

BUSINESS

OPPORTUNITIES

IN

AGRICULTURE

150 Field Interviews

VADAMALAI MEDIA GROUP

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Development Economist turned farmer and Eco-Agri Resort Owner

Ashok Malkarnekar
Partner, Dudhsagar Plantation, Goa

He is a Development Economist turned farmer and Eco-Agri Resort Owner. He started following his passion for nature and settled down in Goa. He has worked in several continents and can speak several languages. He narrates his experience as farmer turned eco-agri resort owner.

We are fortunate to have a 50 acre agricultural property in the Eastern part of Goa. We border on the Bhagwan Mahaveer Wildlife Sanctuary or Mollem National Park. When we moved here in the 80ies, it was a barren piece of land devoid of electricity connection and ir-

rigation systems. We had to set up these systems, bought cows, and installed biogas. We have been organic since the beginning. The land today is home to a diverse ecosystem with lots of fruits, spices, herbs, and vegetables. The main crops are coconut, cashew nut and betelnut. We have a distillery where we produce cashew liquor. We do not use pesticide. So the ecosystem is intact and vibrant.

Many people nowadays have realised that the city life is taking a toll on them and need to reconnect to rural life and nature. Agritourism as a concept for reconnecting with rural life and with the source of our food is a well estab-

lished concept in countries like Italy and Spain. The concept is now increasingly gaining acceptance in India too. Our farm is near Dudhsagar Waterfalls which is a prominent tourist spot. Thousands of visitors throng there every day. The Tambdi Surla waterfall, an ancient temple in the forest, Portuguese era heritage mansions, prehistoric rock carving sites, the Salaulim dam, and botanical gardens are also in the vicinity. Thus by virtue of the location, we already had a captive audience.

When we started thinking about tourism, we had two business models in mind. One is to host day tourists, where people come into the plantation, par-



ticipate in a guided tour, local lunch, and would purchase some souvenirs in the farm shop. This is a high volume business, and margins tend to be thin as substantial commissions have to be incurred. We would have 100s of people coming in, which would also involve high operating cost as substantial staffing would be required. For us, the second model was to make our plantation and its environment available for guests to experience in a slower way, by establishing a homestay at the farm – we call it a farmstay.

As we were already frequently hosting friends at the the plantation, we gave this model a go. It involved only a small investment, and less of a risk – we initially started hosting in cottages that we had built for our personal guests, and created an additional little restaurant space.

We started a website to share information and gauge the interest of people. With 2 cottages, we could easily manage bookings manually. It is essential to understand the expectations of the guests. There are different types of

guests. One group may want to see certain areas only and are not interested in other activities of the stay. Another group may want to relax in natural environment, book for multiple nights, wander around, enjoy the nature and biodiversity. You will see another set of people who want to trek, explore trails, neighbourhood walks, birdwatching, flora, and fauna.

Though Goa has lot of potential, we don't have well-marked treks and trails for exploring. So we have created maps, marked trails, and this has proved to be very popular. Anyone who wants to venture into this field can consider this as this kind of information and guidance can go a long way in creating a well rounded experience.

People would want their kids to understand about rural lifestyle, food production, and their source. So harvesting or milking cows can be an experience of its kind and highlight of their visit. I am also trying to bring in local people on board to provide certain insights for such tourists which will also provide them a little bit of side income. A lot of the everyday activities, even chores like pulling water from a well, can be interesting activities for city folk. So it is important to try to see things with a non local perspective.

Cuisine plays a vital role in this industry. People like to enjoy local specialties, and in our case, mostly vegetarian local meals are cooked. People love to eat what they see grow and even more if they are allowed to pick the vegetables and cook. They can go to fields, pluck vegetables, and cook them for their meal. It is farm to table dining.

We do also frequently get requests for a night out. This tends to be noisy with music and alcohol. If you have other guests staying at your place who come to enjoy nature

and the noisy kind of guests, chances are it will not go down well with them. So we should not cater to everybody's request, and have clear dos and donts in place.

Now how do you promote your place in case you are interested in starting this kind of a business? Walk-ins may not be likely in rural areas. Website is the easiest and straightforward tool to present yourself and make yourself known with a visiting card on the web since most of the travellers do their research online. There are other listings such as Google Mybusiness, Tripadvisor etc., where travellers leave reviews about the places, and other people can get details about the quality of such places. People tend to trust what others say about you more than what you say about yourself. You can use such – hopefully positive - reviews as testimonials on your website.

Online Travel Agencies are also an option to promote your property, and a good listing can get you a substantial flow of customers. This does come at a cost which would have to be factored in while developing your rates. Also, some people will find you on the portals and still book directly if you give them good offers.

Even though travel agents are a more classic way of approaching, for a small property it is cumbersome to contact them and enter into tieups with them. Facebook, Instagram, and WhatsApp





are popular and can make your presence felt. There are also newspapers with special editions, magazines, and TV to sell your product. We were for instance featured on a FoxLife show for our cashew liquor. You can also invite travel bloggers with good following to cooperate to improve your visibility, it's a low cost tool.

As we got very good feedback we decided to add 3 more cottages, a natural water pool with organic filtration and with no chlorine so that it does not irritate skin. We also started a booking engine on our website and a channel manager to coordinate bookings between the various online channels. It allows us to give instant confirmation and avoids double bookings.

This is important as guests today usually would like instant feedback, else they may start looking for other places. We have also introduced some basic strategies of revenue management, like calendar based pricing and length of stay discounts. It may sound complicated, but it is easy with regard to revenue management.

In general, people look for cleanliness, well ventilated, clean bathrooms, fresh



linen, and good food, so these are minimum requirements. Guests also enjoy getting involved with the work at the farm. We are hosting a Cashew Trail which is a day long experience involving harvest, juice extraction, and liquor processing apart from roasting of nuts, combined with a menu that revolves around the cashew fruit and nut. These type of experiences are not available in standard hotels, so it becomes a USP.

One key conclusion is that at the time of booking, it is absolutely essential to let your guests know what they would find at your place and what they would not get. Here, it is better to undersell and overperform. It is also important to send information on how to reach your place so that there is no confusion for them. Communication is very important in this sector.

I spend a lot of time on answering calls, emails, taking bookings etc. It could be a full time job and can be profitable too. Due to demonetisation and pandemic outbreak, things have slowed down a little, but we are optimistic things will slowly turn around. In such a situation, you are at an advantage if you operate with lean staff.

Generally, it is advisable to start small to test the water and see if this kind of business is for you. With 5 cottages, you can easily make around Rs. 1.5 to 2 lakhs per month. But for full time farmers, this can also mean taking on a second full time job.

I suggest you get some help initially. I can offer my advice on the setting up and technology part. I am also in the

process of setting up a portal for farmstays in India which will offer networking, advice and free listings.

Which part of Goa are you from?

We are on the Eastern part of Goa. It is the area bounding towards the Mollem National Park and about 35 kms from the coast.

What is the minimum area you suggest for starting such a resort?

We were fortunate to have a 50 acre plantation with our family where we could do lot of things in house. If you are in a rural setting and if you can tie up with the local people, it will be good because it will be beneficial for the local economy. When people come to the rural area, they may not want to be cramped down and want to have space. Anything with one or 2 acres should be ok. You may not call it a farm stay but a rural home stay.

We are in the border of Tamil Nadu and Karnataka. What are the clearances we need from the government?

I think it differs from state to state. In Goa, you need to start with the panchayat for your basic NOCs. For any kind of construction, you will need to go to the Town and Country Planning department. Depending on your area you may require forest clearance too. You need to register with the Tourism Department, take approval of the health department, and for the restaurant part, register with the Food and Drugs Administration.. Lot of clearances are required involving lot of time. But it is better to follow the rules from the beginning to be on the safer side.

Regarding the liquor you would be distilling in your place, do you need any particular license? Can we do it with jackfruit?

Cashew liquor is a traditional beverage in Goa, and there is a very established framework of the excise department for auctioning licenses and for the whole compliance. For jackfruit, this is not existing yet. You may have to consult the local excise department for guidance.

What are the taxes involved in this? How do show the details in Income Tax?

Like anyone else, we need to file the returns. Most of the payments are coming in online, and there is not much of question of cash. You have to pay GST if you go above the GST threshold. Depending on your income, you can file income tax returns.

How are you dealing with agriculture income?

Agricultural income needs to be shown separately as it is non-taxable, but will be relevant for determining your tax slab.

With 50 acres of land and 5 cottages, how many staff are employed, and what is the recurring expenditure on the whole?

We have about 10 to 12 staff regularly employed here. About 3 or 4 would be employed in tourism. We have set up our system in such a way that we can use our manpower more or less interchangeably.



Our people are trained in house and they can work on both the farm and in tourism depending on the workload. We did not send anybody home during the pandemic.

Even though the homestay was closed for 6 months, everybody was kept busy. Recurring cost may work out to Rs. 1.2 lakh for the farm and homestay together.

Don't you think 3 or 4 people are too low to meet the requirement of the homestay?

We are doing a lot of work ourselves. I work as front office guy, waiter, and also plumber. We work with low operational costs. Even if you don't have guests, it will not be a problem as you don't have big operational costs.

How about having ayurvedic massage or traditional treatment for long-staying guests?

We have been considering that. We are talking to an ayurvedic doctor to provide services.

It will work out expensive if you want to have somebody on a full time basis for a small homestay like ours.

How to reach the resort from Tamil Nadu?

You can come to Goa airport or Panjim railway station. From there it is quite close.

What is the cost for one weekend and normal weekdays?

On normal weekdays rates start from Rs. 3000 per night including breakfast for two.

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CONSULTANCY for floriculture / horticulture business

Robert de Bos, Director/Consultant, Bangalore Plants First Pvt Ltd.

Mr Robert de Bos holds a Masters degree in International Agriculture and comes with extensive and rich experience in cultivation, local and export marketing and international consultancy. He has also worked around the globe in places that include Netherlands, Colombia, Spain, Sultanate of Oman, Kenya and India.

Along with Ms.Rajeshwari K, he offers consultancy through Bangalore Plants First Pvt. Ltd. - a company popular among people in the horticulture and floriculture business around the globe.

Mr.Robert de Bos has been in the Indian floriculture world almost from its stage of infancy.

“20-25 years ago when the entrance of hi-tech floriculture took place in India, the first difference was the entry of stemmed flowers in the market. However, the export had to be shelved. This was due to lack of strategy about development and cultivation. The investment required back then was very high. The flower business is a very competitive business where efficiency and production levels and quality has to come together. Also, you are competing against extremely professional countries like Africa and South America. There is a tremendous production in Europe as well.

So, export of flowers did not develop in the manner we expected it to happen in 1995. The quality of flowers were not good enough for the export market. At that time, traditionally flowers were only sold in kilos. Since the flowers meant for export were rejected, it went to the local market. Having said that it was quite a short phase and since then we have seen a tremendous amount of growth in the floriculture industry.”

When did things begin to change?

In the beginning of 2000 we entered a generation of great floriculture. More people, with prior experience, came into the business and their experience started showing on the production front. These people were more successful than the first generation of floriculturists in India.

But now again there is stagnation as we have not revolutionized since then. We still have the same green houses and cultivation methods that we had 20 years ago. This perhaps owes to the fact that people are unwilling to take risks to go to higher levels of growth.

However there are people who have got into substrate growing and today there are hi-tech fertigation units available to automate irrigation and fertilization and this is a good improvement because nutrient, pH and EC level of soil directly affects the quality of plants. So, I do see development but in my opinion it should be much faster than what it is now.

We have been exporting and also the local market has been improving quite a bit over the years. There is quite a high demand for flowers. When we compare the prices in India to that of exporting flowers we see that sometimes it is hardly worth exporting the flowers. To be highly competitive in the export market, the quality



of packaging, transportation etc. comes into play. Most often 20% of what you have gets rejected from being exported. People with large farms of course will need more than just the local market to sustain.

Cultivation, market, technology and management are the four most important points when it comes to the world of flowers.

In the current COVID-19 conditions, is it a nightmare for flower growers?

There has been many people who have opted out of this industry the world over because they were n't able to sustain the running cost of production. COVID is definitely a difficult situation but I do not believe that this is the end of the world for the industry. The market will pick up again and we will pick things up may be in a different manner owing to many restrictions that may come up. I think till around Valentine's next year there will be a shortage in the market. I think we can expect a good year after all this for the floriculture as well.

Coming to people in floriculture switching to essential commodities - that has never been the case. In 40 years it has not happened, flowers have their own market. It is a case of how the rates resurface and pick up. So, for people who do go to another field, it will only be temporary because the market will pick up and then you will see floriculture re-stabilizing. New entries into the vegetable growing however are taking place and often more revolutionary than in the floriculture.

Apart from polyhouse technology do you know of other technologies to grow flowers in India?

