

The Sreekrishnapuram Method of Organic Farming

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Abstract

We describe an upcoming farming method developed by a group of farmers from Sreekrishnapuram, Kerala, India. This is an adaptation of several farming techniques keeping in mind a healthy, non-toxic environment and food to be produced in as short time span as possible.

Introduction

In this article, we try to describe shortly a canopy based farming technique pioneered by the Sreekrishnapuram Jaiva Karshaka Samiti (Organic Farming Society) which over the last few years have proved effectiveness and acceptance among a lot of people. It is distinct thanks to the fact that it is entirely developed by a group of experienced farmers who have been active for past couple of decades in farming. Being in infancy itself, it is not yet clear what are all of its pitfalls, but at least conceptually it is much superior and definitely a healthier alternative to the currently popular methods of farming. We still do not know the cost effectiveness from a sellers perspective or even the farmer's perspective. But in our opinion, it is only from the consumers perspective that food must be produced. Once that is ensured, the producer or farmer will be able to recover his cost. I would rather spend money on better food than at hospitals. And in this perspective, the method will surely be cost effective for a consumer.

Briefly, it is a canopy based organic farming with emphasis on soil and water preservation where many varieties of fruit plants - permanent and perennial, several annual vegetables are farmed making use of the entire land area for maximum food production. Large, Medium, Small fruit trees and shrubs are planted together with perennial and annual plants like Bananas, legumes and leafy vegetables. Before going into the details, we describe the background.

Background

It is a great social calamity that happened during the past few decades when green revolution completely destroyed the traditional farming methods. While it momentarily helped to feed the hungry and save many people from starving as a fast solution, it was later found to have consequences far worse than its net benefits. Let me quickly mention some of the issues.

1. The method heavily relied on the application of major plant nutrients namely Nitrogen, Phosphorus and potassium in an easily absorbable form. This helped the growth of plants by absorbing faster the nutrients from the soil and thus, the yield per unit land increased manifold.
2. On the other hand, after the first few years of the application of these chemical fertilizers, there was a huge increase in the number of pests attacking the plant and fruits. Thus started the use of pesticides and other type of poisons to control the pests and save the fruits and vegetables from their attack.
3. To make things worse, the pests seemed to become more and more resistant and plants more and more susceptible to their attack. Since the farmers had no other option but save the crops or starve, they started depending more and more on the pesticides and fertilizers.
4. The more the pests were resistant to pesticides, stronger poisons were developed to counter them.
5. Since the end-user or consumer usually never see the application of these chemicals, they were mostly ignorant of their excessive use and their side effects. Things were helped by the fact that it takes a long time or even skip a generation to show the real effects of these poisons being consumed by the body.
6. It is also accepted now that the tastes of items produced using application of NPK fertilizers is inferior to that of organic farming.
7. Water pollution and cancer: Another side effect of green revolution and use of fertilizers and pesticides is that of water pollution. Several studies have found increased cancer and linked it to the areas where pesticide use was continued for long. The amount of nitrates in wells were much above the allowed level. As early as 1989, a WHO study estimated that about 1 million humans suffered pesticide related poisoning in one year alone and 20,000 per year died due to this. One can guess that these numbers will be much higher if the study is conducted now.
8. The moment someone talks about the usage of pesticides and need to avoid them, a lot of 'scientists' working in the agriculture field immediately come to defend their use. A usual argument is that the problems are due to the indiscriminate use of pesticides and fertilizers. If they are used in moderation the negative effects will not be there. This is mostly due to the fact that everyone try to defend what they do for a living. If you learn, teach and do research on certain assumptions, and a new concept comes that challenges these assumptions, the general tendency is to defend their belief. Only when overwhelming evidence against it comes that cannot be ignored, the new idea gets acceptance. This is true for every field except possibly mathematics where everything is based on assumptions. While one can definitely agree that less pesticide means less harm, it is not at all clear why its moderate use is completely harmless and why its use cannot be avoided altogether by a smart alternative method.

