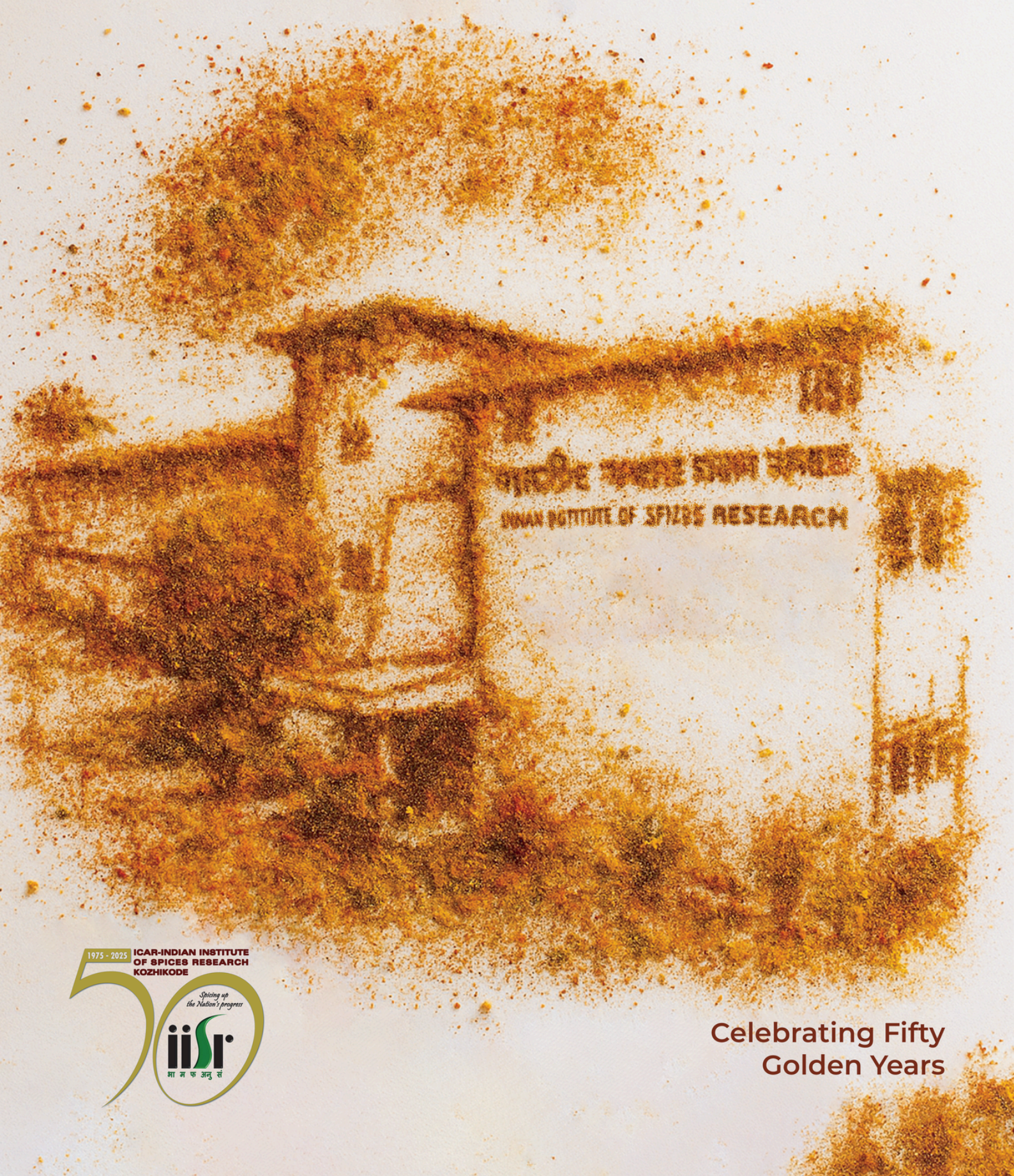




Flavours of Success

ICAR - Indian Institute of Spices Research



Celebrating Fifty
Golden Years



Flavours of Success

ICAR – Indian Institute of Spices Research

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FOREWORD

It is with immense pride and deep gratitude that I present this commemorative volume, *Flavours of Success*, a tribute to the countless lives that have intertwined with the ICAR- Indian Institute of Spices Research during its golden journey of 50 years.

Since its inception in 1975, ICAR-IISR has evolved from a regional research centre in Kerala to a premier national institution spearheading spice research, innovation, and extension. Over the decades, our scientific endeavours have strived to bridge critical technology gaps and address yield gaps in spice cultivation. The spice sector is a cornerstone of India's agri-export economy, with the country aspiring to scale the \$10 billion mark in spice exports by 2030. With increasing global demand, climatic vulnerabilities, and evolving consumer preferences, the road ahead demands innovation, resilience, and inclusive growth. While the challenges are complex, our resolve has been clear- to uplift the spice-growing communities by empowering them with robust technologies, sustainable practices and entrepreneurial pathways.