I believe there are many parts in India where net houses are cheaper and are very good and sometimes even better solutions than green houses. In fact in March, April, May, your crops are better off in net houses than in green houses. Again it is more experienced in the vegetable growing

For example, the company Triangle Farm and Simply Fresh – vegetable growers working with net houses which is in fact lower investment in terms of protection and increased technology in terms of soil environment. It promotes full control of nutrients and irrigation of the substrates. It is definitely a development which is appreciated. On the other hand, we have retractable roof green houses. For a

country like India, with varied climatic conditions, green houses with retractable roofs would do a lot of good. I see that the net houses and green houses with retractable roofs are a tremendous development. There is only one point that I have to say- if you do substrate growing you need to have very professional people to calculate recipes and check equipment that is extremely precise to grow in relation to crop expertise in the conditions prevalent.

Please brief us about the services of Bangalore Plants First Pvt Ltd.

It started mainly as a company to produce plant material, focused mainly on grafted rose plants. In the last 4 years we have stopped producing plants. We are now outsourcing making of plants to other nurseries and we are trading. We are much more in consultancy and I do the bulk of the work myself. I sign up for consultancy contracts especially for establishment of medium and high tech green house projects and cultivation processes of vegetables and flowers.

Do you grow rose plant material and offer consultancy for rose cultivation in open fields?

Yes, we do. It is just that we don't do rose plant material making anymore ourselves. We have outsourced that. But we do take full responsibility for the plant material we supply. We know that if we deliver plant material we have to help the grower and collaborate and deliver successfully. That is not just restricted to roses anymore. We





have gone beyond that. I hope this year we can start a nursery with some other plant material. There are so many crops we can work on quickly and yes of course, we will provide consultancy and recommendations to make the crop a success.

Is there still scope for newcomers to enter the floriculture sector in India?

There is tremendous scope. There are professionals from IT and other industries who are normally quite strong in management and who provide higher efficiency. They can also bring in amazing ideas into the marketing part of the game. There are also so many crops to grow other than the conventional ones. The country is so large with so much of population that marketing offers many opportunities.

How does the export market look nowadays?

Because of the very strong local market we set up green houses with simple equipment. That is what the investment is. We keep things much simpler. For export we need more technology to assure quality and high production. Do we still have a bit of trauma that high investment will lead to failure in the floriculture industry. We have projects in Bihar, UP etc. that are not really attractive places for rose or carnation cultivation. For that we should move to the Deccan Plateau like in Bangalore, Maharashtra, etc. 700-1200mt above sea level is a very conducive climate for growing flowers and vegetables.

What is a good size project to start off with?

Always start small because there will be lot of learnings along the way. One shouldn't start with more than 5-7 acres or may be a max up to 15 acres, depending on your team.

How are Indian flowers rated in the Netherlands for quality?

Quality is often misunderstood. If we ask over here about quality, it is presumed that the flower should have a big head and a long stem. That is not the main criteria. Of course, they fetch better prices than the smaller ones. But, the main criteria is that the flower is healthy. Owing to the climatic conditions of India, we have smaller bud sizes than in other countries. So, in comparison to other countries we get paid less. But if the flower is not healthy we stand even poor chance at making profit. We will lose out. So flowers should be grown in a healthy environment with no residue or spots on the flower. It should have a good opening and good shelf life. So there are people reaching that level immensely and they deliver good flowers to Europe. If you go to Holland on a given day for a flower auction, the number of Indian flowers are almost negligible.

Today, they are not looking at Indian flowers at all. But APEDA did build a market for Indian flowers with good controls and so the good flowers are really appreciated in the export market.

Is it possible to set up a profitable

floriculture model in India only catering to the domestic market?

To set up a 5 hectare project of bulk flowers - carnation, rose and gerbera - there is lot of scope in the market. If your flowers are of good quality then it is just about being on a competitive level to carve out a section of the Indian market for yourself.

Today, flowers are not grown on a huge scale owing to less subsidies that are available. At the moment, there is good opportunity to set up floriculture projects.

What are the reasons for flori-entrepreneurs failing in India?

Projects that are successful are the ones in which the entrepreneurs are involved in the cultivation on a daily basis. Sometimes people know what needs to be done, but they just don't do it. It can be because of lack of infrastructure but many a times it is because of the lack of commitment from the entrepreneur.

The entrepreneurs commitment contributes immensely to the success of a project. That involvement is a very important thing. It is not just about paying your dues in cash.

Are any of the initial Israel/Netherlands units of the 1990s still operational successfully?

Few of them are still functioning. However, there has been a huge overhaul in terms of how flowers are grown as compared to what we used to do in the 90s. People have become much more professional. Earlier, this was not so and then the growers depended on foreign consultants who were too new to the country's conditions. When you work in a country, understanding the cultural side also matters a lot. That was a very difficult start. Few of these companies have continued and they are doing really well. There are a few in Pune and Bangalore who existed from the beginning who are performing really well today.

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Training programme for sustainable farming

Rajendra Bhat, Agriculturist, Nisarg Mitra, Bendshil, Badlapur



ter harvesting as well. I currently have 180 types of plants on my plot. I have 50 varieties of mangoes alone. I make pickles, juices etc and whatever extra I have I sell it off. Now, instead of burning firewood we make coal out of the wood so that the environment is also protected and we can cook our food too. My field is full fledged now and all kinds of birds and butterflies keep visiting my farm.

I conduct organic farming training sessions for people around me. I always warn people of the mistakes I made so that they can avoid them. I also make my customers aware of the agricultural processes required to reduce pollution. I teach them about demand and supply and also how to create a healthy eco system.

Do you find agriculture to be profitable?

From all that I read and understood, I realized that farming is a primary education. Being an organic farmer is like graduation and natural farming is post graduation. With each type of farming, we realize our needs decreasing. I have very less needs today.

Whatever I need, I get it from my farm. Whatever excess is there, like electricity, mobile bill etc. get fulfilled through the agricultural training etc that I conduct. So, yes my needs are met quite well.

How long have you been practicing agriculture?

I have been practicing organic agriculture since 1999 and it is still on. Today, I am 63 and am still farming with great zeal.

What crops do you grow on your field?

I do crops that give me output directly and their supporting crops as well. Bamboo, for me, is a supporting crop. I grow this for the utilization of space, water and man power. For instance, I have planted climber vegetables - the spacing for these are 7x7 ft. In between that I grow cucumber climbers. Beneath that, I plant radish which takes 45 days to grow. To fix nitrogen in the soil, I plant small pulses as well which will grow in 60-70 days. Once the nitrogen is fixed, I grow vegetables.

It is a 30-45-60-90 pattern. This gives maximum utilization of space, water and man power. I let the roots remain in the soil when I harvest the top produce and let the composting happen there itself. I try to keep my tilling low. This method is slightly different from the traditional cropping. It is done in cubic meter versus the square metre as per traditional cropping.

Do you conduct any training programs?

We do conduct training programs. We have 2 types of programs:

From a barren piece of land to a lush green forest. How did you do this?

I started slow. I didn't have much money. I made mistakes, learned from them and gradually understood the language of nature. Now I have a paddy field with single cropping and other parts of the land is engaged in multiple cropping. Along with this, I have rain water harvesting, soil development etc happening on my farm.

I follow certain principles. Biomass is the primary element of the pyramid and all of us are thriving above that. Biomass converts to food which we eat. Biomass converts to timber wood. It provides for the wood with which I have furniture in my house. Biomass converts into firewood. So, we have chulhas in our house. Biomass converts into green manure. I can make that on my field. Biomass controls humidity and temperature and helps in rainwa-





We have people being part of the agricultural sector because there is no other choice. We have others who bid farewell to IT jobs and enter this zone for the passion of it trying to prove that agriculture too can be profitable – healthwise and monetary wise. Then, there is Mr Rajendra Bhat who chooses to blow away all that dust and understand that we receive from Earth so we are bound to give it back. Sustenance of an ecosystem is his aim and vision. If the Government of Maharashtra decides to award him with the prestigious Krishi Bhushan it is so well deserved!

“I once read a book on our environment and decided then itself that if I ever did farming, I wouldn’t do green revolution farming. I planned exactly what and how I want to go about cultivation. I also took the time to visit multiple farms. When I started farming, I was sure that I need a forest area on my plot. One square metre of an area in a forest can yield more than two kilos of food naturally without using any external inputs. Whereas in a farm, the same area gives 600 grams despite adding artificial resources like chemicals.”

Prior to being an agriculturist, Mr Rajendra Bhat worked as a mechanical engineer. At the age of 35 he turned to agriculture and the bond is still strong.

Today, Mr Rajendra Bhat’s Nisarg Mitra can easily be mistaken to be a forest. It is a lush five-acre farm with 187 varieties of fruits, vegetables and medicinal plants.

1. A continuous 15 month program on my farm. It is like a gurukul system. It consists of yoga session at sunrise to practical farming sessions until sunset. There are 17 subjects covered, highly important for sustainable farming, in my opinion. This even takes care of how the trainees can plan their farm depending on where they are from and the soil/weather etc conditions at their place.

Planning in accordance to the place at which the farm will be developed, is always advisable to avoid mistakes and take the long-route learning. Also, it is highly important that each farm is in sync with its ecosystem so that we keep nature’s balance. This course costs 25,000/- for 15 days - stay and food inclusive.

2.The other is a day-program. This costs Rs.1000/- with food and training.

Both these are on-the-field trainings.

How do people get to your farm?

Once you are in Mumbai, take a train from VT station to Badlapur. It takes 1 and half hours to reach from VT station. My village is 6km from Badlapur station.

There are share autos that one can hire at the railway station. You can find my farm, Nisarg Mitra, on Google Maps.

Are you open to visiting other farms?

Yes, I am. As a consultant I visit other farms as well.

What message would you would like to convey through your farm?

As an active RSS member, I am aligned to our motto ‘Sukhadam Varadham Matharam’ - our mother-land provides the pursuits of happiness (sukhadam) and is the source of power and divine favour (varadam).

I do my best to live this motto. As a farmer, I try to give Mother Earth whatever I can. I try enriching the environment I live in. In fact, this is my entire family’s goal. We got this land bestowed on us from our forefathers. I, like all of you, am responsible of keeping the balance so that generations after me also can live in peace. I have this small river running nearby. I have a bund built at my expense, so that ground water is enriched. This is a contribution to resolving some of the issues of the Earth. I have also tried to contribute back to the society by associating with an NGO while doing my agriculture.

Can you please shed some light on zero tilling?

Zero tilling is ensuring that soil is left as undisturbed as possible when cultivating. When I need to cultivate things like lady’s finger, I leave the roots there after harvest. But cultivation of leafy

vegetables demands for you to disturb the soil. So, I follow a slightly different version of zero tilling. I grow vegetables on a permaculture bed.

I plant brinjals at a 5ftx5ft spacing. It can thus be done with zero tilling. I brush out the weeds and leave them there where it decomposes. This creates mulching which in turn creates micro climate and micro-organisms in the soil. In future I would like to do paddy also without tilling.

You need to, hence, plan things to ensure zero tilling.

Can you tell us about your rain harvesting system?

I ensure rain water harvesting primarily through 3 activities:

1. Mulching of the farm: When mulching happens on my farm, the water that falls on the land, seeps right under the soil.
2. Recharging borewells: I have 4 bore wells on my farm. I have customized it to have recharging facility. Whatever water that flows on the surface, flows and gets collected in the area made for it
3. Bund: The bund I made at the stream that flows nearby also deposits water under the soil.

This way I ensure that my land has a good amount of water underneath. The water that gets stored in gets used with the help of micro sprinklers. So, there is optimum usage and re-charge of water. This way the water and air conditions of my farm are maintained well.

How do you control pests on your farm?

Pest controlling can be done in 2-3 methods. There are certain pests that feast on certain types of plants and then there are a few common pests as well. Since I have multiple cropping, chances of pests are reduced. Then there are trap crops that attract the pests but they feast on the pests once the pests get attracted to them. I follow integrated pest disease management. So, I have light traps, sticky traps. If it doesn't come into control with all this, which is very rare, I use vermicompost.

Do you use any fertilizers?

I don't use chemical fertilizers. I have a cow and so I use cow's urine and dung as fertilizer. From 2005, I stopped all that. Now my farm runs on vegetation. I convert biomass into manure. With the waste derived, we make oil cakes which is used as a fertilizer.

How much did it cost you to

set up a rain water harvesting system?

Nothing significant actually. The borewell recharging facility hardly cost Rs.5000/-. The bund I built over the stream cost me about Rs. 1,60,000/-.

What are the challenges that you are still facing?

Inconsistency of climatic conditions is a challenge. Temperature keeps fluctuating which affects the flowering time of my mango trees. Pollution is rising so much that it is getting uncontrollable and also the labor cost is spiraling high. All farmers use weedicides and traces of that can get deposited into my lake as well. I am still looking for solutions to these.

What agricultural lessons would you want to share with our readers?

Try to develop the ecosystem around your farm. Try to control the temperature and invest into rain water harvesting. This is our duty to this earth and to all those generations yet to take birth. Now if I need to rear honey bees and take honey, then I need to provide what they need to thrive. So, building your ecosystem is highly important.

We usually focus only on the crop and not on the supporting ecosystem. The ecosystem plays a very vital role in sustainable farming no matter how big or small your farm is.

