

# Agriculture & Industry Survey

India's Leading Business Magazine for Agriculture

**Ghanshyam  
Chaudhari**



**Dr. Prashant Sharma**



**Balamurugesan RM**



**Ganapathy  
Ajeethan**



## **GANAPATHY AJEETHAN**

Says the change in mindset of farmers will help earn millions in Banana cultivation by adapting modern technologies and cost effective value addition of banana using solar energy.

## **BALAMURUGESAN RM**

Talks about his success story of shifting from IT to organic farming to direct consumers.

## **DR. PRASHANT SHARMA**

Discusses about Milk and milk products processing.

## **ASHISH GUPTA**

Explains the various methods of natural oil extraction.

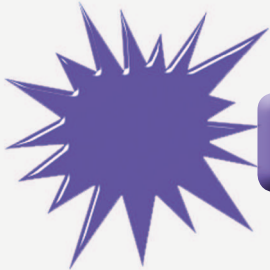
## **K. KARTHIK**

Talks about how to use quality agri inputs for healthy soil and healthy plants.

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## GREEN REVOLUTION 2.0

### Wonder rice?

*Yes, it looks like that! This new discovery is likely to reduce emissions and offer a good yield!*

**M**uch to cheer in the Agri sector! Yes, problems in agriculture are too familiar and too complex. It is not the claim of any politicians to say they have the solutions to this vast spread of poor people with less than one acre per capita to emerge tomorrow to come out and come to save the world and save India.

Let us at the same time not forget some of the ground realities. With all the challenges India today remains the world's largest rice exporter. And the time has come when we have to change our mindset and let us not always deplore and feel dejected. The time is right now and here to realize that India is a big democracy and friend of the world's lesser endowed countries in terms of the production of foods. That we can feed and reach out to the needy and the hungry.

And India has a role to play in the world production of food and food export can play a highly beneficial diplomatic role in winning friends and influencing people all across the world.

Is there any space in the Agri sector to be cheerful about? With the farm laws dragging the farmers in Punjab and Haryana for so long and with the attention of the government and the tired-out Prime Ministers many challenging issues of the day take much of the public attention. It is not an everyday issue with the farmers or others equally. Engaging problems taking much of the government's time who cares for much bigger or broader issues like those of farmers who are so dispersed across the vast spread of the country, along with the much more pressing international events like climate change and much of foreign travel which is much more important than any other domestic issues.

Climate change and the natural environment with untimely rain and floods inviting the attention of the government machinery, agriculture, let us grant much of a less priority.

In this rather dismal day, today's scenario comes some cheerful news. The Manila-based International Rice Research Institute has come out with much awaited breakthrough in releasing a new variety of rice that they report has nine characteristics, besides high yield, upto around 4 - 5.5 tonnes per hectare. If the same variety is grown through puddling the yield level goes even further to almost seven tonnes per hectare, researchers claim.

The cross country trials are being conducted right now across 29 sites in Asia and Africa including India.

What are the nine major traits identified by the researchers?

They are: Faster emergence of seeds, Emergence from deeper soil, Anaerobic germination, Early rigor and fast canopy closure, Drought tolerance at seedling stage, Drought resistance at reproductive stage, Nematode resistance, Lodging resistance at the root & Medium plant height

No more and detailed coverage of this rice discovery has caught the interest of our mainstream media. We need more information and a more critical review of this latest development in our Green Revolution Country.

Let us welcome the positive development. We are basically rice growing nation. We have achieved many breakthroughs. Let us congratulate our own agri scientists and others in the agri departments and related areas.

Let the 100-days daily rural employment scene get integrated with the mainline agricultural activities like raising mainline crops.

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# How agriculture now occupies the world media headlines?

**Fresh thoughts on the critical sector! In the latest world hunger index, India is shown in a poor light after many small neighboring countries! This is an insult to our media organizations.**

**W**e have to change our media priorities from what we generally think our own political scenarios. Let us at least now change to serious priorities. Agriculture is a field where the majority of our people, mostly poor and exposed to many risks in their day to day livelihood issues. India is a particularly vulnerable country and economy that is still basically a backward society. That resists change in ways other than what is known so far. Even after nearly a near-century of freedom and much government efforts in planning and development we still remain a rural economy, where people in the villages remain subject to so many superstitions and lack of modern facilities like adequate education and healthcare.

The nearly one and a half years of the pandemic only proved how our health infrastructure has been inadequate to respond in a desired manner. Thank god that we have been at least able to produce our own Indian-made vaccine and also emerge as the independent manufacturer and also invent our own new indigenous new one, India made brand and our whole experience in managing the unprecedented crisis gives an enormous self-confidence.

Other things apart that the Prime Minister deserves all the praise and credit for pulling the country out of this great challenge. Of course, the economy is to a great hit, and we are in the process of completing the story of our economic management and we are far from getting on the growth track and the problems are too many and too many big and small complications, remain to be solved.