So it becomes important to produce and provide heavy evidence in support of the views that one can do agriculture without pesticide and produce enough food to feed all. We give a list of questions that need to be thoroughly investigated before we can make conclusive statements at the final section of this article. Some of these questions do have very high complexity and interdependency which makes it very difficult.

The proposed method is a strong attempt at providing an alternate method which can potentially address some of the arguments against organic farming.

What are the causes and is there a solution? The quest for answer to the first point immediately raises the question: what is soil?

What is soil

If you ask an average school educated person, the typical answer is - a mix of mud, sand or rock powder. On the contrary, arable soil is a complex living and breathing entity.

1. A major component of soil is dead plant or animal material. The organic matter together with fungi and bacteria that live in there make up a good percent of the soil. In fact, a soil is classified as organic soil only if it contains about 18 percent organic matter. Usually in open highlands, the soil contains only 1-6 percent of SOM while wetlands that are low-lying may contain upto 90 percent [?], both due to soil erosion. A handful of living soil contains billions of organisms. These bacteria eat and produce as 'waste' carbon and many other nutrients that are required for plants to grow. Rich soil is usually black in colour and has the capacity to hold water and air without making it 'muddy'. It goes without saying that most plants do well with soil with higher organic matter and is one of the reasons why earlier populations used to thrive near riverbeds where flood deposits the black soil rich in organic matter up to even 90 percent.
2. This brings us to the next point about pest attack. Why did pest attack increase with the use of NPK fertilizers for farming? Recent studies find that other than NPK, several essential elements are required for a healthy plant growth. For example, without adequate supply of Boron - though only needed in minute quantities - the cell walls of plant become weak and thin which enables every pest to attack it much easier. This is one of the main reasons for the plant to be under attack necessitating the use of pesticides.
3. Why the sudden lack of Boron or other nutrients? : When larger number of plants are grown in small area which uses the larger amount of certain minerals (given as additional supply), they absorb much larger amount of other nutrients and deplete their sources.
4. What the living organisms of the soil does is to convert the dead plants and animals to a perfect mix of necessary nutrients in the form that plants can readily absorb. When the pesticides and even strong fertilizers are applied, most of these organisms cannot survive in the soil and they die. So instead of a living breathing soil, we get a dead soil in return.
5. Another huge side effect of pesticides is that they also kill all the insects and animals that help the crops by eating the pests - the natural way of control where whenever the pests adapt, their predators also adapt to keep the balance.
6. So, does the problem gets resolved if we add also Boron to the NPK? The more we study, more and more components are becoming essential for the plant growth. My best bet is that whatever we know so far is only partial. We also do not have any idea of the other possible effects of using supplements that are made by us in factories. Frankly, no one knows the correct answers to these questions. It will take decades or centuries to know for sure if something like this is effective and harmless.
7. The reason for tastes being different is also due to the fact that many nutrients are missing or low in the soil, which will be missing from the fruits also.
8. One thing is certain. Try to be as close to nature as possible is the best possible option anyone can get. Millions of years of evolution cannot be approximated well by a few years or decades of trial and error.

We need to fight the necessity of large scale food production without compromising our health for it. Currently we have too much of food and too much of wastage too and still have too many hungry people and too many health issues.

What can we do?

While we are not certain what nutrients in what form and what ratios are suitable, the microbes and other soil living creatures definitely know and do their job. All we need to do is to promote them and make sure we do not destroy their living conditions. Even a dead soil can be brought back to be alive if we leave it alone and let the forest take care of it. It will take centuries though. But we do not have that much time with us. We can instead try to help the nature fasten this process. The following method of farming tries to do the same and ensure that we do get in return an increasingly fertile soil together with fruits and vegetables without poison as bonus.

The concept of Fruit Food Forest

Let us look at the main features of this concept or the notion of food forest.

