two years. Whereas my neighbour has them growing on her mango trees very well. ~ Augusta

We have our pepper creepers on every tree be it coconut, arecanut, cashew, jackfruit or mango. ~ Smita

Topic No. 32 - Important or unique herbs and ayurvedic healing plants, growing and using them.

Herbal plants for home remedies. Refer to PDF here

https://drive.google.com/open?id=170aTH9gzHhBjexWSO0QZj48p_HRKPTqX ~ Augusta

Years are passing by and our kidneys are filtering the blood by removing salt and any unwanted bacteria entering our body. With time salt accumulates in our kidney and it needs to undergo cleaning treatment. How are we going to do this?

Here is an easy, cheap and simple way to do it.

Take a bunch of coriander (KOTTHUMALLI Leaves ☐) and wash it clean. Cut it in small pieces and put it in a pot. Pour clean water and boil it for ten minutes and let it cool down. Next filter it and pour it in a clean bottle and keep it in refrigerator to cool. Drink one glass everyday and you will notice all salt and other accumulated impurities coming out of your kidney while urination. You will be able to notice the difference yourself! KOTTHUMALLI / CORIANDER is known as a best cleaning treatment for kidneys and the best part is it is natural! Please share this information with others and keep your kidneys clean:) ~ Augusta

Arjuna (*Terminalia arjuna*) is a huge tree native to India and Sri Lanka whose bark comprises Ayurveda's pre-eminent cardiotoxic and cardioprotective herb (hridaya). Arjuna means 'white' or 'shining' named after its bark that literally reflects light wherever this huge tree grows. The pale white bark of the Arjuna tree 'moults' off naturally once a year, its new skin bringing new life to the tree. It is harvested when the tree is mature, thus attesting to its ability to prolong life, protect the elderly and strengthen the heart. With a strong tropism for the heart and circulatory system, Arjuna is used widely in the treatment of an array of cardiovascular disorders, including angina pectoris, congestive heart failure, cardiac arrhythmias, myocardial infarction (acute heart attack), coronary artery disease and hypertension and in all of these the plant has demonstrated its efficacy in human clinical trials. It has also been shown to reduce total cholesterol and triglyceride levels as well as to reduce inflammation (P) and congestion (K) that can damage the heart. It strengthens the muscles of the heart as well as tones the vessels of the circulatory system and improves blood vessel elasticity which helps to prevent and control high blood pressure. It helps to balance the movement of vyana vayu in the heart and thus regulate heart rate and circulation. Although originally classified in Rishi Charaka as a raktastambhana (hemostatic) herb, used for staunching hemorrhage, it was only later writers (Vaghabata, Chakradatta) who classified it as hridaya - beneficial for the heart. Energetically, the plant is mainly astringent and to some degree bitter in rasa (taste), of cooling virya, and with a pungent vipaka. It pacifies kapha and pitta, and balances vata dosha, and is light and dry in quality. Regarded as a very safe herb, there are no known drug-herb interactions and the only contraindications are pregnancy and constipation. Pharmacologically, it is an alternative, cardioprotective, cardiotoxic, diuretic, hepatoprotective, hypolipidemic, and vulnerary. Adult dosage is from 1– to 6 grams/day of the dried bark. ~ Augusta

'Curcuminoids' is a medicine which cures several cancer such as Blood Cancer, Brain Cancer, Breast Cancer, Colon Cancer, Liver Cancer, Lungs Cancer, Prostate Cancer, Ovarian Cancer. ~ Cyril D'Souza

Miscellaneous Topics Discussed:

Daryl sir, just wanted some advice bought some kale & lettuces saplings have grown it in rectangular vase using organic mixture. Does it need sunlight because it's just about 5 inch tall, thanks ~ Danzil

Yes Danzil, most saplings are ready for sunlight once they cross 4 inches in height. To be careful, keep the saplings in their cup in sunlight from 8 am to 12 pm for 2-3 days and see if they are wilting with the heat. If not, then extend the time 8am to 4pm for the next 3 days. If they are still standing fine at 4pm also, then it's time to plant them in the soil. ~ Darryl