This compendium, curated with immense care, presents a compelling mosaic of transformation. Each narrative exemplifies how the adoption of science-led solutions can catalyze change and bring about progress and positive change in lives of people, communities and sometimes, even across vast regions. In several cases, the interventions from the institute were complemented or supplemented by other development agencies and research institutions, highlighting the fact that transforming agricultural sector is a task requiring close collaboration and coordination among various institutional agencies.

In that sense each of these vivid portraits can be viewed as testimonials to the enduring synergy between farmers, scientists and institutions involved in research and development in the agricultural sector.

As we commemorate five decades of service to the nation, this volume holds special significance. This compilation stands as a beacon of what is possible—when gaps are addressed, when capacities are built, and when inspiration flows from one farmer to another. It distils the essence of our journey—not through institutional milestones or statistics, but through the lived experiences of real people whose lives have been indelibly shaped by their engagement with ICAR-IISR. In fact, they hold a mirror to what science can achieve when it is rooted in empathy and aligned with grassroots realities.

I extend my heartfelt appreciation to the editorial team for weaving these narratives and to all our collaborators who have stood steadfast in our collective mission. Above all, I salute the farmers, entrepreneurs and rural changemakers who are the real authors of these success stories. I do hope that this humble compilation shall inspire several others to attain similar or even better outcomes in the years ahead.



Dr. R. Dinesh

Director

ICAR-Indian Institute of Spices Research, Kozhikode

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BEYOND THE TRADITIONAL: JAYANTHAN'S BOLD BET ON ALLSPICE

Pimento, also known as allspice or Jamaica pepper, refers to the dried, unripe fruit of the *Pimenta dioica* tree. It's a spice with a unique flavor that is a blend of cinnamon, nutmeg, clove, and pepper, earned it the name "allspice".

Trying something new, something few others have done, always comes with its own mix of excitement and uncertainty. Mr. K D Jayanthan is one such farmer. He chose to dedicate 15 acres of his land in Wayanad, to cultivate allspice. This unassuming young man carefully considered the risks of venturing into a non-traditional tree spice, but ultimately decided to give it a shot. Though allspice was introduced in India way back in the 1800s, for many, it still feels like a new crop. Farmers have generally been hesitant to grow this spice because of the uncertain markets for the produce. But for Mr. K.D. Jayanthan, it is a different story. This unique tree spice brings him significant income every year with very little effort.



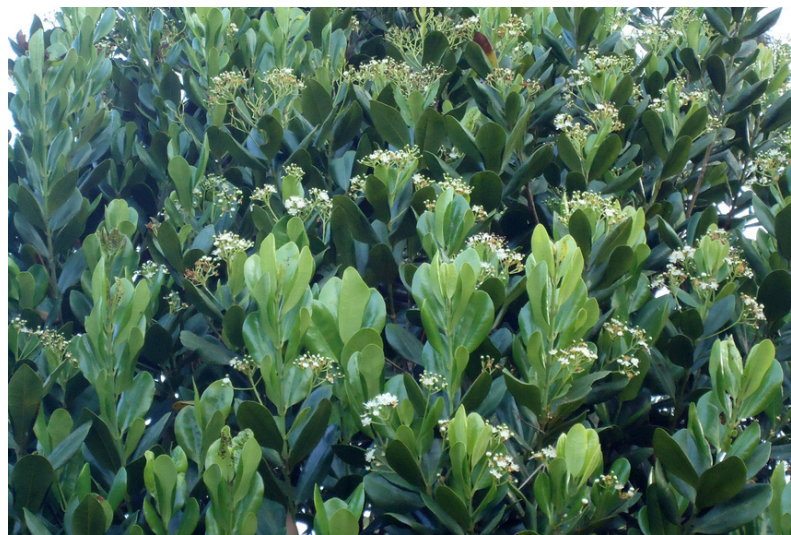


Mr. Jayanthan is a fourth-generation descendant of the Jains who settled in Wayanad after migrating from Karnataka about 300 years ago. He inherited 15 acres of ancestral farmland already growing black pepper, coffee, and arecanut. But it was that advertisement in the 1990s, detailing the possibilities of allspice, that changed his perspective. Drawn by the prospects of this introduced spice, he bought about 200 grams of seeds from the Mangalam Carp estate in Wayanad for 1000 rupees and then carefully grew his own seedlings.

Jayanthan's success has since changed how other farmers view allspice, showing them that it can be a truly viable option in areas with similar weather.



His journey with allspice farming proves the crop's potential. Mr. Jayanthan follows organic farming practices. He also notes that allspice doesn't like shade and prefers open, sunny conditions. To ensure all the berries flower and ripen at the same time, he irrigates the tree basin just before the flowering season. Harvesting at the correct stage is vital for high-quality produce.



Mr. Jayanthan consistently gets an average of 15 kg of dry pimento per tree, with a dry recovery rate of 22 percent. He also rarely sells his entire harvest at once, preferring to sell based on market demand and inquiries. Beyond Kerala, there's also a market for his produce in North India and even overseas.