Now the most critical sector that needs for the nation is agriculture and agriculture is not an easy sector where so many issues are there first a sense of clarity and a sense of truthful talk. Unfortunately, agriculture is an alien field for those living outside the villages. Not only that but agriculture is also left out of any concern for the vast mass of urban society.

See how the political discourse in the cozy circle of top political party circles. Those who are in the policy-making circles, leave out the rural and agriculture sectors in prescribing policies. They invent some catchy phrases, like 100-days work for those who are without jobs. The 100 days rural employment has as you can see outlived its initial attraction and what remains is the high profile gentlemen and ladies who sat near Sonia Gandhi in the National Advisory Council have all lost their initial glamour and we don't know today whether the NAC is still in existence or not.

All the agriculture policies today are tested by the PM's many other policy initiatives for agriculture except for the critical insight the PM himself had left the organized farmers groups to their own devices and they are all hanging around the Delhi outskirts and, in fact, Indian agriculture development strate-

gies, have no basic focus and Indian agriculture is languishing in a vacuum and there are no ground realities in the current thinking on Indian agriculture. On themes realistic sense the Indian farmer, the peasant, and the landless labor have taken on many new avatars, as internal labor migrants, there is a flow of rural coolies from the Northern and North Eastern states to the Southern states. There are no landless labor enclaves in many of the Southern states. In Kerala, Tamil, and Telangana, why even in a great many cities, in Mumbai there are many variations, Mumbai taxi drivers reform UP and so on.

This new dimension of the Indian landless coolies has to be welcomed in the wake of a great many industrial cities and it is one of survival instead of any new policies. At the micro-levels we often say, we say things to sensitize our 500 and odd economic policy advisers to the Central government, most of them sitting pretty at the cozy climate of Delhi's Lytton's bungalow zone. Far distantly in the rural inhabitations sits the helpless average Indian landless farmers who must from now onwards be called only as a debtor or litigant in the complex web of Indian bureaucracy and a new bureaucracy of retired bureaucrats who get themselves posted in another cozy enclave the PMO!

Yes, there is any number of. Retired bureaucrats who also get posed as Cabinet ministers and what other cushy jobs are available aplenty in Delhi city itself!

With less than one hectare per head, Indian farming is cursed by the lack of any new reforms. All over the developed world agriculture is in crisis, more so in the post-Brexit European countries where small farmers are suffering from the new confusion prevailing in farm policymaking. There is a shortage of labor, more so agri labor for seasonal work fruit picking, and vegetable farming and so the world of small farmers are in deep crisis. So, there is a need for wider social understanding and. Appreciation of farming in the new world of many other wide crises of climate change and environmental issues.

Public intellectuals and experts must come forward and suggest new positive policies to see the environment and the crisis at the micro-level of people living in small communities. Yes, at the macro level, in big agricultural economies like the USA, China, Russia, and India, these large countries have managed to produce basic grains and other food needs like cooking oil and pulses there are imports and exports and today food production for exports has become a high-level diplomatic tool these countries practice their foreign relations.

So, agriculture has come centre stage in modern-day world where there are pockets of political turmoil with food shortages and also the presence of large scale hunger etc.

These issues make agriculture and food production and distribution, a high profile international and a world high priority.



News

## This 23-year-old Andhra farmpreneur sows seeds of soil-less farming



Meet 23-year-old Sandeep Kannan, a young farmpreneur from Tirupati, who is striving to deliver nutritious, clean and pesticide-free leafy vegetables to the residents of Tirupati. Unlike his peers, who are now preparing for competitive exams, Sandeep, after completing his BSc Agriculture from Tamil Nadu Agriculture University (TNAU) has set up an 'urban farm' called 'Vyavasayi Bhoomi' and started farming in his half-an-acre agriculture land at Thanapalle. He is cultivating vegetables through Polyhouse Hydroponic farming.

Lettuce, spinach, red amaranath, kale basil, broccoli, pak choi (Chinese cabbage) are some of the leafy vegetables being cultivated by Sandeep at his farmland. Speaking to TNIE, Sandeep said the vegetables grown using Polyhouse Hydroponic farming are rich in nutrients and fibre when compared to the products cultivated through organic farming.

"This kind of farming involves less cost and the plants are grown in a temperature-controlled system that provides enough nutrient supplements for their growth," he said. Sandeep said, "Unlike traditional farming practices, Hydroponic farming involves soil-less cultivation thus allowing the farmers to get a better yield on their investments. After sowing seedlings in net cups, the plants are allowed to grow in a man-made environment for 45 to 60 days and then the plants are ready for harvest."