I have two questions to ask about growing tendlis. 1) is wood ash (gobar) a good manure supplement for tendlis? 2) when you plant tendli cuttings for a new crop, does the soil have to be kept moist all the time? ~ Avertano Nazareth

I had planted lady's fingers and brinjal, the plants grew very healthy but the flowers were falling . Can you tell me the reason behind this . Did not get any fruit . ~ Ana

I had a question about growing avocados? Is it even possible in Goa? ~ Priya Ghate

Avocado goes very well, but there should be two plants close by for cross pollination ~ William

For long does it take for the trees to give avocados? ~ Priya

8 years minimum from seed. If grafted 3 years if you are lucky. ~ Angelo Pais

I have one which I planted 3 years ago, now I have 2 that are a year old will try the grafting method and see if that helps ~ Priya Ghate

Why are two plants required for cross pollination? Won't two branches do? Or is it that they should be male and female? That's important for me to know because I have planted just one avocado tree. ~ Avertano Nazareth

I really don't know, maybe someone from the group will enlighten us. I too have one avocado tree abt 7 years no fruit nor flowers ~ William

Avocado trees have both male and female flowers . However the female flowers open at different times than the male flowers on the same tree. So if you have different trees .. cross pollination results in better fruiting ~ Arjun Rebelo

I believe u need 2 varieties with alternate patterns of opening and closing of male and female flowers, in close proximity (not necessarily touching). 2 trees of the same variety will not do the trick. Reference: Growing fruits and vegetables by B.B.Sharma ~ S N Menezes

And bougainvillea cuttings - though not a veg or fruit, this is the ideal time for propagation. ~ Vanessa

Thanks for that comment Vanessa. It reminds me of adding two more topics to our list - what flowers should we grow to attract more bees for our fruit & veges pollination - companion planting. ~ Darryl D'Souza

Yes Darryl that will be very helpful indeed, also any herbs maybe along with the veggies, to repel insects etc. Thanks.~ Judy

Yes please, if anyone has any important or unique herbs n ayurvedic healing plants, growing and using them please throw some light into this. Example I use brahmi, Laxmitaru as tea, ~ Henry interiors

I have a big avocado tree more than 8 to 10 yrs but not yielding fruits n close to it there's another smaller tree also not bearing avocados May I know the reason please and what should i do to get avocados?

Also breadfruits in a friends property bearing fruits but all falling down ,turning yellow bigger than a palm size n she doesn't know what to do ,plenty of water n coconut husk is put plz advise thanks. ~ Julio Rodrigues

These are my avocado trees as mentioned earlier, 8 to 10 yrs old not yielding fruits They are at the back of my compound Is it bec its close to a coconut sapling? ~ Julio Rodrigues

It's outgrown the coconut and in the sun, should not be an issue. Stress the plant a bit. It might flower. ~ Arjun Rebelo

What do you mean by "stress the plant a bit" please let me know. Thanks ~ Ana

In natural life cycle the plants flower and fruit which follow seasons . Certain situations like lesser water or change in weather trigger their responses to flower etc. So if you water mango continuously they may not flower. So ideally one should stop watering of fruit trees until the flower and the fruit forms. Some people actually use a technique where a strip of the tree bark is cut in a semicircle (not all the way through). Just enough to cut into the first layer, so as not to damage the plant permanently. This causes the stress. ~ Arjun Rebelo

In my humble opinion by stopping the watering of the plant by plan is a simple way of stressing the plant. ~ Gloria Assagao

Try micronutrients . If you soil is deficient in certain minerals that could affect the fruiting. Try micronutrients . You can also use bone meal . Any garden shop will have it ~ Arjun Rebelo

You mean to say rock phosphate is the solution? ~ Samson Da Costa

No they are different . Rock phosphate is a soft sedimentary rock which is crushed and used as organic phosphate. Our soil in Goa is supposed to be deficient. Perhaps more discussion around this is getting covered under topic no 23 ~ Arjun Rebelo