Jayanthan has taken considerable efforts to spread the crop across the country. He regularly produces more than one lakh seedlings during a single year. Apart from a steady income from sale of planting material, the motivation for the nursery comes from his desire to see the crop gain acceptance across the country, says Jayanthan.

Jayanthan's success in allspice exemplifies how the efforts of a single person can affect the fortunes and determine the development trajectory of a crop economy in the entire country.



Pimento, also known as allspice or Jamaica pepper, refers to the dried, unripe fruit of the *Pimenta dioica* tree. It's a spice with a unique flavor that is a blend of cinnamon, nutmeg, clove, and pepper, earned it the name "allspice"

TURMERIC TRIUMPH IN PUNJAB

At just 35, Amrit Pal Singh Randhawa has emerged as a leader in the realm of progressive farming, seamlessly blending tradition with scientific insight. Operating a sprawling 54-acre farmland, bolstered by an additional 25 acres on lease, this horticulture postgraduate has redefined agricultural returns through strategic crop diversification and forward-thinking resource management.

The family used to grow poplar trees in their land. Returning from a sales trip to Haryana nearly three decades back, it was Iqbal Singh Randhawa, father of Amrit Pal, who brought back a small quantity of turmeric seeds. Since then, turmeric became a critical component in the cropping system. However, yields were low and the crop was prone to complete damage from frost. In 2017, Amrit Pal, searching for a solution, sourced six quintals of elite seed material from Mr. Chandrasekhar Azad, a certified grower of ICAR-IISR varieties based in Andhra Pradesh.

Among them, it was the short duration IISR Pragati that emerged as the most climatological compatible with Punjab's frost-prone winters.

Unlike long-duration varieties such as Rajapuri and Salem, which often fall prey to December's biting frost, IISR Pragati boasts a condensed growth cycle. Sown between mid-April and early May, the crop reaches maturity by late December, just in time to evade the cold snap. With an impressive average yield of 20 quintals per acre, this choice not only secures the crop's viability but also creates a crucial window for post-harvest onion cultivation, thereby optimizing seasonal land use.

Currently, Amrit Pal grows IISR Pragati in more than 22.5 acres of land. After sale of seed material, he regularly produces about 50 tonnes of turmeric powder. His produce is sold via direct retail channels, enhancing profit margins by bypassing intermediaries. Moreover, his agricultural operations benefit from legacy infrastructure: a vintage cold storage facility for potato established in 1967 by his father serves well for storing turmeric too.



In 1997, the Randhawa farm added a powdering unit for turmeric processing, a significant step in value addition at the source. Amrit Pal has since expanded this initiative to include polishers, grinders, and boilers, establishing a robust on-farm processing system that adds considerable market value to raw produce.

His efforts are not confined to his own holdings. As a board member of the Farmers Produce Promotion Society (FAPRO), which was co-founded by his father, Amrit Pal is deeply involved in community-driven agricultural transformation. The society is engaged in collective marketing and processing of turmeric, honey, and jaggery, strengthening local agricultural economy and fostering entrepreneurship. Amrit Pal's journey exemplifies how region-specific crop sector interventions, when matched with entrepreneurial vision, can transform challenges into opportunities.



A PROMISE FULFILLED: KERALASHREE

The story of Keralashree- India's first farmer-participatory bred nutmeg variety- shines as a beacon of collaborative triumph, rooted in the synergy between ICAR-IISR and a visionary farmer from Kerala, Mr. Mathew Sebastian.

Sebastian's farming journey began in 1999 on the slopes of Kannathumala, where he cultivated nutmeg alongside crops like sugarcane and black pepper. His 12-acre farm soon became a living laboratory. With more than 1,000 nutmeg trees of over 22 different varieties sourced from several locations, he set out with a clear objective - identify the most robust, prolific and resilient nutmeg genotype. Seeing the ardent interest of the farmer, IISR also provided nutmeg seedlings to the farmer for cultivation.

Mr. Sebastian watched closely as certain saplings sourced from ICAR-IISR outperformed the rest. By their fourth year, some of these trees began bearing fruit consistently and abundantly. It was around this period that the ICAR-Indian Institute of Spices Research (IISR), Kozhikode, became actively involved in the development. With timely interventions from the scientists, the variety began to show its true potential. They suggested several improvements, including the removal of low-yielding trees, planting of male trees to enhance pollination, and adoption of scientific management practices. This rigorous selection process along with the consistent efforts and keen observation of the farmer laid the foundation for what is now recognized as one of the finest nutmeg varieties in the country, IISR-Keralashree.



The Keralashree variety boasted more than 2,000 fruits per tree after a decade, with each tree producing around 21 kilograms of nutmeg and 4.2 kilograms of mace. Its tightly netted aril, resistance to pests and diseases and consistency in performance made it a commercial grower's delight. In November 2013, IISR Keralashree was released as the first nutmeg variety developed through farmer participatory breeding program. It remains one of the proud outcomes of ICAR-IISR's participatory research program with farmers.