1. Making the soil alive: First priority given is to make the soil alive. To improve the soil, an effective way is to use composting, live mulching, live shading and incorporating diversity. We look at each of these in detail.
2. **Composting:** A good compost provides the perfect environment for the microbes to multiply and convert the nutrients to a form suitable for plants. The recommended base for compost in our area is coir-pith because, it is available in large quantities, and it provides an airy, warm and wet texture which lasts for a few years. Cow dung, goat pellets, dry leaves, hen manure etc are added in layers which provides the food for the microbes to convert to soil nutrients. The procedure that we follow for making compost is explained later.

3. What we know now is that many plants help each other for their survival and a diverse set of plants living close by is essential for their mutual benefits and survival. This is the next point.
4. **Diversity:** Diversity is an essential feature which is missing from our massive plantations. We still do not know in full which plants help each other. But diversity definitely helps. We still need a lot of experiments to figure out the best combination. The plants that we do plant are diverse, but they may not be the best suitable. With the help of trained botanists and many experiments we may hopefully figure this out in some detail in a few decades.

5. **Canopy based planting:** While in forests, the plants optimize their survival and not on yearly food output, we also need to give importance to the production as well. What is as essential as soil is the availability of sunlight which helps convert carbon dioxide and other nutrients to fruits.

On one hand, in traditional single crop agriculture, a large percentage of the area goes waste as large trees cannot be planted together. On the other hand, in the proposed method, we will see that entire land area is used for food production by mixing small, medium and small plants making use of entire sunlight, increasing the total usage and output.

Another advantage of making sure sunlight barely reaches the soil is that it also helps to reduce the warming up of the soil and air.

6. Typically there will be from 50 up to 120 varieties of trees and dozens of varieties of annuals which provide a balanced food for a large part of the year. As the years progress and more area is covered, some of the annuals need to be replaced with others or need to be planted while we prune the plants so that they get sunlight.

7. **Live mulching:** The most important soil conditioner is the live mulching. In this, several (more the merrier, typically 25-50 types of) small and fast growing crops that produces several nutrients like Nitrates (legumes), Calcium, Phosphates(sesame) etc are sown among every possible free space. They serve three important functions. First is that they suppress the weeds and are easier to control. Second, they give us a lot of food in terms of vegetables, legumes and oil producing spices. And most importantly, the plants produce huge amounts of biomass that are ploughed into the soil which reconditions the soil by being food for the microbes.

8. **Live shading:** Live shading is when we plant temporary plants that act as a shade for the growing trees and also soil which protects the plants and soil from the scorching sun. Banana plants are a good shade provider for the trees and we plant the mulching annuals densely packed so that it does not allow sunlight to penetrate to the ground very easily. This second function helps to provide a suitable habitat for the microorganisms and also helps to prevent soil from drying up, preserving precious water.

9. **Trenches and water harvesting:** Another huge benefit of having a good soil is that a live soil helps to harness the rain water. In a forest, the many years of leaves accumulated prepares the soil porous and like a filter and sponge. The top soil never becomes 'muddy' through rains and all the rain water is passed on to the ground without allowing it to flow away. This helps to avoid soil erosion also.

In the proposed method, In addition to the pits filled with compost and mulch, trenches are also made which traps the water and pass to the ground. While definitely inferior to the forest soil, this helps to increase ground water levels considerably. Moreover, the annuals and yearly accumulation of leaves are not to be removed, but kept in the soil itself which slowly makes the top soil more porous. This also makes the soil more attractive for the earthworms.

A side benefit of trenches is that over the years, the pit becomes a place for the microbes to thrive increasing the soil fertility even more.

10. **Drip irrigation:** Using drip irrigation has the obvious advantages like minimum use of water. But the much bigger advantage is that the trees have shown to benefit from regular and timely water supply. The biggest effect of this is that throughout the year, the plant can grow and this has helped to reduce the usual flowering time by almost 40-50 percent.

11. Most importantly the fruit forest supports birds and insects by providing them regular food and in turn birds and insects return the favor by providing micro-nutrients from bird droppings and controlling pests.