Teacher Avocado require Nitrogen and Zinc. I'll give you organic nitrogen and zinc rich leachet from my Black Soldier Fly composter very effective. ~ Eleuterio Carneiro

There is a water spinach called Kang Kong from South East Asia . It's also called bamboo spinach. It's semi aquatic. Grows well if you have a lot of kitchen water ~ Arjun Rebelo

Those seeds that Gloria posted a picture of are sword beans seeds. They are naturally pinkish red ~ Arjun Rebelo

These are the white sword beans to the top right. ~ Arjun Rebelo

Sword beans are locally called Koituvall. Red and white variety are found in Goa. ~ Maria Nifa

How to differentiate one from the other? Seed looks similar is leaf and bean also similar. ~ Gloria Assagao

Tell me when someone finds a way. I too would love to know. ~ Gloria

We keep red coloured liquid along the compound wall, someone advised, has helped. ~ Judy

We keep red coloured liquid along the compound wall, someone advised, has helped. ~ Nathan D'Souza

Only temporary, Have tied artificial snakes.worked for a while.monkeys are afraid of snakes ~ Gloria

If composting is too much trouble, u can contact CCP or Saligao waste treatment plants for compost. Or you can purchase organic manure from bhagaytdars @ Rs. 210 for 50kg and if u r a registered farmer, can claim 50% subsidy on the same. Doing your own is always best though since u know what's going in it. ~ S N Menezes

My experience with CCP compost is very bad. They sold me the most lousy compost. The one I recently got from ICAR is really good. ~ Angelo Pais

I've heard people say, u get good compost at Angel Ashram, Verna. But, I don't know if u still get n how good it is. Maybe someone else in the group would know... ~ Giselda Menezes

Out of context a bit but don't know where it will fit in but how can I get a bee box as it really helps with your entire home.garden ecosystem ~ Vanessa

13th there is a bus being organised by the govt of GOA. To go to Karnataka. It's a Sponsored trip.

To learn n buy a bee box n colony.

9890961831 Melwyn

Contact Melwyn, based in mapusa. Very helpful. ~ I am blessed

I think these are soldier fly maggots . You can use them to feed hens if you have them. A good source of protein. (video to be attached with) ~ Arjun Rebelo

From where can I buy earthworms in the north side of goa? ~ Augusta

Available at KVK Rs. 1000/- a kg, Fr. Agnel, Pilar Rs. 600/- a kg. Plz confirm d rates again. ~ Ellie

Ok... ☐☐ composting seems to be a hot topic in here. ~ Giselda

Yes ☐ its the foundation of good soil nutrition. No good soil... no good anything that comes out of it. ~ Darryl

Relevant to me! Apartment dwellers can make compost too? ~ Shay

Darryl has mentioned it here... The vertical 3 layer clay composting bins. It's good for apartment dwellers. I think they are known as khambas. (Someone pls verify) In the North, they used to be available at Green Essentials. N in the south, I saw them being sold by Clinton at the Farmers Market. ~ Giselda

Yes Green Essentials in Porvorim, Goa has the vertical composting pots. Pls call them for one 8698888683 ~ Darryl

Just spotted an incentive to grow medicinal plants- Hurry tho, the deadline is 15th Feb☐☐ sorry for sharing out of context but it might help someone cultivating these. ~ Eva

Next topic will be to identify weeds.☐? ~ Savio Dcunha

At the Asilo hospital we have a pit where placenta of newborn are thrown but we just put some solution after every throw, it has been giving a stink around that corner. Placenta is supposed to be full of nutrients and if used properly as good manure, can someone suggest something? ~ Sophia Fernandes

I agree. In some cultures, the placenta is dried and powdered and given as healing medicine /postnatal nutrition / immunity strengthening for mother and child. In modern medicine a.k.a. allopathy, this tradition isn't supported or advocated. Most times the placenta isn't disconnected or removed, but left to dry naturally attached to the body of the baby until it falls away in its own time. ~ Lavina Periera

Local bhendes! I was told by the locals in my village that u can grow them only in the monsoons. ~ S N Menezes