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Trying out things at both ends

Meeting farmers, educating and in parallel selling the produce.

Parthasaradhi Nara

Founder and CEO, AnandaNaturals

How do you plan on helping with marketing farmer produce?

I have travelled across Andhra Pradesh for 2 years, volunteering in various programs and thereby discussed issues, attended meetings and planned various initiatives. In parallel, we used to bring our farmer produce and sell them in various communities at Hyderabad, Bangalore and in local markets as well. That is where we were trying out things at both ends - meeting farmers, educating them and in parallel taking the produce and selling them in the markets. This is an unorganized sector. We do not have a continuous supply of produce. There are days when we have produce to give away and there are days we do not.

Tell us about AnandaNaturals.

AnandaNaturals is a rural-based FPO. Our idea is to get more farmers to go organic. We want to set up an end to send service company at a village level. We aim at creating opportunities within rural India so that people migrate back to the villages. We are slowly yet steadily getting there.

We have set up a small enterprise where we collect the produce from farmers. We then clean, grade, sort the fruits etc. Our nearest market is Bangalore.

The thing is people take it for granted that organic produce is expensive and also that there is no traceability to its roots. People may have the purchase capacity when it comes to organic food but there are people who wouldn't buy because of trust issues. We have set up a system wherein we shed insight about the produce we sell, to the communities we sell them. We have made them try samples of our food and thereby creating trust.

We gradually built a customer network across Bangalore and Hyderabad. We



Perhaps owing to the fact that he hails from an agricultural family, even 11 years of IT could not keep Mr Parthasaradhi Nara from giving in to his agricultural dreams. "I started working on my farm since 2009 cultivating various horticulture and agricultural crops like fruits, vegetables, millets, spices etc. Gradually I got introduced to natural farming in 2015. Since then I have been into the practice of converting my farm into an organic farm.

This got me even more interested in this field."

Today, like the yester years the hardest part is selling agricultural produce. This is where Mr.Parathasaradhi plans on laying the bridge for fellow farmers.

"Since childhood I have been seeing this dilemma of marketing crop produce. I plan on creating a platform for marketing for organic and natural farmers because that is quite a concern in the agricultural sector."

Today, Mr.Parthasaradhi markets organic produce under the brand name AnandaNaturals.

set up online platforms to trade organic goods. We now want to enroll more farmers into our network.

We want all these set up at rural sites. We have farmers, marketing entity and lots of like-minded supporters like agricultural experts, engineers, software engineers etc.

Do you only source agricultural produce or do you have a farm of your own?

We have our own orchard farms growing pomegranates, grapes, papaya etc. The natural farming which we follow is inspired by Subhash Palekar from Amaravati, Maharashtra. We follow his principles wherein we use local available resources etc. Using natural farming, we can reduce the input cost and improve the soil in a systematic way.

Using this method we not just make ev-

erything we use as inputs on our farm, we also provide consumers with produce traceability. We are also building our own website and over a period of time, we can work with more people.

We are also working on a women entrepreneurship program in Bangalore and Hyderabad. We got women to build our customer communities for us so that they take orders from us, weekly, for the community they build.

Additionally we offer a lot of support price to farmers during drastic times. For example, prices for fruits like mosambi, sweet lime etc fell drastically during these COVID times. We still provided farmers with the minimum Rs.30 support price.

Now, we have started exchanging seeds among our farmers. We have community-wise WhatsApp groups in the urban as well as rural communities. These

groups are not just for selling our produce it is also a platform for exchange of tips, tricks and educating each other.

How many acres of land are you working on and what was your initial investment?

We have 90 acres of land where we intercrop fruits over 30 acres of land. On the remaining land we grow millets, red gram, groundnuts etc. We spend around Rs.10,000/- per acre and we make a profit of around Rs.30,000/- per year. We save around Rs.25,000/- in the dry-land agriculture. With the horticulture crops, we can save up to an average of 1.5L - 2L per year. The investment that one has to put in depends on the crop.

What is your labor structure?

In terms of labor, we have some automation in place. For instance, jeevamarutham application.

We have 4 labor that is regular at our farm. Again, it is not commercial calculation alone that determines things here. It is based on how much interest people show. On an average, farmers can make a profit of up to an average of 1.5L - 2L per year.

How do you gain customer confidence?

We arrange meetings with community heads and explain our farming practices. We also provide them with food samples. We follow this by setting up stalls with all our available produce and sell our products. This is done for customers to experience the price and the produce. We then take down contact information of people who would like to buy produce from us and create specific WhatsApp groups. Through these groups also we keep communicating time and again about our farming practices. This way they have a clear picture of the traceability.

How do we assure proper certification of organic produce from India for export?

First go to a local place, take a small holding of land and start experimenting the required parameters. Then, explore towards creating the products relevant to your market.

Organic certification depends on the country which you need to cater to and

the country where you are at. As you go through this process, there is NPOP and OP standard companies which are APEDA approved. You can get your products certified through them. It takes a couple of years for this to get accomplished. In the interim, you can sell your produce at a local market and refrain from export until you get the certification in place. There are plenty of companies exporting agricultural produce to countries across the globe.

Do you do contract farming with buy back commitment?

No, we don't do contract farming. We assist farmers with natural farming techniques. Farmers perform cultivation individually and we support them in marketing their produce.

How important is it to sell organic produce under a brand name?

For that we need to have a trusted mechanism right from the beginning of farming processes. In Indian communities it is very difficult especially in the rural sector - there are too many challenges to overcome. I am trying since the last 5 years and I couldn't do much. Despite providing them with knowledge and information and demos, the change comes about at less than snail's pace. One way around this for like minded people who can invest to join up together and cultivate on a land of about 500 acre and brand the produce. This is a viable solution. There are people who are doing it as well.

Community farming is another method. This requires high amounts of energy to keep moving around and making sure things are done. In this case, we need support from other people, NGOs, government bodies, etc. If there is all the support we can get, this too can be a winning model.

How to go about enriching soil fertility?

In our natural farming practices, we do not care much about soil testing. You need to develop the soil with natural farming inputs. Over a period of time, soil is sure to get rejuvenated. It will then be strengthened to grow any crop in

any soil in any kind of climatic condition. If you really want to get into soil testing, there are institutions like Indian Institute of Horticulture Research, Bangalore and other national institutions and local, government-approved soil testing labs too. This is there in every district. You just have to provide them with a soil sample. There are a lot of parameters to be checked out.

Are you open to people visiting and staying over at your farm for a couple of days to learn how you do things?

Yes, we can have people visiting farms but we can't accommodate many at the same time. A couple of people at a time is something we can consider. We will have to plan out things for them. We are open to the idea.

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Cocoa creates very good alternative income

Hari Mohan. Cocoa Agriculturist
West Godavari District, Andhra Pradesh

Mr Hari Mohan is a lawyer turned agriculturist, who does not regret his decision one bit. Although his fore fathers were into agriculture, he admits having nothing to do with agriculture until he decided to venture into it.

Mr Hari Mohan explains, "I came into the world of farming in the year 1998, when I was practicing as a lawyer. At that time, I came in contact with a few people through whom I came to know that cocoa creates very good alternative income for farmers. I inquired extensively about this after which I decided to purchase a piece of land.

I was extremely new to the farming field back then. Earlier to that I had no experience even going to fields and watching how things were done. Upon purchasing the land, I enquired about coconut trees and planted those. Around that time, Cadburys' started their agriculture sector here and began giving away their cocoa saplings which was sold back then at 50p per sapling. I had my coconut at 27ft spacing. Since cocoa is a shade-loving plant it could be planted after 3-4 years of planting your coconuts. So, in 1991 I got in touch with Cadburys who had by then, started their sales and marketing sector here. They were excellent guides. They told me how to plant cocoa etc. I bought their saplings.

On a one acre plot, you can plant about 180 plants when you are inter cropping with coconut. After that I was stuck about how to care for the plant. I then did a lot of reading and I got a lot of information. I put to use all the information I gathered. As a result, I was able to and am still able to generate good income from cocoa. I took time because during those days it was extremely hard to source information. Today it is available at your finger tips. Even the horticulture departments today are very much friendly and knowledgeable."

How do you cultivate cocoa?

First you have to get the saplings. It is best to plant them as an inter-crop between coconut. If your coconut is placed at a distance of 27ft, you can plant about 5 cocoa plants in between two coconut trees. After 24 months of plantation you will begin getting returns. Before planting of course you have to treat the soil with organic matter and manure. You can plant these cocoa plants in between palm trees as well.

After a year, these plants grow up to 5-6ft. It will develop 5 branches similar to an umbrella. After that you have to do regular pruning in the months of June - July. The plants should not grow more than 10 ft. October to June is when you get peak yield from cocoa. The duration of the plant is about 25 years. With good care, they can go up to 30 years as well. You have to regularly watch and replace the diseased plants, if any.

Irrigation

If you have surplus water, flood irrigation is the best for cocoa. Having said that we all know about drip irrigation. Drip can also be employed. The water requirement is, for every 7 days, in summer season, the fields must be irrigated. In monsoons, of course, this is not required. During monsoons, irrigation can be provided depending only on the ground moisture.

Manuring

Provide 5-10 kgs of cow dung every year. The complex manure like urea, ammonia, neem powder etc, can be used 200 grams in the first year in 2 regular intervals. Then, depending on the growth and requirement of the plant this must be increased.

Harvesting

You can expect a standard yield from the 36th month of planting your crop. Cut the pod when it turns from green to yellowish color. Extract the wet bean from the fruit. Keep it then in heaps and leave it for fermentation for at least 5-6 days. Post that, it has to be dried in sunlight for more than 5-6 days until it dries fully. Ensure that it is left to dry on a clean and flat cement surface. If you get 21 pieces which amounts to 100 grams it can be considered a good yield.

What are the advantages of cultivating the cocoa?

Cocoa is a tropical plant which is inherently a wild plant and so it is highly resistant to natural calamities. With good support, it is an amazing plant to grow. Just ensure correct managerial procedures. Prune the plant regularly such that it is shaped like an umbrella and the maximum height is not more than 15ft no matter what the age of the plant is. With proper care at all stages from sowing the sapling to drying the bean you can make Rs.30,000 to Rs.40,000 every year. The market is very good. All the chocolate industry has a good demand for cocoa and the payment system is pretty prompt. People come to your doorstep and take the produce. With the booming chocolate industry the demand is very high.

Statistics show that even if the cocoa cultivated land is doubled, it is not sufficient to satisfy the basic demand of the industry. With respect to marketing, the demand is very high compared to the production. You



can get your revenue based on the international market and dollar value. These days it is Rs.120 owing to all the calamities. But you can expect peak amounts of Rs.210. On an average you can get Rs.160. This is the assured amount you can get every year. If you follow good agricultural procedures, you will get 350 - 400 kgs per acre every year. 30-40% of your revenue will go back into the field and the rest is your profit. Just keep in mind that the quality of the bean is superior.

What are the main pests and diseases that can attack the cocoa?

There are two types of diseases that I have come across so far:

1. Fungus attack: Post pruning, the plant is sensitive to fungal attack at its branch ends. This can be avoided by using blue copper or biotech.
2. Caterpillars: Use chlorophyrophos to keep caterpillars at bay. Don't use it in huge amounts because whenever you use it, cross pollination also decreases as this chemical affects honey bees as well. Hence, use only a mild dose of chlorophyrophos. Spray it only once in 10 days. Also, do not use the chlorophyrophos in its concentrated form.

Apart from these, stagnant water is not good for cocoa. The soil should have good drainage properties.

After I plant coconuts, when is a good time to plant cocoa?

You can plant cocoa after 30-40 months after coconut planting. That will ensure enough shade for the cocoa plants. You will begin getting yield from coconut trees from the 4th year onward. You get hybrid varieties of cocoa also now. This ensures quicker yields. You generally get cocoa yield from the 24th month but your standard yield begins from the 36th month. Coconut yield begins from the 4th year onwards. You can start making a regular income from the 7th year onwards. Before that also you will make money but it will be only just enough to support your farming practices.

How much income can I make per acre considering coconut and cocoa?

This depends on the area you are at as well. Here, we are selling coconut for Rs.800-900. A good yield is about 350 - 400 kgs after you have achieved stability. Per acre, after 6-7 years, you can get about Rs.800-Rs.1000 per plant and cocoa can fetch you a minimum of Rs.160 per plant. In terms of expenses, the max, on an average, you will incur is 40% of the revenue per acre. This is based on my practical experience, not based on any bloated marketing figure.

For how many years would a cocoa plant yield effectively?

The lifespan of a cocoa plant is projected as 25 years on an average. My plants have completed 25 years but my trees are still doing well. One best practice I have done is I have



always replaced diseased plants immediately. I keep my eyes open to ensure that this is caught and done regularly.

Which variety of coconut should be planted along with cocoa - the tall or the dwarf variety?

I would recommend, the dwarf variety. If you want longer coconut tree life, you will have to go for the tall variety.

Please tell us if you do any kind of value addition?

I do not do any other value added product. I sell it directly to Cadbury.

How long does it take to get paid from companies like Cadbury?