12. Throughout the year, the forest provides honey which in turn attracts bees and butterflies which increases pollination.

Thus, it is hugely economical to set up (or give it as leased to professionals if you cannot do it yourself) beehives in the plantation which provides pure raw honey (what we buy are generally adulterated, or completely fake or heat processed (which destroys the beneficial properties of honey) as this helps to increase the fruit production.

These are some of the immediately visible advantages of the proposed system. Now, let me describe the ideas behind this system. Of course no system is perfect, no system is suitable for everyone and you need to adapt it to suit your own needs.

The proposed mixed farming - an ode to the notions of Palekar, Dhabolkar, Permaculture and Fukuoka method

In this section, we take a look at the central concepts and techniques commonly used in detail. This is nowhere near ideal and you need to adapt according to your need and situation.

Step 1 **Making the compost:** Once you decided the plot where you want to try this farming method, the first step is to decide approximately how much or compost you will be needing. While it depends on the soil, on the average for an acre, roughly about 3 tonnes of coir pith and 40 baskets/headloads of fresh cow-dung, 30 large sacks of goat pellets, 30 large sacks hen manure, 2 sacks of rock phosphate (natural phosphorite rock powder enriched by

magnetic separation and washing, optional), as much dead leaves/plant material you can get, water and 6 kg of composting bacteria. A table is given below for one acre.

Number	Material	Amount
1	Coir Pith(Chakirichor)	3 tonnes/mini truck full
2	Cow dung (Fresh)	40 basket/ 600 KG min
3	Goat pellets	30 Sacks min
4	Hen Manure	30 Sacks minimum
5	Coir-pith composting microbial culture.	8 Kilo
6	Black Molasses/Jaggery	8KG
6	Water	To soak.

Composting Algorithm

The method given here to make compost can be adapted and used to make it once in a while to top up the soil quality. It is not necessary if yearly mulching crops are sown, while a few years of doing it speeds up the soil conditioning process. If you have been using chemical fertilizers in the land for many years, or your top soil is removed or lost, then, you must do this a few times. In fact, if the soil is dead, it is very useful if you can mix the compost with a feet of top soil and plant only the annuals for the first year (twice) while having many trenches and the pits ready for planting. You also can spray jeevamritha every two weeks for the regular supply of microbes. This will improve the soil and ensure that the next year, the plants have a better soil to work with.

- Prepare 200 litres of water after soaking 2 kg jaggery and 2 kg culture mix. We need three more such batches.
- Divide the coir pith to 4 roughly equal parts. Put the first part in a rectangular bed form with width less than 7 feet and length about 20-25 feet. Press the sides with a wooden panel to keep it firm and in shape.
- Spread the hen manure on top of this and also sprinkle half of the rock powder on the top. If you have leaves or dead plant material, you can add a layer of that on top. Soak with the prepared culture solution.
- Once again put the next layer of cocopeat, making sides and on the top spread the goat pellets, rock phosphate powder (optional) , leaves if any and pour another batch of solution.
- Next, another layer of peat followed by cow dung layer and leaves. Soak with the third batch of solution.
- Finally, cover with the last quarter of cocopeat, firmly press and soak with the final batch of culture solution.
- Cover all the sides and top with coconut/palm leaves to avoid exposure to too much sunlight and water.
- Note: It is best to prepare the bed under shade.

It takes about 3 months for the compost to be ready. Once it is ready, typically two weeks before the rain season starts, we can start preparing the ground.

The booting phase

The booting or startup phase is the work involved in the first year. In later years only some of the things need to be repeated.

- Depending on the layout of the land and specific parameters like existing trees or other plants that you want to keep, the land is roughly leveled and mark the places using a suitable pattern. An example is given in the figure below where we use a rectangular grid arrangement.
- Many patterns are possible, like triangular or hexagonal grids or your own imagination. The thumb rule is that every plant should get maximum sunlight and no part of soil gets direct sunlight when the trees are grown a few years.
- Once we mark the entire area like this, it helps to prepare a graph by marking these. If there are any existing plants coming in the way, the nearby points can be marked as 'occupied'.
- At this time, we are ready to decide the plants. It depends a lot on your tastes and needs. We divide the plants into categories A, B, C, D, E, F and G based on their maximum possible size. The category of plants are given as a table below.