Any suggestions as to what could be done with this? Turmeric fresh. (image attached) ~ Judy

Make sweet laddu. Gud for bones and joints. Not to mention the the digestion. Use jaggery for sweetening. Peel it, Grind it to paste, Use desi ghee for browning, Also brown besan for assimilating, Use rose water, Cardamom, Make jaggery paste, Mix all and form ladoo. ~ Tariq Perviez

Processing of turmeric <http://mkranade.50webs.com/processing.htm> ~ S N Menezes

Boil it, chop it into small pieces, Dry it in the Sun for 10 days or more till stone dry. Grind it to get turmeric powder. ~ Saira D'Mello

Very good for pains one can make vegetables but recipe is there, I was searching for fresh in cold season, where can we purchase it, a kilo I want some to plant. ~ Tulsidas

Make cultured vegetable of it at home. The recipe is in my book on page 144. It is a very healthy probiotic food. Will last for over a month. Put it in glass bottles and sell the excess in organic markets. ~ Darryl

Wash well. Slice fine and dry completely till it's hard and then powder it and store in airtight container. I do it every alternate year. ~ Maria Nifa

What are the vegetables that grow in shade & semi shade? ~ Saira D'Mello

'Indian Medicinal Plants'. I received this ebook recently. Hope it helps y'all. (PDF file) ~ Lavina Periera

Eco Wrights by UNNATY self help group of rural women. Eco-friendly plantable seed pencils and pen crafted from recycled waste paper. For inquiries call us on +919765843677. (image to be attached) ~ Cleophascaido007

Superb Irvin. What's the environ for lime success, have failed at whatever attempt I have made. ~ Vanessa

A little shade. ~ Irvin Soares

Nice lemons. I have a lemon plant in a pot, 2 plus years old, still has not borne fruit. ~ Sunit Sharma

Put little cow dung and salt. Very less salt. Sprinkle water regular and for the plant once in 15 days. ~ Irvin Soares

Meaning water every 15 days only? Someone told us we need to stop watering the plant for a month and re-start when leaves start falling. The stress is supposed to start the fruiting process. Has anyone tried this? ~ S N Menezes

I was told and did stressing by chopping up the spread out roots & chopping off most of the branches then water twice a day for 15 days after which new shoots will come, then put bone meal & water alternate days. Just done that. Waiting for results. ~ Saira D'Mello

Nice. Let us know the results. I have never cut the roots before, only trimmed the leaves majorly, so would like to see how this turns out. I think it will take 1 month to see the starting of the results in this case. ~ Darryl

Yes. Sure I will let you know the result. 1 local lime tree is in semi shade & 1 in full Sun & both have been stressed thoroughly. ~ Saira D'Mello

Mine too not bearing fruit for a long time now. Dried cow dung and rock salt? ~ Carlton

I use bone meal mixed in the soil for these size lemons & water alternate days. ~ Saira D'Mello

Where can I get bone meal? ~ Vanessa

One place is Mapusa Yard behind the inter-state bus ticket counters. ~ Darryl

But they sell bag of 50kgs only. That's too much to buy. ~ Augusta

I get it from Mapusa Friday market where the plant sellers sit. Exactly. So I buy half kg bags from Mapusa market. ~ Saira D'Mello

What is approximate price please? I'll check next time I go. ~ Augusta

Rs.50 per half kg ~ Saira D'mello

We can buy and share it. ~ Savio

That's right. Share with organic growing friends. ~ Darryl

Or get from Amazon in packs of a kg or two kgs. ~ Atchut Kamat

Is there a local konkani word? ~ Vanessa

Not the right thread I think but bananas, breadfruit, soursop, lime, bimbla, star fruit, what kind of periodic manure to be added. Please advice. ~ Vanessa

Darryl I ordered seeds for my veggie patch only to realize i'm late. So i've stored them in a ziplock bag in the crisper. So what can I plant now? Okra, palak, mustard greens, salad tambdi bhaji already in place. Any other suggestions please. ~ Gloria

You can grow tomatoes, capsicum, brinjal, radish, knol khol, tendli, papaya, passion fruit, methi. ~ Darryl

In Goa, most of the old trees, which were producing pollen or nectar are chopped down, the veggies gardens and our garden pollen and nectar are not sufficient for honeybees and other insects. People in each and every area has to plant trees which are full of pollen and nectar, which in turn will satisfy honey bees and in return pollination and good yield to humans.