They take only one day. The payments are very prompt. I haven't had a difficulty on that front till date.

Where are these companies located?

They come and take the product from your farm and they remit money into your account. They even come and pick up one quintal. It is fairly easy to deal with them.

Has Cadbury ever refused to purchase from you? Do you have a Plan B?

Cadbury is a very good company to associate with. We have not had any issues with them till date. There are other local chocolate companies that are in the game. They also come and pick the product from you.

Is there any contract period agreement you get into with companies?

No, I do not have anything in writing from the company.

Have you sold to other private parties besides Cadbury?

Yes, I have. I have not faced any problem from them as well. The industry in general is doing well.

Would you be open to sharing Cadbury's details with others?

Yes, please get in touch with me for details.

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Scope of automation is more in farming!

Prof. Nagendhiran Vishwanathan, SUREGROW

Prof. Nagendhiran Viswanathan, Founder of Suregrow is based out of Coimbatore. He is an automation engineer who has experimented with the possibilities of agriculture infused with automation. In the process he has journeyed through hydroponics, aeroponics and all the versions of farming without soil.

Team Suregrow has built around 70 commercial farms in India, predominantly vertical farms. Most of them are farms which do not employ soil. In the last one year, they have started building soil-based organic computerised vertical farms as well.

The vegetable crops tried are broccoli, mint, capsicum, cucumber, green peas, basil, amaranthus, palak, lettuce and microgreens.

Besides vegetables, they have tried their hand at strawberries and marigold as well.

"I am not consigned to farming without soil, alone. I do soil-based farming as well. Our realm of work involves computerised soil-based farming as well. With my hands-on experience in automation I believed I could effectively contribute to the agricultural sector.

The scope of automation is more in farming without soil compared to soil-

based farming. That is why I stepped into hydroponics and aeroponics initially.

Later on, we developed 'finite volume soil-based farming'. It is the same as conventional organic farming but in conventional farming you deal with an infinite volume of soil. Quite a lot of problems associated with the current farming is because of this factor. So, like in hydroponics or aeroponics, we cultivate with limited amount of soil collected in containers - we do it in pipes. The finite volume of soil gives us a lot of control over it and things get very easy. One can manually control the farm or it can be computerised."

Organic Vs Inorganic

If you are not aware, farming done inside a polyhouse does not qualify for an organic certificate. Although Suregrow does not employ any chemicals, since



the farming is done in a poly house, the produce doesn't qualify for an organic certification from an Indian perspective.

There are other countries which accept farming in poly houses to be organic. So, that perspective varies from country to country. So, by way of certification the produce is not organic but positively one can have total control of avoiding any chemical usage whatsoever.

Can you shed some light on the cost vs. profit aspect?

This is a very conscious evolution for us. My research started off in 2007, when I was working as a teacher and we started off commercially in 2012.

We came to realize that technology-driven farming in India did not take off in a big way because of the costs. We are a developing country and most importantly vegetable prices are the lowest compared to any other country. That posed a challenge. We realised that if are going to venture into technology driven farming, the infrastructure cost should be one that is viable in India. That was our challenge.

Our effort to minimize costs drove us to a complete indigenous development of our products. Over a period of time we were successful in getting everything done inhouse - right from the software

to electronic hardware, poly house fabrication to the plant growing system fabrication. We are very proud about this.

We are perhaps the only company which have end to end expertise in doing these things. In the process:

1. Cost advantage: We can deliver at the cost that other operators in this field cannot imagine.
2. After-support for our clients: Anytime our clients need software upgrade or tweak in hardware etc. we offer direct support. Our support extends in the long run as well.

Please share some more inputs related to using computer automation in agriculture.

Let us break it up into 2 based on agricultural activities:

1. The common manual tasks: Tasks like irrigation, fertilization, weeding, pest and disease management, etc. can be automated by slight modification and integration of computerization.
2. The parameters: This is something most people do not go to the extent of correcting, but when corrected you stand to get magical results. The different parameters are:
 - a. Monitoring moisture in the soil: Excess moisture in the soil creates as much trouble as soil dryness. A simple and low cost automation ensures the plant with moisture in the desired amount.
 - b. pH level of the soil: Soil is heterogeneous and the soil properties vary from one place to the other. Each crop requires a particular pH factor. The soil's pH can be monitored and corrected using computerization.

Once you maintain the right pH and nutrient composition etc. in the soil, the quality of the produce goes up.

3. Yield of the farm goes high.

The parameter details go a long way in easing and giving precision to agricultural practices and makes things robust. The biggest problem that people face is the reliability of the crop. Very often they face crop failures. Once the parameters are right, the robustness of the crop improves and hence its quality. When we are given a patch of farm, we can probe the soil in multiple places and we can find out the amount of nitrogen, phosphorous, potassium etc. This con-

cept is spilled over from hydroponics and aeroponics where we use these individual nutrients so that we maintain ideal conditions for the plant to thrive throughout its lifetime. The same technology can be extended to conventional farming as well. Conventional farming can be tweaked a little bit to make it finite volume soil farming. It gives the same results as hydroponics and aeroponics.

Do you use seaweed extracts as a nutrient in hydroponics?

Seaweed extract is being used in different ways. We get something called enriched media, which is pegged between hydroponics and finite volume soil based farming.

To make it simple, if you use coir pith for growing the plants, it is neutral media and water soluble fertilizers are mixed in water to grow the plants.

Instead of plain coir pith, we also have enriched media where seaweed compost is also one of the ingredients that is used along with other ingredients like bone meal, etc. Use of enriched media for growing the plants gives great results. Having said that, this enriched media tends to exhaust as the plant grows.

We have set up a farm around 3 hours from Coimbatore, where there is a vermi-composting unit. We extract vermi-wash from the vermi-composting unit. The vermi-wash is then sterilized and mixed with useful bacteria like nitrogen fixing bacteria. We use this liquid to replenish the enriched media. These give great results. The catch - it costs 3 times that of neutral media.

That is where we adopted soil, which costs lower than enriched media. We

enriched the soil with manure, etc. and we used the vermin-wash process the same way we did for enrich media and this also gave amazing results. In addition to that, we have another gentleman based in Chennai and Kolkata, who supplies us with certified organic nutrients. He uses seaweed as well in his nutrient pack.

How are you planning on expanding this business?

I was not really focused on developing the business. I have been running the business based on word of mouth advertising. Having said that, it has been good. We have had the highest number of farms installed in India with no conscious effort towards developing the business part of it. We have been more focused on making the technology more adaptable to this part of the world. That is what has been happening so far.

Our confidence level has shot up and I believe we are geared to deliver very powerful projects. I have faith that once we have a strong technology base the business part will automatically be taken care of.

Who are your clients?

We have clients across India. Like I mentioned earlier, we have 70 farms installed across India. We also work in Sri Lanka and Malaysia - we have a few farms there as well. We have some current projects going on in Malaysia as well and another one is about to commence in Sri Lanka.

Technology driven farming in Malaysia and Sri Lanka are totally different from that in India just because of the vegetable prices. I have seen cauliflower getting sold there at 10 times the rate at





know farming so all that we need to do for them is build the infrastructure and explain how things are done. But, later we realised that things weren't that easy and that people needed hand holding. That is when we hired an inhouse horticulturist.

Now, our consultancy starts at the point where we help the client choose the right project. We have come to realise that a project that is suitable for x may not be suitable for y. We need to look at how they would market as well and their potential. Looking at all aspects, we counsel them about the right project and right size for them to start with.

After finalization of the project, we begin with the turn key construction of the project. Once that is done, we hand hold them until harvest. This could be for multiple crops or multiple cycles of crops as well. Only then will the whole exercise be comprehensive and successful.

In fact, if it is a large project, we can virtually run the project for them by appointing qualified people. They just need to give us the space and invest on the infrastructure, we are open to running a farm on a profit sharing basis.

Read full article @ <https://bit.ly/2U3hkrI>

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which it is sold in India. This very aspect changes the whole project viability; I get the freedom to employ quite a lot of technology there. But here, I have to restrain myself from doing quite a few things.

Any thoughts on farming under lights?

Very often people come to me asking for farming under lights. We have a very successful working model using which we can grow plants under lights. But, I would warn people that it may not be a viable idea in an Indian scenario.

To quote an example, we did a farm in Lucknow. It was a 2000 sq. ft ultra-high density vertical farm. We provided them with 14200 planting slots for growing exotic vegetables and it was completely climate controlled and it was under lights.

I had to provide 2W lighting per plant. So, for just a 2000 sq. ft farm, I had to give 28400 W lighting, which had to be working for 18 hours a day. In terms of natural light, plants need 6 hours of natural sunlight. Under artificial lighting, it would require 18 hours of exposure. That translates to 28.4 units of electricity consumed per hour. That is 511.2 units consumed for 18 hours for just 2000 sq. ft installation per day. This is only for the lights. We have other machines in play. This is stretching the technology just for the wonder factor of it all. It may not be a pragmatic solution in India. We have to keep our restraint and keep things simple so that we get into a sustainable and viable model.

We understand that you associate a lot with the Tamil Nadu Agricultural University (TNAU)

There are very interesting things hap-

pening. We supply vertical farming equipment to TNAU using which students get to learn. From the automation and other technology point of view I deliver guest lectures at TNAU. We get a treasure of information from TNAU.

We have an inhouse horticulturist, Anita who happens to be from TNAU. She has done her PhD in Floriculture but she is a hands on person and has her own vertical farm and hence has a plethora of experience.

Once we do the engineering part for our clients, we hand over the farm to Ms Anita and she takes over. She then hand holds our customers until harvest.

We don't charge clients for our consultancy and even the first client who connected with us way back in 2012, still consults us.

Initially, we used to walk off after building the infrastructure assuming that the client will be able to take care of the rest. From our initial discussions with our clients, we assumed that they



Bright future for Moringa

KENATH B MENON, CONSULTANT - FARM MANAGEMENT

After a 20-year Industrial stint & Export Business in the USA & Middle East Mr. Kenath Balakrishna Menon is now in India. He has passion to be part of Agriculture & Horticulture because life isn't just about making money, It is also about doing something worthwhile for the Humanity.

"I was in my own business in the Middle East and United States. Now, back in India and have three entities - Green Planet Agri, Green and Brown Industries in Bangalore & Yosan Foods Pvt Ltd Mumbai. We are basically into farm management, organic cultivation of chosen medicinal herbs particularly Moringa Oleifera, Tumeric, Tulasi etc. We cultivate in about 200 acres in Karnataka, 100 acres in Madhya Pradesh & 80 acres in Tamil Nadu. Also have cultivation in Maharashtra. We do buy back & cater to domestic market plus Exports to USA, Europe & China etc

Kenath follows dense cultivation, i.e. they grow about 20,000 plants in one acre for Moringa leaves and they get a reasonably good produce every year. They do about 6 times harvest of leaves. He sees a bright future for Moringa. World market projection for Moringa products from 2020 is about US DOLLAR Seven Billion per year. 80% of above Exports from India.

" Moringa leaves powder has 28-29% plant protein, 9 essential Amino acids, all essential vitamins, 46 anti oxidants with Minerals Iron, Calcium, Magnesium, Manganese, Phosphorus, Potassium & Zinc. Instead of all the synthetic stuff we get from pharmacies, Moringa leaves powder being plant origin is absorbed into body

tissues in full quantum. Moringa proves to be very beneficial for the human body. It is also said to prevent various types of cancer because of Apoptosis - that is Programmed Progressive Cancer cell death. Regulates Hypertension & blood sugar too. All of this has been Researched out by Reputed Medical Groups in USA - NIH - National Institute of Health Baltimore & Johns Hopkins group of Hospitals & Medical college.

Also according to R & D they have conclusive evidence that Moringa powder produces Androgenic effect by enhancing sexual drive through increased serum & Testicular Testosterone levels, increased blood flow to the Male reproductive organs & stimulating Nervous system to enhance the sexual desire - Libido. Moringa has no adverse cardio vascular effects for men.

We add value to Organic Moringa dry leaves to produce Powder, Capsules and Tablets. Moringa seed oil - BEN OIL is a very versatile product which is highly effective for skin. Ben Oil works wonders in removing black heads, blemishes, pimples, Acne, black lining below eyes, stretch marks etc.



Are the leaves of the Moringa better than the pods?

Absolutely! Compared to the pods, the leaves are ingrained with large quantities of protein, vitamins, minerals and anti-oxidants. The harvesting and hygienic drying is very important. It should not be exposed to larger temperatures. It should be at about 30 degree centigrade. This is highly important for it to retain all its richness. We use our technical expertise to process moringa.

Is Tamil Nadu a suitable place for Moringa cultivation?

Tamil Nadu is extremely good. Both Karnataka and Maharashtra are good for Moringa cultivation. Also cultivate Moringa in Sohagpur, Madhya Pradesh on 100 acres which is absolutely fabulous.

Many people grow Moringa but seldom use most modern techniques. I have been growing 20,000 plants in an acre without hassles. The speciality is taking care of them well. The more care

and attention you give to your plants the better will be the output and quality.