Read full @ <https://bit.ly/3k0ugur>

Source : [www.newindianexpress.com](http://www.newindianexpress.com)

## Indian scientists discover a new disease in millet crop, earn global recognition

*Incessant complaints by millet farmers in Haryana about their crops getting infected by a black rot motivated the agriculture scientists to look deeper into the issue. The cause of infection was found to be a bacterium that is generally found in humans. The discovery by scientists in Hisar has earned them global recognition. Details here.*

In 2019, farmers in Haryana's Hisar, Bhiwani and Rewari districts witnessed strange black stripes on the leaves of their millet crops. Such markings were never seen before by the farmers. Within days, the stripes took over the entire plant and turned it dry and brittle. The cultivators perceived it to be an unprecedented disease and informed their local krishi vigyan kendras (farm science centre) about the black rot in their millet crops. Then, the following year, in 2020 when the COVID19 pandemic began, identical symptoms in the millet crops were reported again.

"For two years, we gathered information about the unprecedented symptoms observed in millet plants," Vinod Malik, Assistant Professor at the Plant Pathology Department of the Hisar-based Chaudhary Charan Singh Haryana Agricultural University told Gaon Connection



"After intense screening for morphological, pathogenic, biochemical and various other tests, it was revealed that the black rot is due to the bacteria which is found in human intestines," the agriculture scientist added. Malik further informed that the bacterium behind the infection is called *Klebsiella aerogenes* and speculated that it must have been transferred to millet crops via faecal matter. The disease in millet crops has been named as 'stem rot'. Interestingly, the bacterium which has infected the millet crops in Haryana is naturally found in the human intestines and usually doesn't cause any disease in healthy persons.

### 'Never reported before across the world'

Led by the assistant professor, a team of scientists from the Hisar-based agricultural institute reported their findings to the United States' National Center for Biotechnology Information (NCBI) which replied that such findings have not been reported before. "We then approached the American Phytopathological Society (APS) which is an international authority on plant diseases and new diseases are registered by it. We then got a confirmation that what we had found was actually a discovery. The APS not only recognised the disease but also published our report in its reputed journal," Malik told Gaon Connection.

### 'Treatment research underway'

Meanwhile, BR Kamboj, the vice-chancellor of the Hisar-based institute told Gaon Connection that there is no cure for the disease as of now and further research is ongoing. "The Corona pandemic has underlined the importance of identifying new diseases as soon as possible. I am glad that researchers from our institute have made a discovery and I appeal to them to work towards finding its cure," Kamboj said.

The scientists, motivated by their discovery, are hopeful that they will soon find the cure of the disease in millet crops. The states of Rajasthan, Maharashtra, Haryana, Uttar Pradesh and Gujarat are the leading producers of millet in India.

Source : [en.gaonconnection.com](http://en.gaonconnection.com)



## Ryot first, Neta second: Niranjan Reddy transforms his land into instructional farm

*That farmer, who did not bow down to the traders who tried to fleece him and took pride in being a ryot, is none other than Agriculture Minister Singireddy Niranjan Reddy.*

A farmer was taken by surprise, a few years ago, when a fruit trader approached him and offered Rs 6 per kg for his pumpkins. Not happy with this price, he transported the entire produce to the Kothapet fruit market for sale, where the price came down to Rs 5 per kg. Offended and angered over this, the ryot decided to give away all the pumpkins he raised to the people of Wanaparthy for free.

That farmer, who did not bow down to the traders who tried to fleece him and took pride in being a ryot, is none other than Agriculture Minister Singireddy Niranjan Reddy. Leading by example, Niranjan Reddy has been an inspiration to many by the virtue of his passion for agriculture in general and more specifically for organic farming. With determination, Niranjan has transformed his 50 acres at Kethepalle village in Pangal mandal into an instructional farm for experimentation and learning. His farm boasts 12-14 varieties of mangoes in 30 acres with each tree having a unique identification number which helps in monitoring, tracking and treating the trees' growth with precision and perfection.

Apart from mangoes, the Minister also grows Manikchaman grape, custard apple, papaya, guava, dragon fruit, water apple, lychee, jamun and other fruit varieties, in addition to brinjal, tomatoes, chillies, cabbage, capsicum, bitter gourd, okra and other leafy vegetables.

Intercropping of leafy vegetables, marigold and chrysanthemum flowering plants between the mango trees and growing sandalwood and areca nut trees on the bunds have been done to optimise the use of space.

The workers who live at the farm consume the veggies and the flowers grown are used for decoration works. S Vasanthi, his better half, plays an equally important role by managing the field and workers. She not only gathers various plants, but also plans where they should be planted in the farm.

Niranjan has also been raising over a hundred cows, six bulls, 40 sheep, backyard poultry and a ducks to promote integrated farming. He has been certified by Eurocet for Good Agricultural Practices and by Telangana State Seeds Organic Certification Authority for organic farming.