In his well-manicured nursery at his farm, Mr Sebastian raises over 10,000 grafted saplings

each year, ensuring that fellow farmers too can benefit from this superior variety.

A committed farmer recognized by peers and institutions alike, he was named the Best Farmer in Karuvarakundu Panchayat.

In 2017, his contributions were further acknowledged with the Plant Genome Savior Farmers Recognition.

He is also a recipient of IARI Innovative Farmer Award. From a curious observation in a farmer's field to a nationally recognized variety, the story of Keralashree stands as a testament to the powerful synergy between farmer wisdom and scientific expertise, revolutionizing nutmeg cultivation across India.

Mathew Sebastian has more than 1,000 nutmeg trees of over 22 different varieties sourced from several locations.





A COMPANY FOR PEOPLE WHO CARE ABOUT WHERE THEIR SPICES COME FROM

“Working with farmers growing organic cardamom, cinnamon, cloves - slowly knowing that every ingredient in my morning chai in California, comes from a spectacular array of farmers across India? That’s the feeling of warmth and community I’m aspiring towards,” reflects Sana Javeri Kadri, whose name now graces Forbes 30 Under 30 lists and countless interviews. Unlike the typical tech founders and crypto enthusiasts who dominate such recognition, Sana’s claim to fame is refreshingly earthy: turmeric and the revolutionary spice company she built from a deeply personal memory.

Her entrepreneurial journey began not with a sophisticated business plan, but with homesickness and disappointment. Growing up in Mumbai, Sana remembered the vibrant, aromatic turmeric that flavored her childhood meals. When she moved to California, the bright yellow powder available in supermarkets was a pale imitation—lacking both the intense color and complex aroma she cherished. This profound disconnect between authentic Indian spices and their diluted overseas counterparts sparked the idea for Diaspora Co., a company named to reflect her mission of bringing the real taste of home to those who miss it, regardless of where they live.

“Working with farmers growing organic cardamom, cinnamon, cloves – slowly knowing that every ingredient in my morning chai in California, comes from a spectacular array of farmers across India? That’s the feeling of warmth and community I’m aspiring towards,”



Determined to source authentic spices, Sana returned to India, but her initial farm visits proved challenging and disappointing. This led her to the ICAR-Indian Institute of Spices Research in Kozhikode, where she discovered a treasure trove of knowledge about spice varieties and quality standards. At IISR, she learned about Pragati turmeric, a specially developed variety with exceptionally high curcumin content, cultivated by small farmers in Andhra Pradesh who were seeking fairer compensation than traditional commodity markets offered. In August 2017, armed with just \$3,000 from her tax refund, Sana shipped her first batch of 700 pounds of Pragati turmeric to California. The product sold out almost immediately, validating her belief that consumers craved authentic, high-quality spices. However, Diaspora Co. was never intended to be merely another trendy direct-to-consumer brand. From its inception, the company's mission centered on revolutionizing the spice trade by eliminating exploitative middlemen and ensuring farmers received fair compensation—typically three to six times more than prevailing market rates.



The impact has been transformative. Starting with that single variety sourced from idealistic farmer Prabhu Kasaraneni, Diaspora has expanded to offer over thirty single-origin spices, each traceable to specific farms or farmer groups. All processing and packaging occurs in India, intentionally reversing the typical pattern of exporting raw materials and importing processed products. This approach not only preserves quality but also ensures that value-added activities benefit Indian communities. Seven years after launch, Diaspora Co. has paid over \$2.5 million directly to farmers, sources from 140 farms supporting 3,500 workers, and offers thirty different spices. Sana's journey from homesick memories to building a million-dollar enterprise demonstrates how personal passion, combined with fair trade principles and respect for traditional agriculture, can create meaningful change for farmers while satisfying global consumers seeking authentic flavors.



THE VANILLA WHISPERER OF KODAGU

“People asked me why I bother with vanilla when I already grow coffee and pepper,” smiles Shri. T R Appaji, a soft-spoken yet spirited farmer from Madenadu village in Kodagu, Karnataka. “I just tell them - because I love it.”

At 657 meters above sea level, in a region blessed with over 3500 mm of rainfall annually, Appaji’s farm is not just a plantation. It is a veritable trove of spices and plantation crops, nestled on the slopes of Western Ghats. It is a sanctuary of devotion, cultivated through wisdom and resilience.

A retired Indian Army serviceman and former employee of the State Agriculture Department, Appaji returned to his roots after four decades of public service. That’s when vanilla caught his attention.



**“People asked me why I bother with vanilla when I already grow coffee and pepper,” smiles Shri. T R Appaji, a soft-spoken yet spirited farmer from Madenadu village in Kodagu, Karnataka. “I just tell them-
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“Five years ago, I got a few cuttings from a relative and thought-why not?” From that small experiment, today he grows over 600 vanilla plants across 1.5 acres, intercropped with coffee, cocoa, black pepper, and arecanut. Initially using arecanut palms as support, he eventually transitioned to Erythrina trees due to disease losses.