Can you tell us about your Buy back arrangements?

In the month of February this year I was invited by a European group in Sweden & Prague to sign a contract for Moringa. A few months prior to this a group of Chinese visited my farm; they gave me an order for 96 Lac Moringa Tablets. First batch was despatched. By then CORONA VIRUS hence One full container of Moringa dry leaves was shipped to Shanghai Port. We have

direct exports and contractual agreements with many buyers hence we do Buy back.

My forecast is there is a huge requirement provided we cultivate organically. Moringa exports can happen to countries like USA, Europe, Japan, China, etc. All these countries emphasize greatly on Organic quality.

I have an advantage. I was dealing with US FDA 1:1 for about 15 years. I know their standard norms of quality and I always adhere to it 100%. So we see to it that all our products conform to International quality standards.

I do buy back. But, only for high quality produce.

Do you help farmers practice cultivation so as to reach this kind of Organic quality produce?

Yes, I help crop selection, land preparation, cultivation, harvest and post harvest support and buy back. I am very choosy I pick farms & farming community who are very sincere and passionate doing agriculture.





Is there a minimum acreage required for you to support the cultivation?

You should have at least 10-15 acres for things to be feasible for farming community and me. Also, I have to visit occasionally because there are blind spots which may escape other's perception.. here lies expertise.

Can Intercropping be done with Moringa cultivation?

Intercropping can be done. But, when you are doing organic cultivation and if you are using some chemicals for any of the other crops, then it becomes a problem. But, otherwise fine. I have a unit producing Bio Nitrogen, Bio Phosphorus and Potash liquids-all Micro Biologically live organisms & culture which are organic really effective Microorganisms to improve quality and increase quantum yield. I have been doing this for several years now because I don't believe many to give me 100% genuine organic inputs.

We also introduced two organic preventive sprays. One is for Moringa and vegetables & all crops and a little more stronger one for black pepper, tea, cardamom etc. These products give 100% results. They are organic as they are plant based in origin.

Is the harvest / plucking of the leaves automated?

No. Such things happen abroad. Right now, we are dependant on trained manual labor in India. Harvest and post harvest activities must be done with high diligence. I have used solar dryers and all but it is not a practical option. We have drying shed with shade net

with 50% UV-treated HDPE on the roof and it is very effective. The temperature is within control limits.

Do you know of people who would offer this kind of assistance to someone who intends to start small in about 1-2 acres of land?

If you are doing it on smaller plots of land, sufficient quantity yield will not be possible & logistical feasibility is limited, hence we suggest to do a minimum of 10 acres. In that case, I would strongly recommend to focus on the drumsticks itself. You can then sell it in the market or the nearest town. You get about 15k - 16k kilos per acre if you cultivate as per my consultancy. Last year Drumsticks were sold at the rate of Rs 300 - Rs 400 per kilo. Moringa for leaves and Drumsticks farming when done methodically will be lucrative at all times.

Tell us about organic method of cultivation.

Many people have the wrong impression and are misinformed about organic cultivation. I will give you the authentic and most pragmatic mode of organic cultivation, which gives you 100% results with less expense & more margins of profit, when done with proper know how.

The most important thing is to use farmyard manure or chicken litter etc. You will need 2-3 tons of this per acre, culture it and then keep mixing with sufficient moisture. Within 30 days it becomes powdery. This holds high amount of fertility because the bacteria multiplies rampantly and it is going to be spread on the land where you are going to cultivate your crop organically. This is a highly important step. This is also a very effective method to slowly convert the soil into organic mode where previously chemical cultivation was being done.

Plough your land twice with a tractor before you begin sowing.

Organic Agriculture

Organic Agriculture is a production system that sustains the health of soils, Ecosystems and People. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse

effects. Organic Agriculture combines tradition, innovation & science to benefit the shared environment & promote fair relationships & a good quality of life for all involved.

We use Organic farming methods which combine Scientific knowledge of ecology & modern technology with traditional farming practices based on naturally occurring Biological process. While conventional Agriculture uses synthetic pesticides & chemical fertilizers, Organic farmers are restricted by regulations to using Natural plant based, Bio & organic pesticides & fertilizers.

Of course, you can use Bio Nitrogen, Bio Phosphorus, Bio Potash, etc to ramp up the fertility of your plot. The plants thereby get whatever they need. Once in 2 and half months, supply the plants with nutrients. Give a preventive organic pesticide spray once in 45-50 days to ensure that the plants are kept away from diseases. We manufacture our organic preventive spray using plant extract, etc. This is a highly researched product and the outcome is excellent. I have observed that there are many who do organic cultivation. But when their plants face some diseases, they spray the plants with some chemical spray sourced from one of the local stores. Their entire organic cultivation efforts gets washed away with that one step because the produce will contain chemical & pesticide residues.

What kind of irrigation methodology do you suggest for high density cultivation?

The irrigation system best suited would be either sprinkler or drip irrigation. The government gives subsidy for all this. Even if you think you cannot get subsidy, flood irrigation will also do. But, the irrigation should be done religiously. The timely application of nutrients & water for maintaining the soil moisture is very important. So do not over irrigate your plants but maintain the soil with sufficient moisture.





For Moringa, it is best to have a drip irrigation system in place.

Have you tried extraction of the powder?

Many people ask this and they try doing it. But, the answer is a big No.

1. Water extraction is not permissible because post extraction, you are going to dry the produce and then subject it to higher temperatures.

2. The other extraction methodology involves Ethyl alcohol usage. Here again, you are meddling with the product. You will not get the quantum of nutrients ingrained in Moringa and the entire philosophy of using Moringa powder for its benefits to the human body gets lost. In fact I would recommend to take Moringa leaves powder as no heat is treated in the process hence all the nutrients are present in full quantum. So Extracts of Moringa is not pragmatic at all.

Tell us about the products that you develop.

We are the first to introduce a few products. For instance, the taste of Moringa powder is to be made palatable. we use a special method and so it is sweetened with Stevia or other sweetening agents and use a few other items so that it fizzes out in water. This makes it more palatable. We also produce Moringa leaves powder, Moringa tablets,

Moringa capsules all organic quality.

We market Turmeric with Curcumin. In 1990 when I was in the US, research was going on in a very big way. They have now established that it treats cancer. Oncologists over there have started prescribing it for cancer patients. It kills cancer cells. The main drawback of curcumin is its slow absorption into the blood stream because curcumin is an oil-soluble product. Oil cannot dissolve in water. We are doing a lot of R&D to counter this and very soon we will be coming up with a new product.

We produce Moringa seeds oil- BEN OIL which is 100% pure Natural plant origin highly effective for application in human skin especially on the face. For men & women all skin types benefit from using Ben oil. Apply few drops on the face and nicely massage, in few minutes the oil gets absorbed in the facial skin through the skin pores. This is amazing-the only oil which acts so fast & removes fine lines, wrinkles, improves the overall appearance of the facial skin & also an effective skin moisturizer. Facial skin texture improves a lot.

These are products that are essentially required in the market for all people. Today all of us are talking about is COVID. But cancer is still a huge evil, affected by a large percentage of people all over the globe.

We have more products being researched on. For me, it is not just the profit or the business, I want to do things that are beneficial for the human kind.

One of my friends, last year, went to participate in an Exhibition in Geneva. She took with her 10 kgs of Moringa powder. She was showing this at the customs in the Airport and she had all the certifications with her. Even then the customs people wouldn't allow it to pass. She said she had put in so much of money and effort plus all the certification was in place. The negotiation went on for half an hour to 45 minutes. One Customs Inspector, explained to her kindly that they have strict instructions from the Government and Pharma companies that no food supplements should be allowed because the sale of

pharma products will then be affected. This is a sad scenario. But even then it is yet another stamp to show how effective & beneficial these products like Moringa oleifera is to your health, hence such restrictions.

Indian Ayurveda is an ancient Science and we in India are blessed immensely. The World Health Organization - WHO recently defined Herbal Medicine which is traditional medicine comprises many Therapeutic effects that have been in existence, since thousands of years even before the development of modern medicine & are still in use today.

India is sitting on a gold mine of well recorded & well practiced knowledge of traditional herbal medicines. we should take immense initiative to do following...

Document traditional uses of - single plant herbs, cultivate medicinal plants free from pesticides & heavy metals, try to standardize molecule activity profile using modern techniques and safety and stability. Also mode of action in animals & efficiency in humans will also be supportive. Such scientifically generated data will project Herbal medicines in a proper perspective & help in sustained global market.

India can enter strategically with our time tested plant based herbs & medicines & Export, which are already accepted in Europe, USA and Japan & South America. Of course this novel methodology will increase our market share in the whole universe.

Moringa leaves powder could be consumed by all for IMMUNITY BOOST & PREVENTION OF MANY AILMENTS. The source of Moringa plant has been from the foot hills of Himalayas - says ZEICHNER. Many people in the Western World have been consuming Moringa products in order to prevent diseases & create Immunity. So why not us from India who have been using Moringa since about 4000 year long ?

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Integration stack and data-driven agriculture model

Mr Sriram Gopal Founder and CEO, FutureFarms

Everybody has space in the world of agriculture. If you think that experience and/or an agricultural degree is the only way to pave your way in one of the most stable space then it's time to think again.

Mr. Sriram holds a degree in Engineering and another in Business. He is founder and CEO of FutureFarm and has, over the last 3-4 years, contributed immensely to the field of agriculture.

“We are a vertical farming and hydroponics tech company based out of India - one of the first companies to set up hydroponics units in India. In about 4 and half years, we have completed 50 completed projects in about 10 states in India. We have also set up projects in Bhutan, Nepal and Sri Lanka as well.”

How is your activity different from other hydroponics ventures?

Our philosophy is slightly different. We do not see ourselves as a technology/hardware/equipment company. We consider ourselves as a knowledge company.

We strive to create a seamless integration stack and data-driven agriculture model. It is a combination of subject matter expertise, standard operating systems, fertigation systems, climate control systems and the hardware itself.

Who are your customers?

We have two types of customers:

1. The corporate segment: They are the ones who want to diversify into alternative farming methods like hydroponics. We give them a turn-key solution - right from conducting feasibility studies, design, consultation, development of green houses, setting up of hydroponics equipment, giving them annual AMC for the equipment and also giving consultancy on crop production.
2. Individual entrepreneurs: These are the ones who want to set up their own fresh produce brands. We back them up with the technology and give them a turn-key solution from a technology point of view.



Who do you target more - the corporate segment or the individual entrepreneurs?

We do not differentiate between both segments of our customers. It is just that we try and interact with the customer to find out their end objective. If it is getting into the Food and Beverages segment, we are not particular whether it is an individual or an organisation.

How does the Set up Your Farm button, on your website, work?

That is for people to reach out to us. If somebody is looking ahead to set up a farm, we have multiple products. We have different ranges for commercial and large scale; we have a range for urban farming and we have a range for home and hobby/kitchen garden as well. Anything that produces food is a farm or a version of a farm. We try and engage with people. The website is one of the starting points where people can reach out to us and start a discussion with us about their business/cultivation intention.

Do you have any agri-related background?

I personally hold a degree in Engineering and in Business. I have done contract farming and was inclined to the

management side of things. Today, we are 50 people in our company and I have got more than 4-5 senior agronomists and bio technologists in my company. We have a person who holds a Doctorate in plant biology.

How would you advise nil-agriculture-experience people aspiring to enter the world agriculture?

Hydroponics, in India, is very new. It has only been a few years since this technology has been around. Most people will not have a first-hand knowledge of hydroponics. It is more technology than actual agronomy or biology. It is easy to adopt because India is littered with engineers and hence, this is a good way to progress. It is highly efficient - saves 90% water and it is very easy to learn. For the most commonly grown crops, the adaption is high. The skill level required to operate a farm is not that intensive.

What is the cost involved for a small unit?

The cost depends on the crop one wishes to grow, the kind of technology, the location, the kind of automation you want to deploy etc. It varies from project size and the produce itself. There is no fixed thumb rule to measure that. It broadly varies from project to project.

Roughly, to start a mini farm in your balcony, from as less as Rs 10,000/-, it can go up to about even 6-7 crores in a hectare of land.

With setting up of the farm, do you also train the people involved in hydroponics?

As a business, we are not into training. Having said that, when we partner with the customer, we offer two services:
1. We give a turn-key solution only for the set up or
2. We do a build and operate
If we do a turn-key we also extend the hand-holding for 3-6 months. We train the customers' staff and set SOPs for the farm.

Does the hydroponic system come with the cooling system as well?

Not all hydroponic systems come with cooling systems. It depends on the farm location. If you are at a place where the climate is cool, you do not need a cooling system. In fact, if you are in a place which is very cold, you may need a heating system. So, it all depends on what components you need to add in project.

The whole concept is not about hydroponics; it is about micro climate and irrigation and fertigation management. As long as you are able to give optimum condition/micro cli-

mate for a plant, the purpose is served. It is not all about the technology or the components we use.

What is your advice on marketing the produce?

In my opinion, if you think about your farm like opening a restaurant, the first thing you have to keep in mind is the potential customer/demand. Technology is overrated most of the time. If there is demand, you can try fulfilling it using technology.