Before the pandemic, he showed the way by exporting mangoes to Europe and during the pandemic last year, his mangoes, which were branded 'SNR Mangoes', were shipped to Bengaluru to be delivered at residential communities predominantly inhabited by IT employees. Techies living in 40 such communities in Bengaluru organised themselves and made one person in-charge from each community to prepare indent and procure fruits and vegetables directly from the farmers.

Last summer, Niranjan used this network called 'Namma Farmer' which conceptualised farm-to-home method to market and deliver his mangoes to those who had placed orders. This has reportedly been a win-win situation for farmers like him and techie consumers.

12-14: Varieties of mangoes are being grown in 30 acres with each tree having a unique id number

Fruits aplenty: Apart from mangoes, the Agriculture Minister also grows Manikchaman grape, custard apple, papaya, guava, dragon fruit, water apple, lychee, jamun and other fruit varieties

Source : [www.newindianexpress.com](http://www.newindianexpress.com)

## This Kerala woman followed her heart, to reap success



Paddy being boiled in large copper vessels called 'chembu', its aroma filling the corridors of houses, and then being dried on bamboo mats have become rare sights. Especially with fields shrinking, and even farmers selling paddy to Supplyco and purchasing rice from outside for household consumption.

But take a trip to the village of Kambrath Challa on the Kerala-Tamil Nadu border in Palakkad, and the nostalgia comes alive. No plastic mat is used to dry paddy there and husk is removed using a rubber roller preventing heat from entering directly into the rice, which helps preserve nutrients.

"The milling process to polish rice takes away these minerals," says Biji Aboobacker, who has set up a unit in Kambrath Challa to process and pack rice. Now 45, she has had hands-on experience in farming since 2008. She and her husband, Hilal, were advocates of natural farming. They even undertook farming for celebrities like Mammooty and Sreenivasan.

However, Biji lost everything in the 2018 flood. Burdened with debt, she left for Dubai along with her four children in search of a job. The devastating flood, which swallowed 270 acres of crop cultivated on leased land, also sowed seeds of discontent within the family, resulting in their separation. After a brief stint as a quality supervisor in Dubai where her sister, Serina, is based, the passion for farming has brought Biji back to Kerala. And she has pitched tent in Palakkad.

Read full @ <https://bit.ly/2ZL9tnY>

Source : [www.newindianexpress.com](http://www.newindianexpress.com)

# India's record rice crop brings problem of plenty for farmers juggling protest

**F**armers in India are gathering in the largest rice crop in history, which promises record exports, while making sure to keep up their longest-running protest, set to turn a year old next month.

The sit-in against controversial agriculture reforms is taking place in the capital, miles away from the five acres (2 hectares) of lush green rice paddies tended by Sukrampal Beniwal in his village of Munak, in the northern state of Haryana.

“We’ll not budge until the government rolls back the laws,” he said, referring to three measures the farmers, demonstrating by the tens of thousands in New Delhi, say will threaten their livelihoods.

Farmers in the breadbasket state have joined hands to bring in the mammoth crop and make sure that every time a group sets off to harvest rice, a similar number leave to join the protest on the outskirts of New Delhi, Beniwal said.

“Because of our camaraderie, we have quite successfully dealt with the two competing challenges: managing the protest against legislation and harvesting a big crop,” he added.

Introduced in September last year, the legislation deregulates the agriculture sector, letting farmers sell produce to buyers beyond government-regulated wholesale markets, where growers are assured of a minimum price.

While small farmers say the changes make them vulnerable to competition from big business, and threaten the eventual loss of price support, the government says the reforms will bring them new prospects and better prices.

Yet, with global food prices near decade highs after a surge of 30% in rates

for cereals over the past year, India’s problem of plenty also offers a dazzling opportunity. The new harvest will boost exports to help the South Asian nation cement its status as the dominant supplier of the world’s most critical grain, traders say.

“Indian prices are very attractive at a time when demand is rather strong from many buyers, including China and a clutch of countries in Africa,” said Aditya Garg, a leading exporter of the grain. “In fact, for non-basmati

from buyers across Asia, Africa, and the Middle East.

India is selling 25% broken rice, a non-basmati variety preferred by most overseas buyers, at \$345 a tonne on a free-on-board basis compared to \$360 offered by Thailand, the world’s second biggest rice exporter, dealers said, with some cargoes even sold at \$320 a tonne.

## CHANGE UP

Farming sustains almost half of India’s population of nearly 1.4 billion and makes up about 15% of a \$2.7-trillion economy. Rice is India’s biggest foreign exchange earning farm commodity, with shipments worth \$8.82 billion in the fiscal year that ended in March 2021, government figures show.