He brings in the quintessential army discipline in his agricultural venture also. His technique is simple yet smart: 10-node cuttings are placed on raised soil mounds layered with dry leaves. “I don’t plant them directly in soil to avoid infections. The aerial roots find their way,” he explains.



When vines reach 8-10 feet, they are twisted back and pruned to trigger flowering. Post-monsoon, he begins irrigation every 15 days to promote bloom. Each flower is hand-pollinated by Appaji and his wife, limiting pollination to 15-20 flowers per bunch to ensure healthy, long pods. And he does it all without chemical fertilizers - using only Jeevamrutha, the natural microbial solution he prepares and applies annually. Appaji says that while compared to coffee or arecanut, vanilla is easier if you understand its needs.

“But more than income, it’s about showing that vanilla still has a future here.”



“I sell fresh beans and planting material,” he says. “But more than income, it’s about showing that vanilla still has a future here.”

Years ago, vanilla saw a boom in Karnataka following price surges, only to crash post-2004 due to diseases and market instability. But Appaji proves that with the right practices and patient care, the lost glory of vanilla can be revived. His farm is nurturing hope for the Vanilla lovers. The queen of spices has been kind to this connoisseur, blessing him with good harvests and abundant fortunes. Today, Appaji stands as a quiet testament to the spice’s enduring potential. Appaji’s venture is a perfect riposte to those who doubt the economic viability of vanilla. To Appaji, vanilla isn’t just a crop, it is an enduring passion, a revival and above all, a personal mission. In his hands, the Princess of Spices isn’t merely surviving, she’s thriving.



SPICING UP PLANTATIONS: A MODEL OF PUBLIC-PRIVATE SYNERGY

Tata Coffee, one of India's most prominent plantation companies, has shown how meaningful collaboration with scientific institutions can transform the face of traditional agriculture. At the heart of this transformation lies the enduring partnership with the ICAR-Indian Institute of Spices Research (ICAR-IISR), particularly its Regional Station at Appangala. What began as a technical engagement in 2000 has evolved into a long-term association that has significantly improved black pepper cultivation across Tata Coffee's estates in Karnataka and Tamil Nadu.

Covering nearly 10,000 hectares, these estates represent some of the most important production hubs for both coffee and black pepper.

The collaboration with ICAR- has played a pivotal role in revitalizing these estates with science-based practices tailored for sustainability and community benefit.

The team from ICAR-IISR has worked closely with estate managers, field supervisors and workers to implement holistic crop management strategies rooted in research and local adaptability. One of the key areas of intervention has been the Integrated Pest and Disease Management (IPDM) approach, which reduced the use of harmful chemicals while ensuring healthier crops. The scientists also promoted increasing plant population, maintaining healthy vines through improved aftercare and standardizing nursery practices to ensure a steady supply of high-quality planting material.

Their work extended beyond simple agronomic advice. Recognizing the impact of local microclimates on crop health, the team provided guidance on shade management and summer irrigation, significantly improving plant resilience during dry periods. They also emphasized the importance of soil nutrition through balanced fertilizer application and the use of biological agents such as Trichoderma, reinforcing the ecological sustainability of pepper cultivation.



One of the most salient aspects of this collaboration has been the strengthening of infrastructure for planting material production across the estates. With active involvement from the ICAR-IISR scientists, nurseries were upgraded and water storage structures were built or improved to support long-term productivity. These developments not only enhanced the availability of quality planting material, but also created a more stable livelihood environment for the plantation workers and their families.

The outcomes have been noteworthy. The estates have consistently improved its yield

a feat achieved through consistent handholding, scientific rigor and mutual trust between the institute and the estate management team. This model of cooperation has become a beacon of how public research institutions can meaningfully engage with the private sector to foster community development and agricultural innovation.

By placing science in the hands of the farming and plantation community, ICAR-IISR has demonstrated how focused guidance, local involvement and long-term vision can together yield results that are not just economically significant, but socially empowering.



AKRAM'S PEPPER COFFEE ALCHEMY

'A thriving plantation is the reward for those who nurture the land with knowledge and love' – Akram

Hailing from Hoskote, Yeslur Hobli in Sakleshpur Taluk, Hassan District, Karnataka, 53-year-old Akram Minhaj inherited more than just land—he inherited a legacy. Although he graduated with a degree in Business Management (BBM), his roots in farming ran deep and he chose to dedicate his life to cultivating the family plantation. However, the early years of farming were challenging. Poor yields, pest infestations, and a lack of technical knowledge left Akram struggling to sustain his crops, especially black pepper, which he had initially planted as an intercrop alongside his coffee. In 2020, facing these persistent challenges, Akram decided it was time to educate himself which led him attend a training program organized by the ICAR-Indian Institute of Spices Research (IISR) Regional Station at Appangala. It was from there Akram was introduced to scientific techniques that helped him significantly improve his farming practices.

Then on, Akram began to adopt a more scientific approach to farming, especially in his black pepper cultivation. Introduction of early shade regulation, scheduled summer irrigation, and an integrated nutrient management system, contributed to healthier and more productive crops in his farm.