Choosing the crop is the first step. There is a business angle and a technical angle to it. If you are an entrepreneur who is looking forward to scale the business, in the restaurant context, you need to appoint a chef. This way you do not have to go through a hotel management course, become a chef, etc.

As an industry we need to differentiate between the entrepreneurs and chefs. One is the person who invests in the business, takes care of day to day marketing, selling positioning etc. Another is a technical person who probably has an agriculture background/has expertise in plant management, pest control, etc. We don't necessarily need to be both at the same time.

For marketing the produce, somebody needs to look at how to generate the demand and there has to be somebody who you can employ, who simply looks at giving you consistent A grade produce throughout the year.

Passion alone is not enough to set up a plot. You need the passion and an agriculturist who knows things in and out.

For a nil-experience entrepreneur, is it advisable to hire people with hydroponic experience to farm greens?

Once you figure out the crop and how to grow it, the next challenge is to sell the crop. So, before starting the cultivation process, my advice would be to start sourcing greens that you plan to cultivate from other farmers and try selling it.

That way you get a pulse of the market. Also, your investment and learning period is safe. Once you are able to offset, let's say, 1 ton of produce a day it automatically qualifies you



to backward integrate into your first farm. You don't even have to create a brand at this stage, just be an aggregator. Branding can come after you begin cultivation.

I have set up farms for so many people. We do not commit market linkage or selling because that isn't our specialty. But, I often come across passionate and overly optimistic entrepreneurs jumping into the investment first because they have the money at that point in time. Later, this becomes a struggle.

Machines will always do the work you program it to do but if you don't capture that value, it is a waste of your money and effort.

Any advises on how to crack the market?

There is no other way to this other than putting yourself out there because there is no science behind that. You have to go and get your set of 100 customers. Some people achieve this in 3 months; some people take a year to crack it, etc. That is the gestation period.

All the excel sheets can give you fancy numbers but I think if somebody says that there is an ROI for 2 years, you have to mentally prepare yourself for 4 years. This is not just true for agriculture or agroponics; it is true for all businesses. Excel is just a conservation estimate of things. So, you always need to add a buffer of 2x to it and if you think you can fulfill

that, that is when you can get into the business.

Is hydroponics advisable for ginger cultivation?

It depends on the location you are at because if you are at a location far away from the consumers, commodity is definitely the way to go.

Cultivation of ginger is possible and for that using the substrate medium is advisable. It is almost like drip irrigation in soilless medium.

If you grow ginger under protected cultivation, your yield and environment management can be better. Also, disease and pest issues can be greatly controlled. That is the benefit of growing ginger indoors.



Of course, economics will dominate it all. So, one needs to think about why ginger is being grown. Is it for processing, supplying directly to the market etc. If upon analysis, it is viable it is definitely a good project.

Is hydroponics suitable and economical in India?

I would definitely say yes to hydroponics in India because with the level of water depletion, nutrition deficit, the amount of pesticide contamination and the unavailability of labor that we are getting into, hydroponics is definitely the way forward for us.

This methodology gives us more control over the climate and in an acre of land, we can produce almost a 4-acre worth of produce. We can also pay people to work in these farms almost two times what they would earn in a normal farm.

From employment, sustainability, water, nutrition and hygiene points of view, hydroponics can be seen as the way forward. It may not be suitable for all crops, but for horticulture, this is a huge leverage. If not today, in about 3-5 years there will be a wave of agricultural methodology in India like in many other countries across the globe.

Even if you consider South East Asia alone, Malaysia, Thailand etc is

big on hydroponics. It is a globally accepted technology.

Tell us about the problems and challenges you have faced.

The general public doesn't know how to differentiate between hydroponic product and an otherwise cultivated product. They are not yet aware of these kind of hygienic produce. So, marketability is still a challenge.

People are gradually moving towards cleaner and better choices. We see that market maturing. We are all used to open-field farming and the minute you put a controlled environment, green house and all these sophisticated technology, cost becomes a huge factor. Until the last 5 years, everything that you did in this space was imported.

From when we have started there has been a huge change. We have reduced the cost of technology by 50% and we have made it viable for almost 20 crops. But yes, marketability is still quite a challenge.

We noticed something called plant intelligence in your website - can you please shed some light on that?

Absolutely!

For a first-time hydroponic farmer, things can seem too overwhelming

seems new. So, in our last 5 years of operation, we quickly realized that the cost is only one portion of the problem. The other is that people do not have that scientific background and understanding in most cases to run these farms.

We built like a robotic consultancy who is equivalent to 100 agronomy consultants which on auto pilot mode can manage a farm. It can set the set points, detect the sensors, decide what kind of fertigation ECPH is to be maintained. Basically, it can operate a farm for you. This saves you from hiring an agronomist.

You can employ this computer to run the day to day activity on your farm. We use this not just in India but we also integrate with partners from other parts of the world for this AI product.

What are your future plans?

So far the journey has been good. We have grown - we are a company of 50 people now.

Hydroponics has been getting a lot of attention in the last couple of years. All large corporate companies are getting into some form of food segment. The food processing industry is also getting really big and taking better quality ingredients, lower heavy metal contamination, hygienic products. I think there is large scope for hydroponics in this country and more people are getting into these kind of farming.

As a company we want to make it a successful and an easy business proposition for farmers to adopt; we are also developing sustainability paths where we are trying to create clusters of hydroponic users so that there can be shared knowledge and the common economics will play. This way costs can get lowered.

We are, hence, experimenting with new models and the next two years will be very interesting in India.

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Community Supported Agriculture model!

Ms Sumeet Kaur, Spudnik Farms

A lawyer turned agriculturist, who continues to seek justice for what she stands for in her own unique way.

Ms Sumeet Kaur works on a supply chain model where, apart from encouraging excellent farming practices, she invests into building trust between the consumer and farmer. Community Supported Agriculture is the model she has adopted wherein agriculture and health is made sustainable by regaining the lost connection between farmer and consumer.

Can we start with a small introduction about yourself and what you do?

I run an organization called Spudnik Farms. Being in the farming sector since 2013, I have recently started working with other small and marginal farmers around the Kolar region. We work with them to provide marketing assistance for their produce, extension services, and assistance in pest and nutrition management. Ultimately, we pick up the produce and supply it directly to households in the city.

We have been supplying vegetables since March 2019. Currently, we work with 8 farmers and supply to around 60 families in Bangalore. Spudnik Farms was part of a one year incubation programme at

NSRCEL, IIM-Bangalore. At present, we are in an accelerator programme run by AIC Sangam, and is supported by NITI Aayog. That is what we do, in a nutshell.

Are you native to Bangalore?

I am based out of Bangalore. I am not an agriculturist, academically. By virtue of qualification, I am a lawyer. I graduated from the National Law School, Bangalore. I quit my job as a Tax Advisor in 2012 and got into farming.

I started by growing and supplying organic vegetables to friends and acquaintances from a small piece of land at Hoskote. That is when I realized that the agricultural space really interested me although I did not have any technical expertise. Everything I know today, I learnt on the job.

It was a little difficult to sustain it financially because I was doing everything from growing the vegetables to delivering it at homes in the city. I realised that to make my work sustainable, I needed to make farming financially viable. Also, there were production issues as well; if you want to supply vegetables continuously I realized that I needed to have more area under cultivation. In that scenario, I worked out that instead of buying more land, I could make a better social impact if I started working with other farmers who may:

- need assistance in marketing their produce; and
- want to go organic but don't exactly know what to do.

The more I talked to farmers I realised that they are most willing to go organic but in situations like a pest attack or crop disease, if they aren't provided with the right kind of advice and inputs, they are forced to walk the usual path. So, we go visit these farmers and create a production plan depending on the season, water availability, the type of soil they work on, etc. Through discussions we figure out what kind of crops they would prefer growing.

Also, when it comes to organic farming, crop diversity is the key. Hence, we encourage them to grow 3-4 crops on a rotation basis. We provide them with seeds or source it for them. We visit them once a week and observe how their plants fare. If they require assistance with pest, disease or nutrition management, they can reach out to us and depending on the situation we decide on a corrective course of action.

Lastly, we pick up their produce, pack it and do a door-to-door supply.

How big is your organization? Logistics must be quite complicated here, right?

Logistics is just not my area of expertise. It doesn't interest me as well, to be honest. So, we have outsourced logistics. There is a local person who helps us with both the inbound and outbound logistics. I have a team of 5 people, which includes the two people who work on my farm.

I have a farm manager who also manages the network of 8 farmers. He is a



fairly senior person who has been with me since 2013. Apart from this, we have hired a young agri-professional who helps us create the planting calendars for our farmers and organise the production.

To provide a continuous supply of vegetables, you need to have a plan in place. I need to plan everything three months in advance, including things like, ensuring that I have the right seeds that suits the soil type and anticipating the weather conditions.

So, in short, I have 5 people and then my own driver. He also doubles up as a packing person and oversees the third party logistics people.

What are some of the challenges with respect to the initiative you have taken up?

Initially, one of the challenges was trying to figure out how to market this produce directly to people in the city. People are used to handpicking things from the local stores - so I wasn't sure how I would get them to buy this concept. When you sell things online, customers don't get to see the produce before buying it. But, experience taught me that if your product is good then word of mouth really picks up.

I started with about 15 families. My only advertisement was their word of mouth and now we supply to about 60 families. We sell vegetables on a subscription basis, which is a slightly different methodology.

Can you elaborate on that please?

The customer signs up with us for a month and then whatever we grow that month is sent to the customer

on a weekly basis. For example, if we have 4 farmers growing lady fingers and capsicum; we will have four others growing tomatoes and cucumber. Likewise, other vegetables. We gather the produce that all these farmers grow and divide them into baskets which we call weekly baskets.

The customer then receives an assorted basket with 8-9 vegetables at their doorstep. We try keeping some preferences in mind. For instance, some people are either allergic or due to some reason do not eat certain vegetables. We make



a note of such things upon customer registration. This being a monthly subscription, families can re-subscribe at the end of the month.

This system helps sort out our production to a great extent because before the farmer sows the seed they are aware of the quantities they need to grow. When we talk to our customers and take down their preferences, I can estimate the amount of vegetables we need to grow so as to meet needs and keep this sustainable. This way farmers are also in a better position because they don't end up growing too much of one vegetable which they may not end up selling.



We don't have any formal agreements with our farmers which forces them to sell all their produce to us. That is not how we work. We do not aim at contract farming. We are giving them a support window in terms of marketing and technical support as per their need. This works out quite well for everyone involved - farmers can grow 4-5 different vegetables at the same time. This lowers their risk of not being able to

recover their cost of cultivation. If the price of one vegetable goes down, they can make it up with the price of another.

Hopefully farmers will be willing to expand their area of cultivation.

This model helps them avoid the various commissions and rents that they usually deal with. We pick up their produce from their farm making transportation of products also convenient for them. Like I mentioned earlier, we have laid no restriction on them. Even if they have excess produce which was grown for our requirement, they are free to sell it in the local market.

What guarantee does the customer have that there are no chemicals being used while growing the produce?

Neither the farmers that I work with nor I have a certification in place. The beauty of what we do lies in the fact that our customers are free to come and spend time on our farms. They are welcome to come and see what we do. We are extremely transparent and open about how we cultivate the produce.

When it comes to small and marginal farmers, a third party certification is something that isn't financially viable. Also, because we cater to the domestic market, certification is not a priority. Certification is a requirement when you want to enter the export market. Most of our customers are not interested in any kind of certifications.

Rather, they value the fact that they know who is growing the produce for them. We focus on building trust between the farmers and our customers. That, I believe, is what is required. Today's organic market is so flooded with produce that claims to be organic that we, as consumers, tend to question the certification as well. This is because of lack of trust.

So, I focus more on building the trust by keeping it transparent between the customer and the farmer. The more people you can avoid in this chain between farmer and consumer, the closer people are brought together and trust is built. The idea is to have a family farmer just like you have a family doctor. Every family, I believe, should know their source of food. This connection

has snapped over time because of the crowd that penetrated into the chain that links farmers and consumers.

A farmer in Kolar does not know who is consuming the vegetables he produces and what happens after his food leaves his farm. Similarly the consumer does not know who grows their produce or how and where it is grown.

Hence, with this community driven approach, we hope to rebuild the long-eroded sense of trust, reliability and responsibility through personal connections.

How do you take care of pests and crop diseases?

The first thing that helps with pest management and diseases is diversity and crop rotation. These two aspects of farming takes care of a lot of farming issues. We chart out planting calendars for farmers. We try to give them crops that complement each other. For example, we encourage farmers growing tomatoes to plant extra basil in their row of crops.

Not only does this result in better flavoured tomatoes, it also provides better pest protection as well. Similarly, we encourage them to have a boundary of garlic or other strong-smelling herbs as per season so that there is a natural pest control mechanism in place. This is a push and pull approach in companion planting. So, during the planning phase, we avoid associating plants that will harm each other or attract insects or pests that are detrimental to other crops.