Until two seasons ago, India’s annual rice exports averaged about 11 million to 12 million tonnes. But shipments soared to 20 million tonnes for a record share of 40.7% of global trade last season, data from the U.S. Department of Agriculture (USDA) shows, after growing problems in Southeast Asia pushed up the prices of rivals to make Indian non-basmati shipments attractive to hungry global buyers.

“As climatic conditions helped our farmers raise the country’s rice production, we’ve permanently become an even bigger player in the international market, and our share will grow,” said trader Rajesh Paharia Jain at Unicorp Pvt Ltd. In Munak, 130 km (80 miles) from New Delhi, the rice farmers showed no sign of relenting.

“Our record crop shows we are making India more than self-reliant in food, and the government shouldn’t insist on laws that will spell doom for agriculture,” said rice grower Ravindra Kajal.

Source : [economictimes.indiatimes.com/](http://economictimes.indiatimes.com/)



rice, many Indian exporters have received orders from a lot of new buyers in Egypt, Sudan, Tanzania and Iran.”

Coming at a time of flat output in traditional export powerhouses Vietnam and Thailand, the higher supply will let New Delhi offer more competitive rates to undercut any rivals.

Output of summer-sown rice in 2021/22 will hit a record 107.04 million tonnes, the farm ministry says, while combined output of summer and winter rice will hit 125 million, or about 24.5% of global rice output, its largest ever.

Coupled with upgraded export facilities, that volume will allow India to repeat, or even surpass, last year’s record export tally of 20 million tonnes, filling growing demand for the staple



# Online Meetings



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## Upcoming events

### **NOVEMBER 12, 2021**

**3:00 pm**

Mr. Rajender Kumar on "Potential greenhouse crops for Indian market"

**05.00 PM**

Mr. Tanmoy Mondal on "Pre-harvest fruit bagging - Useful approach for quality fruit production"

### **NOVEMBER 15, 2021**

**3.00 PM**

Dr. Chirasree Gangopadhyay on "The integrated rice insect pest management for the farmers across India"

**05.00 PM**

Dr. Anandkumar Naorem on "Why farmers should test their soil?"

### **NOVEMBER 16, 2021**

**3:00 pm**

Mr. M Govindaraj on "Crop Biofortification: Translating green revolution to nutrition revolution"

**05.00 PM**

Dr. Ambika H D on "The role of algae in agriculture"

### **NOVEMBER 17, 2021**

**3:00 pm**

Dr. Digvijay Singh Rathore on "Commercial cultivation of black turmeric ( curcuma caesia) with fig intercrop"

**05.00 PM**

Mr. Lokesh Singh Chouhan on " Papaya and ashwagandha intercrop farming"

### **NOVEMBER 18, 2021**

**3:00 pm**

Mr. Sreekanth S on "My experience with aloe vera farming"

**05.00 PM**

Mr. Balram K S on "Tissue culture bamboo cultivation – Our company's experience"

### **NOVEMBER 19, 2021**

**5:00 pm**

Mr. Varghese Thomas Panicker on "My experience with ornamental fish aquaculture"

### **NOVEMBER 22, 2021**

**3:00 pm**

Mr. Abhishek Patel on "How can you use rainwater harvesting on your farm?"

### **NOVEMBER 23, 2021**

**3:00 pm**

Mr. Biswajit Ghosal on India's ongoing blue revolution – Fish farming

### **NOVEMBER 24, 2021**

**3:00 pm**

Mr. Aum Sarma on "Some of the latest farm machinery available in India"

### **NOVEMBER 25, 2021**

**3.00 PM**

Dr. S.K. Bakshi on "Herbal development – Discussion about a new crop"

### **NOVEMBER 26, 2021**

**3.00 PM**

Ms. Jeevitha on "Herbal Soap manufacturing and marketing"

**05.00 PM**

Mr. Nilemesh Das on "Diagnostic approaches in aquaculture practices"

### **NOVEMBER 29, 2021**

**3.00 PM**

Mr. Balavantbhai Patel on "Red seedless guava: Cultivation, economics & marketing"

**5.00 PM**

Dr. Anand Prakash on "Influence of pre cooling & cold chain logistics for post-harvest shelf life extension of perishables"

### **NOVEMBER 30, 2021**

**05.00 PM**

Mr. Vivek Kumar Patel on "Potato cultivation, economics and marketing techniques for farmers"

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# Online Meetings



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## Recently Completed Meetings

### Mr. Vimal Panjwani on "Rural household savings improves using renewable energy"

Mr. Vimal Panjwani is the Founder & CEO of AgriVijay in Pune, Maharashtra. To know more view <https://bit.ly/3i5obwL>

### Mr. Kulkarni HB on "Organic Certification - Cultivation problems & solutions"

Mr. Kulkarni HB is the President of Federation for Re-farming Societies in Bengaluru, Karnataka. To know more view <https://bit.ly/3ByAKrA>

### Ms. Ruchi Bishnoi on "Introduction to PPV & FR Act, 2001 and Farmer's Right"

Ms. Ruchi Bishnoi says that Government of India enacted "The Protection of Plant Varieties and Farmers' Rights (PPV &FR) Act, 2001" adopting Sui Generis System. The legislation recognizes the contributions of both commercial plant breeders and farmers in plant breeding activity and also provides to implement.