The figure given on plantation is just an example. The thumb rule of deciding is the following. The distance between two large category plants (A,B) is about 40 feet and at the very least 30 feet. Category C and D can be planted somewhere midway between two large plants. Category E is usually a perennial plant like Banana. The smaller ones can be annual crops as listed in the table.

Once we decide what all plants we want to plant, one can procure them and continue to the next step.

In the meantime, procure various seeds for the annual crop, live shading and mulching as per the given table. These seeds are put to 3 bags depending on the size and mixed well.

- At each marked place, make pits that are 2 feet in depth and circular 3 feet in diameter. The pits should be then filled back to have a depth of roughly 1/2 feet from the top. Take 3 baskets of the compost (you need to take all the layers into each basket or mix it an earth mover (like JCB)). Into each such pit, fill 3 baskets of this compost.

If the terrain has slope, we also make trenches in the intermediate spaces so that water is never lost from our land to outside.

Table 1: List of plants

Large Plants	Medium Plants	Bush Plants	Vines
Mangostein (seedling)	Abiu (like sapota)	Miracle Fruit	Perskia
Chempadak (Bud)	Malaysian Rambuttan Red (Bud)	Phalsa	Passion Fruit – red-yellow,violet
Walnut (Graft)	Malaysian Rambuttan Yellow (Bud)	Dragon Fruit (red)	Kiwi fruit
Marang	Pulasan (Bud)	Dragon Fruit (White)	Grapevine – red,seedless,green
Hog plum (graft)	Burmese grape (bud)	Apple guava	Blackberry
Bread Fruit (Kadachakka, Bud)	Longkong (graft)	Korean Guava	raspberry
Seashore Mangostein	Macadamia	Violet Guava	Akasavellari
Jaboticaba	Salak fruit	Miniature guava	
All season Jackfruit	Olive – graft	kilo pera	Seeds for Mulching and shading
Chembarathi Varikka	Santol – Sour Apple	lemon pera	Beans All types – 5-10
Duriyan graft	Nelli graft -krishna	strawberry guava	Jeeraka, Ajwain,Saunf
Duriyan Bud	graft Tamarind	guava pink thailand	Black Mustard, Sesame,
Milk fruit	Graviola graft	Guava allahabad	Varagu, Thinai, Samai, Bajra
Elephant apple	sweet carambola	Guava Lalit	Cheru Cholam/Sorghum, Corn/Maze
Monkey Jack	ramphal graft	Guava lucknow	Legumes- Moong, Channa, Black Channa,
Velvet apple	Seethaphal graft	Guava ficus	Toor, Vanpayar, Rajma,
Ice apple	Cherrymoya	Guava chinese	Flax seeds/Cheruchanam,
Sweet Lololi	Atemoya	nagpur orange	Fenugreek, Corriander
Longan	Rolenium	sweet orange	Sabja,Dill
Apple Chamba	Ganapathy naranga	Kumquat graft	White Sesame,Patani
Jathi	Apple graft	Singapore Cherry	Greenpeas
Grampoo	Westindian cherry Barbados	Karanda cherry	Yellow Mustard
Anjili	Surinam Cherry graft	Pomo layer pink	Aasali, Broad beans
Mango Mallika	Avocado graft	pomo layer red	
Mango Chanthrakaran	Mulberry red	sweet ambazham	
Mango Neelam	Mulberry yellow	Sapota graft	
Mango Valiyakolambi	Persimmon	sapota graft oval	
Mango Kilichundan	apple graft	sapota cricket ball	
Mango Himayat	Wood apple graft	sapota hybrid oval	
Mango Sindura	Lychee layar	black sapota	
Mango Kotturkonam	Duku -fruit	Peanut-butter	
Mango Karpuram	Langsat	Banana Kadali	
Mango Tali	Cola nut?	Banana njalipoovan	
Mango Malgova	Kepel fruit	Banana nendran	
Mango Dusseri	Fig indian	Banana kannan	
Mango Langra	fig iraniyan	banana patati	
Mango Kesar	israel fig	Datepalm	
Mango Kalapadi	fig thailand	Baraba fruit	
Mango dusseri	Chamba malayan red	Kara fruit layar	
Mango Kosseri	chamba red	Poochappazham	
Mago Mallika	chamba white	Sabarjil Layar	
Mango Kesari	panineer chamba red	plums graft	
Mango periyarasam	panineer chamba white	Peach graft	
Mango sarkararasam	apple chamba red	strawberry	
Mango imampasand	Mexican chamba green	blueberry	
Jackfruit – gumless	Mexican chamba white		
Jackfruit Muttomvarikka	Longan graft		
Jackfruit – Thenvarikka	Vetti		
Jackfruit – Thai pink	Mooti		
Jackfruit – Chemparathi varikka	apricot		
Jackfruit – red	longan graft		
	Bangkok chamba		
	thailand champa		
	Lekkot		
	African Pista		
	Elantha graft		
	Thailand Ber graft		
	Kokam graft		
	Arinelli		