At the second level, we try to get the farmers to use naturally available pesticides. We encourage them to use a lot of fermented plant juices, Jeevamritha etc. In that respect, the agricultural department is doing a commendable job. They have these programmes to train farmers on using different natural potions for pest and nutrition management. Also, there is exchange of a lot of traditional knowledge between farmers.

Read full @ <https://bit.ly/2EUseab>

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CONNECTING

Farmers and start-up entrepreneurs to customers, brand building, & marketing support.

Ms. Jyotsna Kaur Habibullah
Founder and CEO
Lucknow Farmers' Market, Lucknow



We have a mango orchard outside Lucknow, and I have been working on supporting entrepreneurs related to rural farming and agri-entrepreneurs.

I conceptualised a mango festival, Farmers Market and Growers Association. For the first time in UP I brought together the state horticulture and tourism department with local entrepreneurs, Hotel Restaurant Association and initiated a public private partnership to popularise our main produce Mangoes. I collaborated with ICAR here to do that as well. We organise farmers' markets to create conscious consumers and producers, as well as connect with consumers who are aware of natural products, want to buy them

First of its kind, online sustainable platform that supports Farmers, Artisans and Entrepreneurs at all levels, aims at sustainable living and a greener environment. She is interested in connecting farmers and start-up entrepreneurs to customers, brand building, and marketing support to farmers and entrepreneurs. She talks about creating and supporting ecosystems, brand building, and marketing support to farmers and agri-entrepreneurs.

but do not know where to get them. It is an opportunity to collaborate with likeminded farmers, brands, and other collaborators to help everybody grow and create a network of those working in the sustainable space.

You get to promote local agriculture, encourage community members to interact, conserve craft and indigenous activities and promote local specialties such as Karonda, a seasonal berry rich in vitamin C. In every state you have such agricultural produce which is not sold in the market as there is no demand for them. When we reintroduce them, it boosts immunity and we retain the local indigenous things that are very important to agriculture and the ecosystem.

Through the farmers market, mango festivals we propagate a farm experience and promote rural tourism.

People from cities want to visit farms as they are often disconnected from their roots. You can arrange for it with a meal, or you can arrange the visit during the fruiting season or for instance the mango festival. In UP, there is a story telling tradition which is slowly getting lost.

We have revived this, promote local handicrafts and entrepreneurship in the region by encouraging the small entrepreneurs with fresh produce and market linkage. It helps those interested in building your own brand, and when associated with other products and collaborators, it will help you to receive testimonials from people when they visit your farm for tourism based activities. We promote local farms where people can visit, enjoy local music, and crafts. Children are taught how to appreciate the crops the farmers grow. Visitors are fascinated by the local food made from the produce of the farm, which also boosts the local economy.

We have in the past collaborated with the tourism department and also promote local farms and plan to do this





around the country. For the Mango Festival we focus on different farms every year. People come and enjoy a traditional experience. We tell people why we get mangoes at the hottest part of the year, stories on how emperors travelled in hot summer months when mangoes were available, poems, and shayari, and keep the tradition alive. There are activities to engage children like mango eating, story writing for children about fruits and vegetables and drawing contests too. We get sponsors and collaborators to promote the festivities and engage them in the local economy too.

For the Mango festival, we have involved well known chefs and culinary academies like the Pankaj Bhadouria Academy who conduct a cooking contest. Hundreds of people apply online for this. It helps to conserve the local specialities involving mangoes and

jaggery, and raw mangoes in different types of sweets and savouries. We buy mangoes from the local farmers for the festival and encourage the restaurants and hotels to do the same. Its a fabulous experience for everyone and we also showcase in many restaurants the different mango based international and national dishes to create interest among people.

The festival helps us to promote local handicrafts, potteries, and crafts. It is an opportunity for industries to come up with different food-based items. Children learn how to grow trees from saplings. The mango motif is famous all over the world and is used in block printing and embroidery.

There are many other entrepreneurs who launched Mango based products such as Mitti Se that produces non-toxic skin and hair care products, raw mango dishwash, and Mystique Artisans who launched their products like shampoos and soaps etc. Bakers like Sweet Nothings launched a whole range of sweet and savoury products with Mango. Other products like mango tea and mango and aloe based soaps are sold here.

The aim of the farmers markets and festival is to link the suppliers

with institutional buyers and connect to big industries like Safal, Spencers, and Nature Basket in different states. The PG students of vocational training department in Nutrition PG College in Lucknow started the app Mango Baba, and ICAR launched it for mango farmers to connect to consumers. Since the last 8 years we are promoting mango tourism in UP.

We plan to attract tourists in summer holidays for the festival to create a linkage with producers. We have opportunity to create infrastructure and value for the products. We interact with specialists and scientists to ensure the farmers get input and interact with farmers and consumers who will understand where the food is coming from. The purpose of the festival is to enable farmers sell directly at good retail price instead of losing out to middle men and the mandi.

Every year we get around 100 student volunteers who help us organise the festival and enjoy being involved in interacting with farmers. They help promote the festival through social media and conduct live events to raise awareness like flash mobs.

The Chief Minister, Governor and Mayor have been visiting the festival for many years. People come from all over the country contact us in advance to plan their visits. After the pandemic, we hope to have more people in small groups visiting orchards across the country. We bring in many collabora-





Lucknow Farmers Market

tors to promote the Mango Festival, farmers market and be eco conscious, like Fab India, Accord hotels, banks, and local farms. The foodie groups in social media can also help to promote the farmers online. In UP, we have tied up with government associations, local colleges, radio and Uber in the past to send messages to prospective customers. It is a great opportunity.

We have organic teas from Hariyali Organics, consultations from naturopaths to help live a natural lifestyle and ecosystem. There are companies that sell squashes, jams, and jellies without any preservatives or colours. We have associated with a hydroponics company that grows microgreens. We collaborate with self help groups and Rural Beat in Sultanpur to help people in villages to be sustainable. There are a few companies that sell garden accessories, and others making flowers out of tin cans. We have bee society in Faizabad with 700 hives who produce honey, bee products and soap with bee wax. We would like to connect farmers with consumers to sell their products in advance by getting subscription at the beginning of the year to get better prices.

We also focus on connecting consumers to farm stays to enjoy the authentic farm experience. We currently list Vintage Village, a beautiful farm stay in Sitapur and Foothills Himalaya an experiential farm stay in Corbett and would like to connect to farm stays across the country. Lucknow farmersmarket.com also shares talks and a blog about different methods to improve your health, live sustainable, creating awareness about natural food, herbal teas.

We offer those working in this space the opportunity to have their own website and interact with the people who are their target audience. If you would like to list your product or

service with us connect on <https://www.sell.lucknowfarmersmarket.com/>

Can our products from South India be marketed there by linking so that we can transport our produce to your place to get good price?

Yes. With the online farmers market, there is opportunity pan India. We can supply from Bangalore or any other city when someone orders online. We have collaborated with Delhivery and are also tying up with India Post so that delivery can happen from anywhere. People can go online and see all such opportunities, visit, buy products and by-products through collaborations. We will also help in marketing and providing suggestions in developing orchards, an ecosystem to help farmers improve their offering.

When somebody wants to develop an ecosystem like yours, will you give advice and help?

If a farmer produces ghee, and if he wants to link to our website, we give him the knowhow, how to see online, and guidelines for certifications needed. Eco-friendly packaging is required. He has to reduce the plastic and other nonrecyclable products and know how to make the packaging using products that are eco-friendly. We can help him connect to people to work on, his brand, his logo, and develop a strong way to communicate his brand. We also help on how to communicate and connect through online.

Is it only for mango or for other produce too?

It is a farmers market. It has a website now, and we list different products and services.

Will you help in getting certification and logo?

We can help you in this. We help with your brand, logo, and communication strategy to connect with others.

Can you reach Bangalore and South India since you are pan India?

Lucknowfarmersmarket.com is now live and delivering pan India

How do you handle organic produce demand?

When we started the farmers market, we had to convince everyone that it was worthwhile buying organic produce. Persuading the buyers and consumers was an uphill task and many time products were left over and had to be gifted. Now





Marmalade Rural Beat from Local Tangerines

people know the benefit of using natural resources. With the pandemic a focus is back on health and there is a huge change in consumer awareness and realisation that we need to eat healthy and live sustainably. We have to continue the drive and create more awareness.

Will you help us to sell our produce with hospital industries?

We can definitely connect different industries including hospitals. A B2B offering is next on our platform and we are currently working on this.

How big is your orchard? What is the duration of the festival?

We have one orchard, but the idea is to promote local orchards everywhere so in the past I have tied up with other orchards for the festival. Now on the website we want to promote as many orchards as possible to enable the consumers



to visit orchards wherever they are. We have 1 day for orchard visit, 2 days for farm visit where we have display of mangoes and mango-based productions. We have opportunity to do online. We can tie up with mango farmers from various places so that people can visit the farmers throughout the season. We can also extend this to other fruit other than Mangoes.

Are you tied up with any IT companies to promote the products?

We have a WIX based website and are working with IT specialists to ensure we have cutting edge technology.

Is the festival conducted in one venue only?

We keep changing the venues where farmers display their products. Entrepreneurs come up with mango-based products. We can promote a lot of orchards on our website, we urge Bangalore, Hyderabad and other farms to connect on our site

Do you have any control over the prices of mango growers?

We encourage them to fix prices based on market prices. If they sell in mandis they get low price. If they sell directly to consumers, they get a much better price.

What are the norms to enrol the farmers prior to festivals?

We have MoU with the orchard owners and a written agreement. In the past the Horticulture department connects those who are in need of help, now we urge FPOs and Farmers Groups to connect with us. It is an opportunity to build a large network of farmers and agriculture based products, natural and organic products, and to show how to live natural way. We look for more people to join the board.

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Organic Farming Experiences

**Mr Ashok Panwar, Farmer
Rijgaon Village, Dewar District, MP**



It is rare to find uneducated farmers who are extremely proud of their profession. It is rare but they exist. Meet Mr Ashok Panwar, a passionate farmer, who feels if a country cannot be re-sourced with healthy food, there isn't any need for farmers.

Mr Ashok has received the Krishak Puraskar at the Taluk level and has been recognised at the block level for his innovative work on the fields like usage of solar pump, vermicompost and net house for organic farming.

Hello Mr Ashok, please give us a brief introduction about yourself and your current activities in the agricultural sector.

I am from Dewar district of M P. I have been practicing organic farming since the last 3-4 years. Honestly, this is a methodology that runs in our ancient history. It was practiced by our ancestors. The same thing that was practiced then has been aided by net houses, etc. in these modern times.

I have small net houses and have installed solar panels so that we are not hassled with electricity issues. This way, farmers can save on their cost of production as well. This is our modus operandi. We aim at providing people with good grains so that people stay healthy. We have been experimenting with new things.

We have also made a vermi compost and have been producing bio gas. This is a very simple procedure. The cow dung is used to generate bio gas which can be used to support various household chores. The slurry is feed for the vermi compost plant.

Are you into dairy farming as well?

I have cows but I don't sell milk. I admit that it can be done, but I haven't delved into it full-fledged. Honestly, if you do dairy farming, your soil gets converted into organic pretty fast. The more cow dung manure you feed into the soil, the faster your farm soil converts into organic.

I have seen how magically cow dung works on the soil. Half of our problems will be taken care of by cow dung. In fact our ancestors used to say that if you use cow dung, you don't have to feed the soil anything for the next three years. That was their mantra for agriculture. Cow dung is a boon for the earth. Also, you shouldn't burn any of your farm residue. Burning farm residue deteriorates the soil and environment. All the farm waste can be used as feed for your vermi compost plant, instead.

What crops do you produce on your field?

I currently produce tomatoes in the polyhouses and in

my open farm I have soya bean. I had a lot of vegetables last harvest. This time, I have not planted that many.

How do you market your farm produce?

Nowadays we have switched widely to grains. If I get a good price I sell it in the market. If not I supply it directly in the nearby houses. Mine is not a huge set up. I have started small. But, it is not much of a hassle.

Has switching to organic farming impacted your health in a positive manner?

People, nearby, have consumed my produce and have commented that it tastes good. They feel it fares better than the produce you get from the market. In fact they say that when they make rotis, out of the produce I supply, they stay soft for longer.

The vegetables may lack the colour and lustre but they taste better. The produce, that uses chemicals, looks great but quality and taste is not as good.

What are the challenges you faced when you started doing organic?

Everything in today's world moves at fast pace and people want instant results. You can't expect the same ease and pace when you want to go organic. It takes time, effort and patience. Farmers are not motivated to do this because for the usual method everything is available readymade - the seeds, the fertilizers etc. But, in this method, we have to make a lot of things ourselves and process it. These are the challenges.

What are your future plans, Mr Ashok?

We have made a group for ourselves. We are a bunch of organic farmers. The plan is to improvise on what we are doing right now and encourage more farmers to join this bandwagon. If that gets done, there will be a lot of unity and we can sell all our produce in bulk and get good prices for it. Only if we get good prices can we attract more farmers to take up this style of farming.



So, we are working with conviction. Hopefully we will get more farmers to work this way and it benefits many people.