### Mr. Goutam Roy on "Sustainable aquaculture and fisheries management"

Mr. Goutam Roy says fish is crucial to a nutritious diet in many parts of the world. It is recognized not only as some of the healthiest foods on the planet but also as some of the least impactful on the natural environment. For these reasons, they are vital for national and regional nutrition strategies and have a big part to play in eliminating hunger and malnutrition.

### Mr. Tejram Nagar on "Soilless cucumber cultivation - economics and marketing"

Mr. Tejram Nagar is an Agronomist at My Crop in Ujjain, Madhya Pradesh. During this meeting, he will discuss

- How to grow cucumber under protective structures.
- Cucumber growing in soilless systems substrate hydrophobic aeroponic.
- What are the benefits of soilless growing media.
- Nutrients requirements of cucumber production.
- Method of irrigation and fertigation.
- Disease and pest management.

### Mr. Mukesh Ramagoni on "Creating a value through Agripreneurship in rural India"

Mr. Mukesh Ramagoni is the Business Development Manager at AgHub in Hyderabad, Telangana. Mr. Mukesh Ramagoni says, Agripreneurship or Entrepreneurship in agriculture is now vividly explored subject and is the talk of town in entrepreneurial ecosystem. But is this really creating a value at gross root level or is it becoming successful in the last mile delivery of innovation and technology which can up bring and impact the rural community?

### Dr. Chandra Kiran Sant on "Process optimization in dairy farming"

Dr. Chandra Kiran Sant is the Dairy Advisor at Livestock Management Centre in Mumbai, Maharashtra. He is also associated with

- 1) Gomati Cooperative Milk Producers Union, Tripura as Expert Dairy Development for improving the milk quality & quantity as well as oversee installation of 40000 LPD Dairy Processing Plant.
- 2) Trainer (for Dairy Farming) in Indian Dairy Association – West Zone: covering Maharashtra, Gujarat, Goa, Madhya Pradesh, Daman and D. Nagar Haveli since 2010.
- 3) Technical Advisor ( Dairy ) in Paragaon Enterprise Industries in Vadodara,(Gujarat) since 1992 ; a Company engaged in manufacture of cattle feed plants & equipments.....

### Mr. Amarnadh Adusumali on "Dragon fruit farming"

Mr. Amarnadh Adusumali is the Director of The Solai Project Farm and Nursery in Narikudi, Virudhunagar District, Tamilnadu. His interest is on dragon fruit farming.

### Mr. Thiruvikram CS on " Domestic market for cut flowers"

Mr. Thiruvikram CS is the Proprietor of Avanthika Flowers in Hosur, Tamilnadu. His interest is on opportunities and challenges in flowers.

### Mr. Jitender Choudhary on "Business opportunities in freshwater pearl culture"

Mr. Jitender Choudhary is the Proprietor of Biva Pearl Farm in Ghaziabad, Uttar Pradesh. To know more view <https://bit.ly/3Bo6rDr>

### Mr. Sudhanshu Kumar on "Use of modern technology in banana"

Mr. Sudhanshu Kumar is the owner of Orchards of Nayanagar in Samastipur, Bihar. He says when we do any agricultural work without the use of technology we always miss out on the real profits. By real profits, he means minimum input maximum profit. The use of technology works like a double edged sword. It decreases input cost and increases productivity. Further more Mr.Sudhanshu Kumar says technology helps us to maintain good quality. Good quality gets us premium prices.

### Dr. K. Prasad on "Postharvest technology of horticultural crops"

Dr. K. Prasad says, India is one of the highest producers of fruit and vegetable at the global level, but at the same time, it is well evident that postharvest losses of horticultural crops are at an alarming level i.e. up to 30-40 percent. Present need to reduce these losses emphasizes the importance of an emerging field of horticulture known as postharvest technology. ....

#### **Mr. Narayanan Alwar on "Farm management from remote"**

Mr. Narayanan Alwar says, in modern times, aspiring farmers have to earn their living through multiple options. A stable job or business in city and then a farm at remote and affordable place. Especially during lockdowns or because of long distance, or even family issues it is not possible for them to travel to the farm for its maintenance. Then how to run the farm from remote.? Let us explore the practical nuances of it in this lecture.

#### **Mr. Chetan Gore on "My experience in selling mangoes by creating brand"**

Mr. Chetan Gore is the Managing Director of Urjit Biotech Pvt. Ltd. in Sangli, Maharashtra. He is passionate about farming for long and actually started it in 2005 -06. Mr. Chetan Gore says they only had land ( 8 acer ) at place called Belanki, in Miraj Taluka of Sangli District which is 40 km away from his house....