Also in farming people or youth in age group between 20 to 30 years have to take challenge, Parents kindly encourage your children's in agriculture. ~ Savio DCunha

Hi Savio, can you suggest which types of trees we need to plant? ~ Carlton

Need 2 cement bags of soil, anyone share where I could buy / get / procure from? ~ Vanessa

What kind of soil? I got 20 bags of ordinary soil in Candolim to give away for free. ~ Darryl

May I have 2. I can share some plants or some digging and weeding time in return, just ordinary soil I will add the necessary to better its texture and potency. ~ Vanessa

Sure Vanessa. I'll be happy to get some plants ☐☐ please bring the empty bags. I got the shovel etc. Will share my location details with you in private msg. ~ Darryl

Saieesh we all speak of being gardeners and garden enthusiasts..but one never realises the importance of giving back to complete the cyclethe bonhomie and goodwill shared ..goes a long way in bettering your produce and enhancing the entire outlook ..very karmic in nature ☐☐☐☐☐☐ ~ Vanessa

Very right ☐ may all who are receiving here also give back... here or in other places so that the abundance and knowledge they received spreads ☐☐ Society only gets better when some folks do good and more importantly... when the receivers also do the same for others. ~ Darryl

I must say we were very impressed with Nathan's dedication to being involved in farming given his age. It gives me immense happiness to see these few kids of the next generation take active part in growing food. ~ Eva

Hey! Maybe someone can do a workshop on it if they've understood it properly. What say? A paid workshop also is fine. ~ Darryl

This can be done, we can also add to this a lot of other things like :
Principles of Regenerative Agriculture to Build Living Soils.

"Compost Tea Brewing" from ur own Compost to multiply the IMO (Indigenous Microorganisms) which works to build Resilience in soils and protecting the plants from disease and pest attacks.

Take a patch on the farm which is not doing that well and apply these principles to verify.

Tools and Instruments that can help mitigate disease and pest attack.

How to incorporate biologicals for Plant protection?

Minerals and Organic options in Organic Farming. ~ Purvish

Darryl D'Souza how do I keep snails away from my balcony garden? I don't want to kill them. ~ Manoharan
Sorry have not found a solution for this as yet. ~ Darryl

We have water accumulation in the compound during monsoon which has no place to go as neighbours complain about the water entering their compound. Is there anything I can do for that? ~ Carlton

How big is your place? I have a huge natural depression at one side of my plot. (Almost 25 sq.mtrs) So almost all water seeps into the ground and raises the water table. ~ Casey (I Am Blessed)

Around 300 - 400 sq.mt, house at the centre and garden all around, it's not very big in width maybe around 3 - 4 mts. Max. ~ Carlton

Make small 1 foot trenches after every 3 feet distance (perpendicular to the direction of your slope). Use these ditches as in situ composting pits. They will soak up a lot of rain water. The 3 feet gaps are your growing beds. ~ Darryl

You can actually use it to your advantage if you have a well. Direct it into the well. It will recharge the groundwater. But you will need to design a natural filtration system to prevent the well from silting up. ~ Arjun

Thanks Arjun, but we don't have a well. We do have a "Giron" sort of a sump which takes waste water from sinks etc in the house. ~ Carlton

Sorry not right thread but is this soursop ready to be removed. (image to be attached) ~ Vanessa

Vanessa your soursop is completely matured. Look at the external thorns how well they are far apart and your size of fruit. It's the same for breadfruit and jackfruit too. ~ Maria Nifa