How many people are there in your farmer's group now?

Now, we are a group of about 12 farmers. Our club is called Varda Farmers' Club. The club is at a distance of about 30 kms from my farm.

How much did you have to invest when you started this initiative?

I am cultivating in 2 and half acres of land. I had invested about 6-7 lakhs for the net houses, etc. Additionally, I had to spend on the solar panels etc.

For the last three years I have been growing vegetables. This time, I have grown vegetables in one part and grains in one part. Honestly, vegetables are a greater hassle to sell because of the lower shelf life.

Did you seek any help from the Government?

We sought help when we were setting up net houses. We got subsidy for that. We also got subsidy when we wanted to install solar panels.

How would you advice farmers who want to go organic and follow whatever you are doing at the moment?

My advice is that we should keep food clean and be mindful that as farmers, we are the ones who can do that. I would advise to increase the usage of cow dung. Of course, we shouldn't stop chemical usage all at once, gradually decrease the usage of chemicals on the farm and increase the usage of natural manure like cow dung etc.

What happens usually is, when farmers want to turn organic, they just stop chemical usage all at once. This will end up being a huge loss because their yield goes down pathetically.

Due to this they lose heart and think it is a waste turning organic.

Another reason why they shouldn't stop the chemical usage all at once is because everything should be balanced out. We should think of our household expenses etc. and work systematically.

Is your farm certified?

We haven't moved towards certification. We have to think and discuss about it before we venture into that path.

Are you getting good rates, for your produce, at the market?

In the market the rates aren't very good. In our local market, there isn't so much of space. So, that is a dilemma.

How do you source your seeds?

We have organic seeds with us. We have farmers from whom we source it.

Are you being able to meet your family expenses, after taking up this initiative?

Right now, it is not running at a huge profit. In fact we are suffering a bit of a loss.

You may have to look into certification. The advantage of getting your produce certified is that you can brand your products and sell it at a better rate at the market. Make sure you keep a record of everything you do so that the certification process becomes easier.

The discussions are on with respect to certification. Hopefully that will do the trick.

Thank you, Mr Ashok. You are a very practical farmer and this was a good discussion. All the very best to you!

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Profitable organic farming for small & marginal farmers

Major Ved Prakash Sharma, Gratitude Farms Private Limited

Talking to Major Ved Prakash Sharma opens our senses yet again to the fact that serving the nation can be done in so many ways. Major Ved Prakash is a retired army officer who now helps retired soldiers to become organic farming entrepreneurs.

"I served in the Indian Army for 16 years and worked in the corporate world technology sector for another 16 years.

The last 3 years, along with my friends and one other retired officer, we have set up this agri-tech start up by the name Gratitude Farms. Our goal is to help retired soldiers to become organic farming entrepreneurs. We are addressing two problems through our work:

1. Dignified livelihood for retired soldiers.
2. Profitable organic farming for small and marginal farmers."

To mitigate the issue of lack of experience in the agricultural sector and to do it right, Major Ved Prakash and his team travelled across the country and learned a lot about organic farming. They now have their own model organic farm.

"We had to convince ourselves about the benefits of our model before we pass it onto other hands."

How has your initiative been received?

For the small company that we have set up, the response has been very good.

We have set up a model farm outside Pondicherry, where I live and have developed every aspect of what should be sustainably profitable for a small farmer and so we have a 2-acre model.

Every year, about 60,000 soldiers retire from the Indian Army. They retire at an average age of 40-45 years, which is no age to retire. Most of them are from rural background and desire is to settle down back in their villages.

But, owing to a multitude of reasons they are forced to take up menial jobs in cities like security guards etc. That is a travesty at multiple levels not just for the soldier but the fact that if the soldier is in his village, he can actually be a good grass-root leader for rural development.

This was the background with which we had started.

Right now in our farm, we have employed 11 ex-soldiers and we are in the process for setting up a Farmer Producer Company of ex-soldiers in the six districts of North Tamil Nadu. Hopefully, in the next 24 months we will have

about 1500 soldiers part of that FPO. The model we have set up will be replicated for each of these.

The Food-Forest Model

Interest levels are also coming in from a lot of organic farming practitioners. We are being supported and mentored very well by some seasoned organic farmers. It takes time for us to solve issues.

There is a strong myth among many farmers that organic farming cannot be profitable, yields are low, etc. This mostly is a result of ignorance. If you have been practicing non-organic farming, of course there is a period of transition that you will face. But, in the case of land which has not been used and you prepare it for organic farming assuming that water, etc are taken care of, then by very careful design, crop selection and disciplined execution, it can be highly profitable and our farm bears evidence to this. We call it our Food-Forest model.

An element of profitability also is a fact that one of the biggest problems a farmer has is that he doesn't know where to sell. We also faced the same problem. We are primarily focusing on organic



vegetables, greens and fruits. There is a huge demand for organic farming but you have to do the marketing well to get the right price.

The model that we have chosen is that of a direct-to-home service. We do not have outlets or shops. For sales, we have our e-commerce platform and WhatsApp.

Being a start up we do not have the budget or money to spend too much on marketing. But, because of our quality, we have a lot of word of mouth advertising and so we have been growing quite rapidly in Pondicherry and Chennai. The end consumers' level of interest is quite high.

We aim to deliver vegetables to our customers within 8 hours of harvest. In order to shorten the supply chain, we have restricted our farms to be within 100 km from Chennai.



Do you only offer services in terms of training or do you help people set up their farm?

Implementing skill development is merely a beginning of the journey. So, we handhold the farmers who take our services. After the training goes well, they will need good seeds, saplings, good-quality nutrients, etc. They will need a lot of guidance on a day-to-day basis. There may be pest attacks and other unforeseen uncertainties. So, we provide a lot of support for all farmers joining hands with us.

Ex-soldiers either come to us as farmers or they come asking if they can work with us before they develop their own farmland. For the latter, we place them as Farm Managers on leased farms where we are working.

How do you differentiate Gratitude Farms from other organic farms?

In the market, you will mostly find two types of approaches:

1. Eco-system approach: Organic farming practitioners who produce, harvest, grade, pack and sell directly to customers.
2. Aggregator Approach: They only have outlets or online channels and do not have any farms of their own. They collect produce from various farmers and sell it at their outlets.

In our case, we have very consciously chosen the first model where in we pro-

duce, grade, sort, pack and sell. So, every step - pre-production, production, processing and sales - is encompassed in our model. It is not easy to operate this. But it works best for farmers to gain the best prices.

Honestly, it is much easier to grow as an aggregator or being just a producer. In our model it takes a lot to perform end-to-end activities without any compromise on quality. So, the speed of the growth of our business is not as fast as one would like but that is fine for us. Hence the fact that we are an end-to-end ecosystem player is what differentiates our farm.

Why the agricultural space after being part of the Indian army and then the corporate world?

During my corporate tenure as well,

I wanted to help ex-soldiers. I started inquiring what will fit in well with their experience and aspirations. We focussed on what would be best for the soldiers.

Somewhere along the line, we found organic farming to be quite appealing. When we checked back with ex-soldiers they seemed ready to plunge if we taught them how to go about it. They were ready as long as it improved their livelihood.

So, we started checking out through meetings and got in touch with lot of retired soldiers in Tamil Nadu districts like Thiruvannamalai, Vellore and so on.

It is a thing that has evolved and progressively took shape. We just wanted to do something good for soldiers. Then we got ourselves to start learning about organic farming and developed a full-fledged model farm.

For Training of Ex-soldiers in larger batches, we are working with SriAurobindo Society to setup a model Training Farm of Food-Foprest model; they have an excellent 60 -person capacity training centre where we will train the ex-soldiers, once the movement across India is restored after the COVI-19 issues are hopefully resolved.

Are there fees attached for this training?

Yes. The syllabus of the training is aligned to National Occupational Stan-





dards of the NSDC, so that it becomes applicable for accreditation with reputed institutes as we grow.

The training duration is about 300 hours - 250 hours plus communication skills, entrepreneurship, marketing etc. This we usually cover in about 40 days time. It is 80% practical and 20% theory.

Do you help market the produce of the farmers who have joined hands with you?

Yes, we do. I buy the produce from the farmers who work with me. They have to grow exactly as per our requirements. We pick up their produce from their farm and we sell it. We give a good price at the farmgate. The benefits here are:

1. They get their money in time.
2. The revenue per acre is pretty good.
3. It takes about 6-9 months for the conversion of land and after that when we start we get a pretty healthy revenue per acre.

In the first full year of production, a farmer can comfortably earn a net amount of 1.5 -2 lakhs and this keeps improving year after year.

Are the training and services extended to ex-servicemen alone?

Anyone is most welcome. The army is our focus and so we try setting up batches of army. But, we are open to conducting sessions for anyone else as well.

Till now, I have conducted 3-4 small batches because these were pilot batches. Once the COVID-19 related movement restrictions are eased, we will offer trainings in batches and will open to anyone interested for it. But the thing is people who want to work with us after the training, because my market is only in Chennai, I will be able to work with them only if they are within 100 - 150 kms from Chennai and Pondicherry. But for training, anyone in India can come and register for the training.

How do you ensure that people who collaborate with you strictly adhere to organic cultivation practices?

Most of the farms I collaborate with are close to our area. So, we have physical supervision as well. Then, there is the el-

ement of trust as well. We do plan to have fairly advanced, technology driven, operational monitoring to ensure quality of organic produce. And go for certification as well. But at the end of the day, organic farming in India is a trust-based business.

Working with ex-soldiers and being an ex-soldier myself, we have high degree of trust. Secondly, we have very close supervision in terms of the nutrients that is being fed to the farm, etc. For most cases, I personally supply the farm inputs. That is another pointer to confirm that all produce is organic in nature. Overall I am very confident.

Also, our farms are open for anyone to come visit. Of course, the biggest proof is always in the pudding. The quality of products in itself gives verdict to the type of farming involved. In the next few months, we will be implementing traceability technology from the farm to end consumers. That adds to another level of trust with customers.

What are the main challenges you have faced in this venture?

The first issue we faced was the acute problem of pest management. Pest management in organic farming is a perpetual problem. This is something we are still figuring out as to how to best handle. Unlike in chemical farming, where pest is considered an enemy and they spray up the farm with chemicals, organic practices treat them just as unwelcome guests. There are multiple steps and it took us a year to get it right. After the rains, you will see a plethora of pests attacking your farm. So, learning to manage them has been quite a journey.

We have finally found the combination of organic plant based solution which we have sourced from around the country. One of the most effective pest management techniques uses Dashaparani which has been in existence since ancient times. The effectiveness depends on how well you make it. We source it from a farmer in Maharashtra. Similarly we have sourced a few other things as well.

The second issue was around the yield. People will seldom come to me for the love of organic farming. On the contrary, they will first and foremost come to me for the economic viability of what I am trying to do. It has taken almost over a year to get to the yield that we were hoping for. Our Food-Forest model is all about high yield. We follow Dr Subhash Palekar's ZBNF model. We do not follow it to the last detail,





but it has been a source of great guidance and we do pick up a large part of its concept. We do multi cropping, growing up to 15-20 different types of vegetables, greens and fruits in each acre in a highly systematized fashion. To get to that level of design for every acre of farm has been a journey.

Another major hurdle we faced is not alien to any part of our country and that is availability of good working hands. The level of interest in agriculture is going down. We employ rural women to the extent that we can. We do take trainees from agricultural colleges, train them on the job etc. but this is a persistent problem. Even if you have people on the farm, the discipline with which things should be executed is a difficult thing to ensure. That is where working with ex-soldiers as farmers and farm managers can mitigate the problem to quite an extent.

What all crops do you grow on your farm?

We follow a 4 layer model called Food Forest. We have carved out the farm into grids. We have our first layer with trees - papaya, lemon, guava, banana, etc. Then, we have plants like tomatoes, chillies, zuchinia, bitter gourd, bottle gourd, etc. The next layer are all produce that grow below the soil, which is local to our region like yam, turmeric, raddish etc. Then, there after for all the rest of the left over space, every square foot is covered with greens of different varieties. This way each acre contains 15-20 different types of vegetables, fruits and greens which are growing with different cycles of maturity. The sowing calendar is meticulously planned. This way you steadily carve out a harvest every single day.

What is your advice to newcomers to the agricultural field?

I understand that there are lot of people

out there who are interested in joining the agricultural sector. Some of them have land. I always advice that this field is an extremely intense affair. One should not enter it unless you are willing to invest 100% of your time and effort into it. It is not a part time job which you can enjoy with people. You have to live the reality every day. It is a way of life and the way you interact with nature.

The second thing is figuring out where the demand is. At the end of the day, when I look at the entire spectrum of activities, at the production side I am wanting to give a dignified livelihood and at the consumption side I aim at providing very high quality produce to the end customer. So, to build a sustainable business around this we have to make sure that we figure out the demand before planning out the production. One of the biggest mistakes that farmers do is producing first and being caught up with where to sell the produce.

For sustainably profitable agriculture by small and marginal famrers, the first thing is to find out where to sell and what to sell .

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