Figure 1: Photos of composting. PC: Hari

- Once the pits are ready, plant all the trees including the banana (category A-E).
- After the planting and watering, the entire spaces in between is ploughed using a tiller. All the seeds are sown from each of the three bags. The soil is slightly turned using a combed hoe.
- In addition inside the pits around its perimeter, corn seeds are planted 1 feet apart. A handful of seeds of legumes that are bush type and small in size are thrown into the pit as well.
- Drip irrigation set up: After the summer starts, a drip irrigation system is installed and set up such that approximately 2.5 litres water minimum (4 liter is much better, if you have) is given to all the plants at a specific time daily. This ensures a continuous growth throughout the year. Depending on availability of water at your site and looking at the various type of plants, some of them can be given a larger supply of water if needed.
- Once the annuals are not giving anymore crops, you plough it back to the soil and sow them again.

Grow annuals every year

A most useful way to ensure soil is kept alive is to plant a diverse set of annuals every year. This also gives the added bonus of pesticide free vegetables more than you can ever finish eating. You can of course gift some to your neighbors and have a better relation with them. Moreover if it is plenty you can also sell at the nearby market for pocket money. Selling at your own village is best even if it brings lesser money since they can see for themselves the food is pesticide free and healthier people in the locality means healthier atmosphere overall.

If your soil is pretty bad in the beginning, you must do the composting and mulching for a few years to bring it to normal levels.

The Palekar method of zero budget farming

Subhash Palekar observed and experimented in the forest for decades and came up with the 'zero budget farming method'. It has been praised and criticized to no end. Many people tried it and found success while many more tried and failed miserably.

In order to see why it worked for some while failed for others, we first need to understand how it works.

In the Palekar method, what we do is to prepare what is called 'Jeevamritha' - life nectar that is sprayed in small quantities all over the farmland every two weeks. First let us look how this is prepared.

For a one acre plot, the following is prepared every two weeks. A 200 litre tank is needed.

- 10 KG of fresh cow-dung. This provides numerous microbes ready to help the soil. The dung of local cows (the one with a hump on its back) is much better as they contain much more microbes suitable to our soil and plants.
- 10 Litres of cow urine. This provides a huge nitrogen base for the microbes to chew on and produce nitrates and other nutrients.
- Fresh water to fill the tank.
- Two KG of black jaggery dissolved in water.
- Two KG of powdered legumes (like moong dal or channa powder). The above two provides the immediate sugar and nutrients for the microbes to eat and multiply fast to many many billions.
- A handful of top soil from the land. This makes sure that the existing type of microbes in the land are also multiplied.
- This mixture is daily mixed for a few minutes with a large wooden stick and covered with a cotton to keep the warm and moist breathing space.
- Keep doing it for 3 to 4 days when it is ready for application.