When did you plant it? ~ Avertano Nazareth

In the soil in a small patch where I have bimbli, starfruit, gooseberry, avocado, soursop, breadfruit, cinnamon, tendli, 3 varieties of banana, lime, guava the 1 kg variety, love apples and a couple of other fruit trees 2 years back sorry Avertano told you all the irrelevant history and forgot the main part. ☐☐☐ ~ Vanessa

Please post a pic of the small patch. My mango trees are not flowering since last seven years. What can I do? ~ Augusta

How old are they? ~ S N Menezes

11yrs. We have another two trees of twenty plus years. They too aren't flowering much. We get like 10-20 mangoes on them. It's only in 2017 we got like 250 mangoes. This year too hardly any flowers are seen. We don't water them much neither manure. Could that be the reason? ~ Augusta

Mangoes next year. The Navhind Times. This is what the experts say: <http://www.navhindtimes.in/mangoes-next-year/amp/> ~ S N Menezes

You should not water after the rainy season and also try putting incense smoke under the branches. ~ Alice

Send a photo. ~ Arjun

Will send tomorrow morning.

Mango tree pics. The first two trees are 25 years old n the third is 11 years. (image to be attached) ~ Augusta

This tree is leaning to the right. Was it being blocked by another tree? Coconut getting in the way. Mangoes and coconut are a bad combination. (reference to image attached) ~ Arjun

Yes because on the left side there's a big straight growing tree in my neighbours property so that's why both the mango trees are bending towards the right. ~ Augusta

Arjun, What is the solution? ~ Savio

One has to make a difficult choice between the mango or the coconut given the spacing. Which one has a better chance of long term productivity and value. Is the mango a good variety? Is it difficult to maintain the coconut tree?
~ Arjun

The coconut tree is also not giving much yield. Few coconuts only. ~ Augusta

That's why I tell those who take advice from me, to plant one or two good breed coconut, mango, jackfruit or any sapling or grafts which will give you good yield, don't plant big trees without tasting the original or main plant tree fruit, and not to buy from market, unknown people etc and repent later. A mango graft has to give fruit after 4 years if taken care of properly. One coconut tree has to give 45 + coconuts, jackfruit tree has to give 20+ jackfruit, Mango tree 300+ mangoes. ~ Savio

Very difficult to know whom to trust. We had bought a fig plant from a well known nursery in bardez 7 years back. The plants were supposedly from his own farm. For last 2 years we got a profuse yield of figs that were hard and in-edible. When we went to them, they said that fig trees with large leaves give such fruit and those with small leaves give the tasty figs. No explanation as to why they sold this variety and only solution was to cut the tree, which we finally did! ~ S N Menezes

Could it be they are crowded by other trees hence "scared"? To use a term often heard for "coconut trees being too close"? ~ Gloria

Yes. They don't do well in shade, over watering. ~ Arjun

Since we are discussing watering mango trees throughout the year, can you please advise?
I was of the opinion you water till december / january and stop when flowers start appearing.
How about jackfruit? My tree has begun to flower fruit late. By the time the fruit is ready the rains come and the fruit which is of good quality become tasteless. ~ Gloria

What breed are the mango trees? ~ Savio D'Cunha

Why do you'll plant saplings which are not of Portuguese trees origin? ~ Savio

Don't understand your question. We are in goa not portugal. Some of the trees are towering in the garden prove they were here before me. ~ Gloria

Irrigation mode for better mango fruits. This is what is done elsewhere in a place we cannot name:
<http://www.dawn.com/news/607736> ~ S N Menezes

12000 trees, 1 acre: This NGO is creating a dense forest in the middle of Mumbai
<https://www.thebetterindia.com/173614/mumbai-tree-planting-miyawaki-forest-city-green-cover/> very interesting read ~ Casey

I guess this method is useful when you want to create greenery. Planting trees close by forces them to go up in search of sunlight. None of them speak about the fruit yielding abilities of the trees. ~ S N Menezes

No. Purpose is greening, raising water table, creating fresh air, cutting off noise and dust pollution besides attracting different birds / insects. ~ Casey

Yes. Not to get fruit. ~ S N Menezes

In Mumbai fruit trees are an issue since people start stoning them for the fruit! ~ Arjun

Reason to have a green roof, less runoff. (video to be attached) ~ Kavita

Keep at least half a meter between two plants. Water regularly. ~ Lourdes D'Souza

Please advise how sunflower seeds are to be grown. ~ Augusta

For Goa's:

- farmers
- gardeners
- kitchen gardeners
- aquaponic farmers
- Permaculture practitioners
- Biodynamics practitioners
- homesteaders
- nurserymen
- arborists
- florists
- landscapers
- environment lovers...