#### **Mr. Kishan Makani on "Opportunity and Government incentives for food industry"**

Mr. Kishan Makani is the Co-Founder of Alliance Engineering Consultant in Gandhinagar, Gujarat. He says food processing plays a vital role in the addition of value to farm produce and increases shelf life which can increase the farmer's income. To know more view <https://bit.ly/3B8dlaD>

#### **Mr. C. Thatchinamoorthy on "Climate change and climate smart agriculture practices"**

Mr. C. Thatchinamoorthy says agriculture in developing countries must undergo significant transformation if it is to meet the growing & interconnected challenges of food and nutritional security and climate change. ....

#### **Dr. Devesh Thakur on "Desired traits needed to become successful agro entrepreneur"**

Dr. Devesh Thakur is an Assistant Professor at CSKHPKV Palampur in Himachal Pradesh. To know more view <https://bit.ly/3B8LIJg>

#### **Ms. Kritika on "Mushroom cultivation as an commercial enterprise"**

Ms. Kritika is a Student of Lovely Professional University in New Delhi. During this meeting, Ms. Kritika will discuss about :

1. The package of the practice of white button and oyster mushroom.
2. The spawn and different spawning methods.
3. Different types of composting. ....

#### **Dr. R. Chitra on "Cultivation of tamarind trees"**

Dr. R. Chitra says tamarind is an important tree spices and also condiments. The tree is mainly grown in waste land and avenue side. Sweet tamarind, red tamarind and sour tamarind are the tamarind types. In the sour tamarind, PKM 1 is a high yielding variety. Apart from pulp, lot value added products also available in tamarind. This session will be very useful to students, farmers and entrepreneurs.

#### **Mr. Nitin Singhal on "Insecticide resistance management and insect controls"**

Mr. Nitin Singhal is the Director of Huntin Organics Pvt.Ltd., Faridabad, Haryana. To know more view <https://bit.ly/3Fc91z1>

#### **Mr. Aruneswar MGB on "Climate smart agriculture"**

Mr. Aruneswar MGB says he has a vision to make India not only being top producer of various crops but also top in crop productivity that will be possible with adapting climate smart scientific production technologies and market led production & extension.

#### **Ms. Keerthi Tanneeru on "My experience in setting-up Farmer Producer Organisation(FPO) "**

Ms. Keerthi Tanneeru is the Director of Operations at Future AgriNest Farming Solutions Private Limited Company at Suryapet District, Telangana. To know more view <https://bit.ly/3F12J4R> <https://bit.ly/39MTNlo>

#### **Mr. Nitin Kumar Goudar on "Profitable teakwood farming"**

Mr. Nitin Kumar Goudar is the Founder & CEO of Darvi Group in Hubli, Karnataka. To know more view <https://bit.ly/33xERFd> , <https://bit.ly/3q1L2ul>

#### **Dr. Rajeshnallaiah on "Farming on terrace"**

Dr. Rajeshnallaiah is the Director & CEO at RNR Agri Developers in Madurai, Tamilnadu. He is into providing terrace garden training. To know more view <https://bit.ly/3vvPKCc>

#### **Mr. Samiuddin S.Kazi on "Crop nutrition management for fruit pruning in grape"**

Mr. Samiuddin S.Kazi is the General Manager & Head Agronomy of Fertis India Pvt. Ltd. in Hyderabad, Telangana. His interests are crop nutrition ,crop management , farm mechanization, horticultural operations.

#### **Mr. Arvind V on "Amla softwood grafting"**

Mr. Arvind V is the Proprietor of AVR Nursery in Salem, Tamilnadu.

#### **Mr. Ameya Padma & Ms. Jyoti Padma on "Indian breed cow farming & its uplifting (with business model)"**

Mr. Ameya Padma & Ms. Jyoti Padma are the Proprietors of Sree Balkrishna Dairy Farm ( BKD MILK ) in Thane, Maharashtra. To know more view <https://bit.ly/2VAM9Hg>

#### **Mr. Yogesh Thite on "What are the modern and commercial aspects in dairy farming?"**

Mr. Yogesh Thite is the CEO of Meticulous Business Plans in Pune, Maharashtra. To know more view <https://bit.ly/3xOKBb1>

#### **Dr. N B Gaddagimath on "Dolichos - A seed that rewards every farmer"**

Dr. N B Gaddagimath is the Founder & MD of Sarpan Seeds in Dharwad, Karnataka. To know more view <https://bit.ly/3yUlz9x>

#### **Dr. Vidur Sahgal on "The Indian National Water Pipeline Grid (INWPG)"**

Dr. Vidur Sahgal is the Proprietor of Original Mechanization & Data Integrated Consultancy (OMDIC) , New Delhi.