Once the Jeevamritham is ready, we apply it using a sprayer to all the farmland. Keep doing it every two weeks. If you have a cow, it is close to being zero budget.

Now let us see how this method works. Fresh cow dung contains billions of microorganisms that are beneficial to the soil. In the 4 days we keep them in the drum, we allow them to multiply in numbers by providing sugar and other nutrients for the grubs. Once this happens, we release them to the soil. If the soil provides a cozy atmosphere (warm, moist and with lots of organic stuff to munch) for them to thrive, they will start the work and we get more and more plant nutrients released to the soil. This helps immensely for healthy plant growth. What the coir-pith provide is a warm, moist, airy space with lots of carbon compounds.

On the other hand, if the soil is dry, with no biomass and with hostile chemicals seeping, they cannot survive there. This is why it fails on some soil. If you keep doing this for longer time and give lots of organic material, eventually the soil will improve.

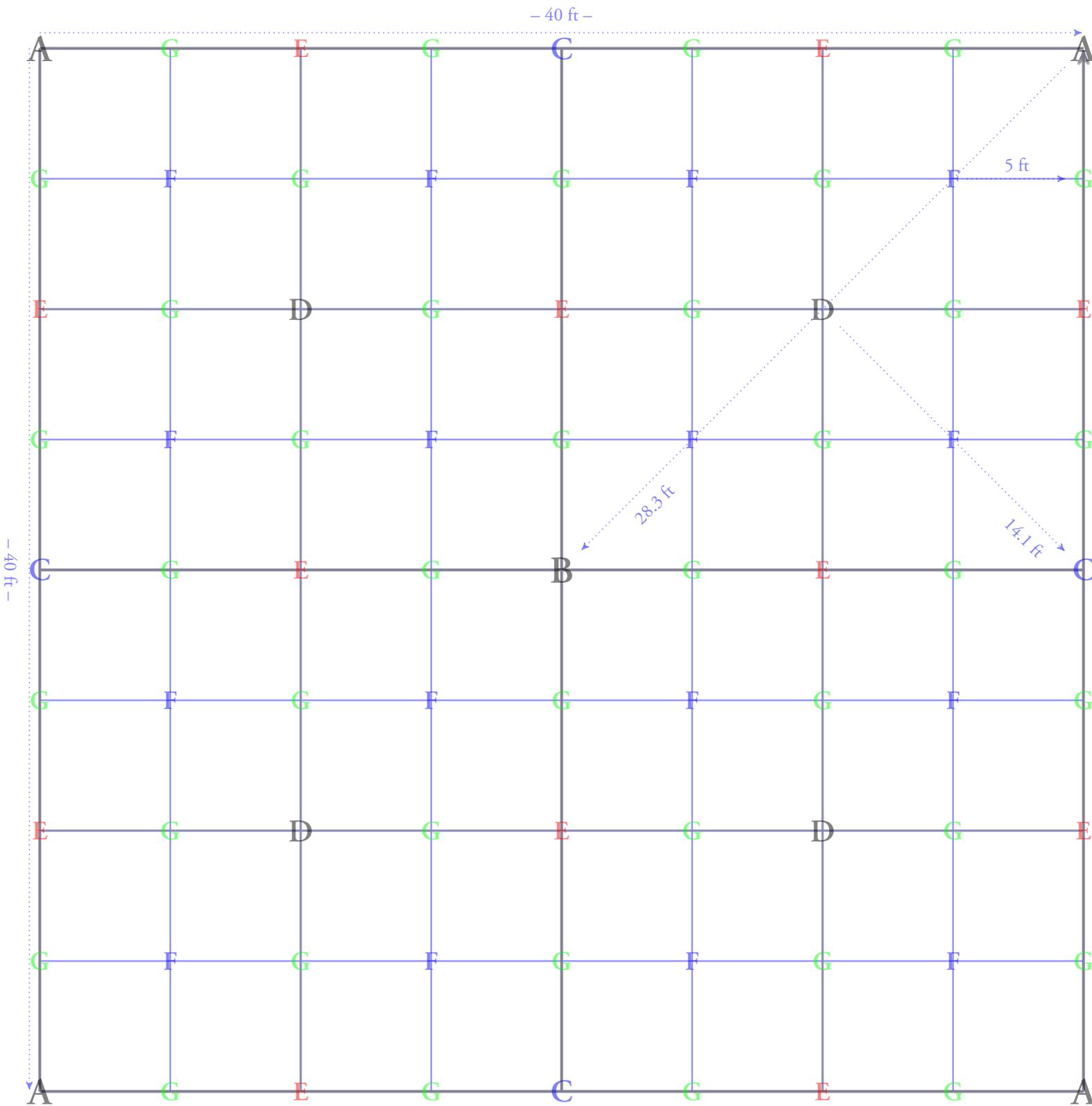
Thus, if you have a healthy soil, you can do zero budget farming. If the soil is unhealthy, you need to invest in making it healthy-which is what this technique is all about.