Learned and earned!

Before 2020, Akram's estate yielded just 100 kg of black pepper per acre. However, by 2022, after incorporating the new techniques, his yield has soared to 14 tonnes, and in 2023-24, it reached an impressive 20 tonnes of dry black pepper. The increase in production not only boosted his farm's profitability but also enhanced the quality of his crops. His coffee plantation also thrived, yielding 500 kg of Arabica coffee per acre and 40 bags of Robusta per acre, further contributing to his success.



In recognition with his success he was honored with the Ernesto Illy International Coffee Award in 2019, for producing top-quality coffee beans

Today, Akram's farm spans 40 acres of black pepper and 10 acres of robusta coffee. His estate is home to 5,000 pepper vines, many of which are 8-10 years old. He also continuously plants new vines to replace the old or diseased ones, ensuring a sustainable and healthy plantation. The varieties he grows include the IISR Thevam, Arka Coorg Excel and Panniyur 1.

A staunch advocate of proactive plant health, Akram rigorously implements disease prevention strategies to prevent various biotic stress factors. His consistent consultations with IISR scientists have enabled him to stay one step ahead of disease outbreaks, maintaining the plantation's robust health.



The financial rewards he earned has also been significant. Initially, Akram invested in upgrading his farming practices with the guidance of experts and scientific advice. This investment has paid off, with his net profit rising to 1.5 lakh per acre. Beyond these, Akram frequently shares his experiences and practical solutions with fellow planters, offering advice on disease management and sustainable farming techniques.

Driven by an unshakable belief that agriculture is a perpetual voyage of discovery, Akram Minhaj is poised to expand his farming endeavors to new heights in the years to come.



FROM PORTRAITS TO PEPPER VINES: THE INSPIRING REINVENTION OF 'MONICA RASHID'

In the quiet village of Kodoor in Malappuram, a man once known for his portraits and wedding albums now nurtures thousands of pepper vines. Rashid Machingal, once celebrated as “Monica Rashid” for his iconic portraits, has undergone a remarkable metamorphosis from documenting lives to cultivating one of India’s most prized spices, black pepper.

Two decades ago, Rashid completed his photography studies and opened a studio named “Monica,” inspired by the camera brand Konica. His work gained popularity, and soon the name Monica Rashid became widely recognized. But in his forties, Rashid decided to step away from the photography profession, citing its evolving trends and his belief that creative fields like photography also have a “retirement age.”

Rasheed believes that his nursery is not just an entrepreneurial venture; it is a family-driven ecosystem.

Though he came from a farming background, Rashid had little hands-on experience in agriculture. His turning point came when he visited ICAR-Indian Institute of Spices Research (IISR), Kozhikode, searching for a viable spice based venture. Among the several options suggested, he felt a connect with pepper cultivation. With guidance from the institute, Rashid soon discovered his own passion for black pepper. His dedication and learnings from IISR soon led to the establishment of Monica Pepper Nursery.

What began with a humble 100-square-foot patch behind his home has since blossomed into Monica Pepper Nursery, a two-acre enterprise boasting four full-fledged nursery sheds. Today, Rashid produces and markets around 75 different varieties of pepper, including ICAR-IISR varieties like Thevam, Panchami, Sreekara, Malabar Excel, and other popular types. The nursery specializes in grafted bush pepper saplings, using *Piper colubrinum* (Thippali) as rootstock. Conventional pepper vines, cultivated through the serpentine method, are offered at an economical price range of ₹ 20 to ₹40.



Rashid's business model thrives on local partnerships built on trust and unwavering commitment to quality. Equally savvy in marketing, Rashid has created an array of engaging YouTube content that has since drawn customers from across Kerala and beyond. Orders are dispatched through parcel services in specially crafted boxes that ensure safe transit of the plants.

Monica Pepper Nursery is not just an entrepreneurial venture; it is a family-driven ecosystem.

Rashid's wife, Saifunneesa and their children, Rania Mirsha, Riyan Ahammed, Raya Bathool and Rasmi Khadija, all play integral roles in managing operations. The family also offers pepper plantation services, with successful installations in several locations.