...anyone involved in any botanical activity...□□ (PDF to be attached) ~ Casey

Should bush pepper be grown in the ground, it is now in a pot? ~ William

I brought some pepper cuttings from karnataka. They are not doing well. Photo attached. Suggestions please. ~ Gloria

Gloria the pepper cuttings will do well once it starts raining. ~ Lourdes D'Souza

Yes, they'll grow very well. Make sure you water them regularly. ~ Angelo

Does someone sell worms of vermicompost close by to Calangute, reqd. contact no if possible. ~ A Dcosta

At what distance can I plant sugarcane, I've rooted it on its side. Now I want to shift it to a better location where it can get more water which I believe sugarcane needs. ~ Gloria

Why do you want to plant sugarcane? ~ Casey

Just a word of caution. When I planted sugarcane some years back, I invited big rats or bandicoots who loved the sweet roots when d harvest time was approaching. Maybe it's only in my area so I wish you luck. ~ Saira

Citrus peels can be composted, they are an excellent source of nitrogen, phosphorus, and potassium. Adding them to compost is a great way to make it nutritious. Before putting citrus peels to compost pile be sure to break them down into small pieces to speed up the composting process. As an added bonus, citrus peels also protects compost from scavengers and pests, as many of them dislike the smell. ~ Augusta

Coming back to farming. How many days does it take for seedlings to go from two leaves to four and six leaves? Can someone give some insight into my slow growing bhindi? ~ Gloria

Probably growing slowly bcoz of hot weather. ~ S N Menezes

You probably should be transplanting them now. ~ Judy

The best time to plant lady fingers (bhendi) is in the month of may I think on 3rd or 4th May. ~ Nathan D'Souza

The plants are not healthy, the stem will start drying, That's why I have told to visit the fields. ~ Savio D'Cunha

Are there several types of bhindis, coz I was told by an expert Tamilian Farmer who visited my veggies that mine are winter bhindis & that's why they are not doing so well. I should plant summer bhindis, is this true? ~ Saira

What is a food forest?

A food forest is typically a very dense vegetation, created using all natural resources but not exploiting the resources. Talking to Efforts For Good, founder-innovator Sandeep Saxena informs, "We are basically structuring a proper forest, but a sizeable part of it can come in use for human consumption, but only up to a certain limit that does not affect the ecological balance."

So how are these food forests created?

Imagine a large area being selected for handcrafting a thick forest. At the centre, evergreen trees like Peepal, banyan etc. are planted. This, according to experts, enhance diversity and thereby increase natural production. Radially surrounding the central zone, fruit-bearing trees are planted, and the open spaces are filled with smaller plants like lemon and cranberry, which do not grow much tall. The outer circumference is sown with lentils and legumes while plain grass dominates the forest ground. Vegetable bushes and shrubs grow interspersed between the fruit-bearing trees. As evident from the afforestation pattern, biodiversity is strictly maintained in growing food forests. Instead of tilling the soil, seed balls are used so that the nitrogen cycle of the soil is not disrupted. Regeneration of seeds on their own is one of the main attributes of Aranyaani food forests.No mechanical or chemical intervention

"A forest grows naturally without any human intervention, abundant with all its resources. So, for our food forests too, we had to ensure that human intervention is limited. So, we stepped away from all machinery and equipment, as well as any chemical or artificial additives in the soil: no hybrid seeds, no synthetic fertilizers. Everything grows as per the natural forest ecosystem," he shares. ~ MOG Ausundi