Converging to Fukuoka

It is not easy to converge to the Fukuoka style. In fact the current proposed method diverges from it more than it converges. The proposed method for example plough the land thus, killing many natural microbes in a pristine soil. It is less harmful when the soil is already dead or almost dead. (To be added Pictures with Credit: Hari) where we leave it all to the nature to take care of. It takes several decades for all the natural predators of pests to return in the full swing. To make things worse, it depends on your neighbors also. A large area must be declared pesticide free for such animals and insects to return if their natural habitat is lost. Fukuoka recommends that trees to be left alone without pruning and they will learn to survive. This cannot happen without the natural helpers returning. It took him more than 30 years to get things working because of this.

So why do I think this will help? Well, mainly because if a reasonably profitable method that does not use pesticides are known, majority of the people may hopefully prefer to switch to this rather than eat poisonous food. This will help to improve the soil and habitat considerably more favorable to the return of friendly insects and animals. Once people switch to such a method, in a few decades, at least the brave will be able to try the more natural method.

I would like to be vague in all these speculations and guidelines since nothing is perfect. Depending on various factors some method will be better for some areas and some people. Each must evolve their own technique and also find lessons from their experiences. Only these collective experiences can give a gist of the real story.



Problems with the proposed method

There are several issues with the proposed method. The biggest issue is that the land is ploughed in and planted with 25-50 types of annuals. This completely destroys the naturally growing medicinal plants and grass and makes it very difficult for them to come back. On large scale this can wipe out many important species of plants. But it should be remembered that most of the current farming practices also suffers this issue. Another problem is if you use non-local plants for the planting, the birds will end up distributing the seeds in neighboring areas thus adversely affecting the indigenous plant species. Some of them may be aggressive and we may end up creating a huge disaster. Again, this problem is there if we grow any kind of foreign species without containment.

Yet another issue is that to reduce the time span, hybrid varieties are promoted by the group. Just as what happened with the Indian cows, especially in Kerala, where many important species became extinct, we may end up destroying the diversity of the species. One partial solution is to make it mandatory to

plant at least one type of each variety especially indigenous ones in all plantations.

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I need to thank many people for providing me enough gyan to be able to write this short piece. First of all, my late father who instilled in me love for nature and dislike for pesticides and such and who is the reason I am into growing sacred forests, organic farming and now to this venture. Second, Shri Reji Thomas who despite his talkative nature, is very knowledgeable and has the vast experience of making the dry grasslands of attapadi a forest of gooseberry trees and is the originator of this concept. One of the reasons of writing this with a critical view is that the experience and knowledge he has need to be shared while people need to look for more ideas to improve it. Then, to Shri K Aravindan, whose name is well known for his diverse collection of plants from all over the world and who can recite the properties of each by heart. Finally, I must also thank my family - my mother and brother who is behind all the endeavors that I take.