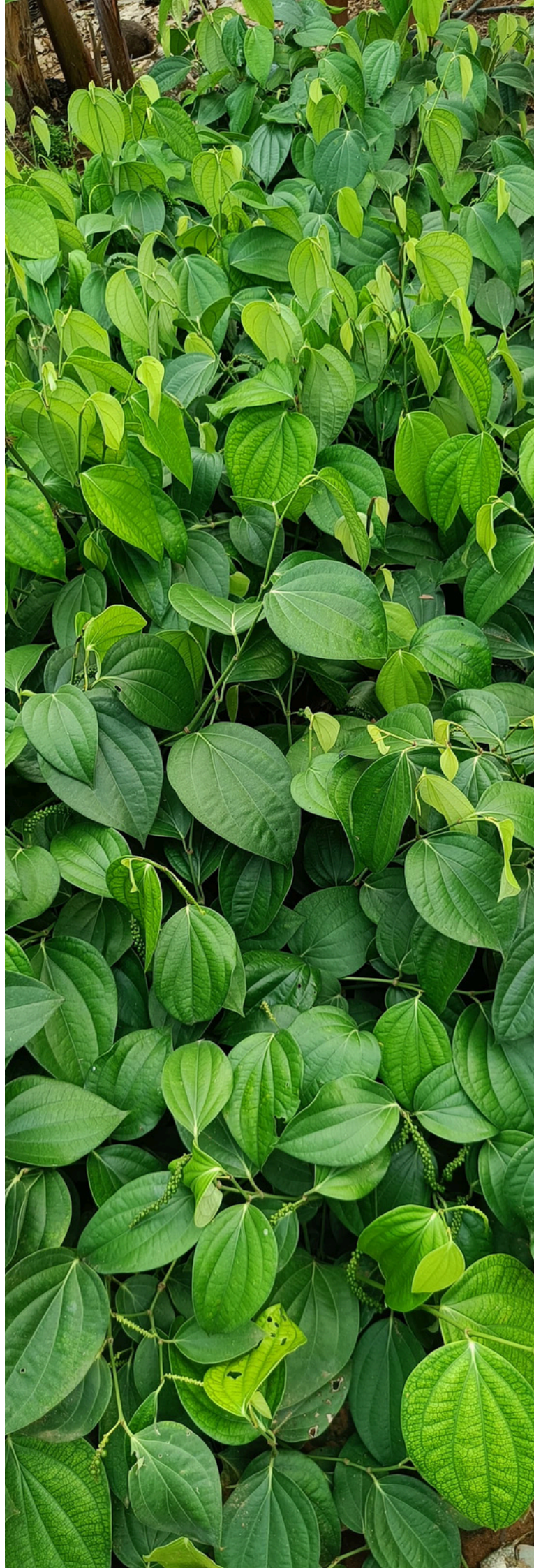
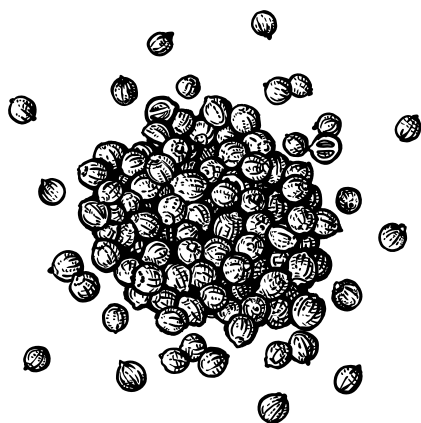
Rashid's story is a compelling chronicle of reinvention, a journey from the silent click of the camera shutter to the quiet rustle of greenhouse leaves. It is a testament to curiosity, resilience and the courage to reimagine one's destiny. When passion is guided by knowledge and nurtured with perseverance, even the most unexpected transformations can flourish.



VINES OF CHANGE: THE PEPPER PATH OF DR. VENKAT RAO

Rayadupalam, in Kodalaravu Palem village in East Godavari district of Andhra Pradesh, is not a place one would associate with thriving black pepper plantations. Yet, among its modest farms there lies a remarkable exception of a lush, green expanse of black pepper vines flourishing under the care of Dr. M. Venkat Rao, a 78-year-old Ayurvedic doctor.

Dr. Venkat Rao's journey with black pepper cultivation began nearly 25 years ago, not through a conventional agricultural route, but through a family connection. His son-in-law, Dr. M. V. Prasad, a scientist at ICAR-Indian Institute of Oil Palm Research, had previously served at ICAR-Indian Institute of Spices Research (ICAR-IISR). Between 1998 and 2000, during his tenure there, Dr. Prasad introduced the IISR's promising black pepper varieties to Dr. Rao's farm. Those pepper vines which reached his farm was the starting point for engineering a transformative change in his farm. With a natural passion for agriculture, the non-familiarity of the crop did not bother Dr. Rao.



Adopting eight black pepper varieties developed by ICAR-IISR, Dr. Venkat Rao implemented a multi-storied cropping system, integrating pepper with coconut, arecanut, cocoa, and oil palm. Using the bamboo method for vine propagation, he expanded his pepper planting over 2–3 years, utilizing existing trees as standards. With a commitment to natural farming, he has been applying only organic inputs supplemented by drip irrigation. Some of the prevalent diseases in traditional growing tracts of black pepper has been conspicuous by its absence in his farm.

Over the years, he has never had to resort to chemical pesticides or fungicides, and notably, his plantation has remained free from phytophthora, a common and destructive pepper disease.

The quest of this doctor-turned-farmer has reshaped the agricultural landscape of the area. He had also established a black pepper nursery on his farm, driven by passion and curiosity. This nursery now supplies planting material, including bush pepper, to interested farmers and local buyers. His efforts have introduced black pepper cultivation to a region where it was once uncommon, contributing to its slow but steady spread in the coastal belt.