Dr. Vidur Sahga says, he propose a water pipeline grid all across India, just like the national electricity grid with areas of excess being diverted to deficit areas of both water & electricity. To know more view <https://bit.ly/3ndAauz>

**Online meetings are available only for Premium Members**

# Talking To



## Dr. Sivalingam Elayabalan

Technical Director & Agriculture Scientist  
Sankar Bio-Tech in Hosur, Tamil Nadu



M.Sankar  
Founder and Director

**D**r. Sivalingam Elayabalan is the Technical Director and Agriculture Scientist, M.Sankar Founder and Director at Sankar Bio-Tech in Hosur, Tamil Nadu, since 15 years. He is interested in Agricultural Biotechnology such as plant cell, tissue culture, and molecular plant virology. He talks at length about plant propagation technology for banana and other crops in a recent discussion.

In agriculture, the foremost important input is the seed and seedlings which should be disease free and of good quality. Farmers facing problems

as they do not get good quality seeds and planting material which is a challenge for production and productivity of both agriculture and horticulture crops. Based on the quality material we get we can predict the yield parameters. In agriculture the crops are grown using seeds, while in horticulture sector, the propagation materials are asexual propagation or vegetative method such as tubers, corms, stem cuttings and rhizomes. For strawberry plants there are no seeds, and they are grown using stolon. In floriculture bulbs are used, and orchids are propagated through flower stalks.

In conventional propagation material, fungal, bacterial, and viral disease are associated with the planting materials. So they interfere in the growth and yield of the crop. That is why we should go for plant tissue culture technology and grow in container with aseptic condition in incubation chamber. We grow plants artificially in a medium, providing light, aseptic conditions, free of plant pathogens, microbes, with air conditioned rooms of 26 degree Celsius, and relative humidity of 80%. We can get year round plantlets.



Dr.Sivalingam Elayabalan  
Technical Director

It was in 1898 that Haberlandt isolated cells, cultured medium, and grew cells in the medium. One single shoot gave rise to a number of shoots. Similarly in 1946, E.A. Ball found out micropropagation in aseptic conditions for multiplication of plants in artificial environment. Totipotency is one concept. If you take any part of the plant such as stem or root or pollen or stem cells, you can develop a whole plant. We are mass multiplying plant species. In 2011 we incorporated the company. We are certified with seed license, for doing virus indexing and genetic fidelity, and for import and export from Government of India. We are focusing on propagation

of plantlets through tissue culture technology.

The first important commercial fruit crop is banana. We have diversified 1000 cultivars, and there are 40 important cultivars available in India. In South India, there are many varieties such Grand Naine(AAA), Red banana (AAA), Udhayam (ABB) and Karpuravalli (ABB), Virupakshi (AAB), Nendhran (AAB), Elakki or Ney poovan (AB), and Rasthali(AAB). We take the disease free suckers from high yielding elite clones from our mother plant area, test for virus through PCR method, followed to isolate the shoots and mass multiplication in lab condition.

We can get 15 shoots from 1 shoot (15:1 ratio). Then the shoots for virus testing, primary hardening and secondary hardening stage, and final products poly bag stages to reach the farmers for growing. We are currently concentrating on banana, bamboo, ornamental plants, floriculture, and orchids, both Dendrobium and Phalaenopsis varieties. We have inoculation chambers



where 19 technicians working from morning 9.00 am to 8.00 pm. We allocate 5000 plants per technician for sub culturing per day. We are maintaining the aseptic conditions, and per year our production capacity is 2 million plantlets. We have a room for aseptic conditions, maintaining scientifically balanced chemicals, and controlled growth hormones.

We take suckers from the elite plant, disease free clones, remove microbes, and keep in artificial medium. Shoot is produced in the ratio or 1:10, or 1:15, and within 9 months we get plantlets. Then we go for hardening, which is acclima-

tising the plantlets from the laboratory condition to the outside environment. We get well-developed root system, and the plantlets are transferred to polybag condition and are sold to farmers.

We have 13 varieties of banana which are tested. We also give importance to ornamental crops as the entire world is facing oxygen insufficiency due to industrial revolution and automobiles. We are multiplying the ornamental plants for vertical gardening and indoor air quality management. NASA has studied 13 plantlets for cultivating in Mars and producing oxygen. We are mass multiplying indoor air quality plants such as, syngonium five types, money plants two types, Philodendrn Xandu, Bamboo, Spathiphyllum and Aglaonema plants.

These are not only for aesthetic value but also to absorb the polluted air and toxins into their cells. We are doing for Bamboo also and supplying for vertical gardening and landscape developers. Once the plantlets are ready, we are hardening, and send the plantlets to the

**Primary and Secondary Hardening facilities**