GUTS, GUMPTION AND GLORY: A COOPERATIVE SUCCESS MODEL IN TURMERIC

In the Thrissur district of Kerala, a quiet agricultural transformation has been undergone in recent years. What began as a shared vision by three cooperative societies in the semi-urban Amballur region has grown into a successful model of farmer-led value chain development.

These cooperatives united to form the Alagappanagar Cooperative Consortium, driven by a clear goal of complete control over a suitable commercial crop's value chain. After careful planning, they chose turmeric as their crop, well-suited to local rain-fed conditions and growing market demand.

They selected IISR Pratibha, a variety from ICAR – Indian Institute of Spices Research, known for its high curcumin content and strong yield potential.

Turmeric cultivation began in the 2017-18 kharif season with 60 tonnes of seed distributed to 40 farmers, including women-led Joint Liability Groups (JLGs). The consortium didn't stop at distribution, they extended credit support, ensured input availability, and partnered with ICAR-IISR for technical training and field monitoring.

The farming community responded with enthusiasm to this new move. With guaranteed inputs, credit, and buy-back at premium rates, farmers could focus solely on cultivation. A seemingly ambitious plan was thus slowly turning into a practical success.

Over the next two seasons, the consortium expanded operations by reinvesting the harvest and onboarding more farmers and societies. With a technology license from ICAR-IISR, they became authorized seed producers of IISR Pratibha and later IISR Pragati, further strengthening their position.

The story of innovative interventions and collective action of this consortium of primary cooperative societies is noteworthy, not only in terms of its demonstrated potential, but also for the lessons it offer for collective intervention in crop value chains.

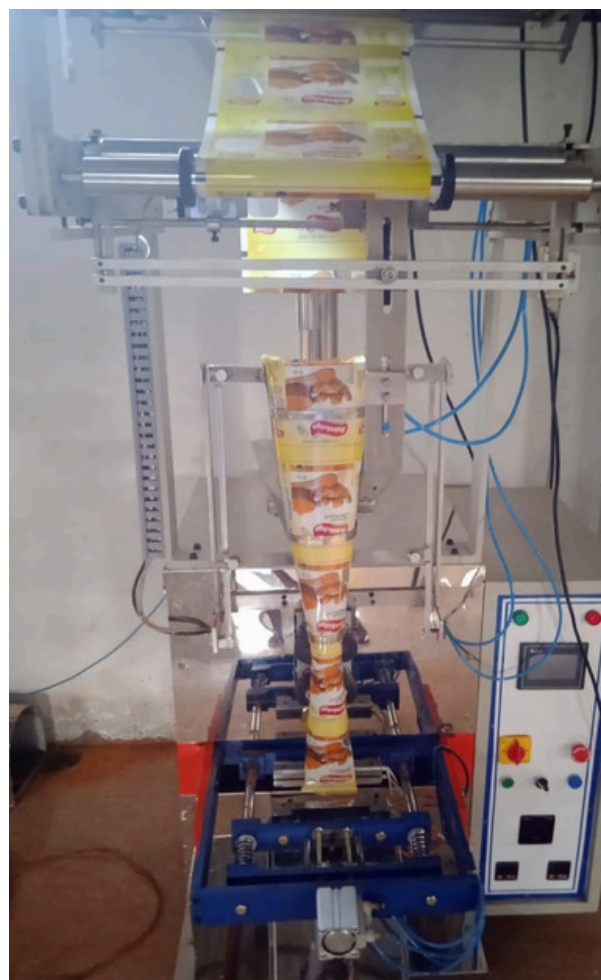




With production stabilized, the consortium moved to the next phase - value addition. In 2019, supported by the Business Planning and Development unit of ICAR-IISR, they launched their own turmeric powder brand, SUBAKSHYA. Made from a single, superior variety and processed under expert supervision, the product quickly gained market recognition. By 2020, they had set up their own spice processing facility.

The journey of Alagappanagar Cooperative Consortium shows what well-planned collective action, backed by scientific support, can achieve in the farming sector. It's a story of farmers taking control, creating value, and building something lasting together. With new plans for product diversification and higher-end value addition, this close-knit farming collective continues to move forward-with confidence, clarity, and purpose.

The story of innovative interventions and collective action of this consortium of primary cooperative societies is noteworthy, not only in terms of its demonstrated potential, but also for the lessons it offer for collective intervention in crop value chains

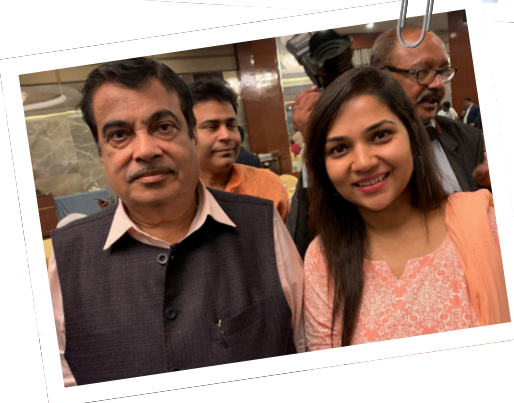
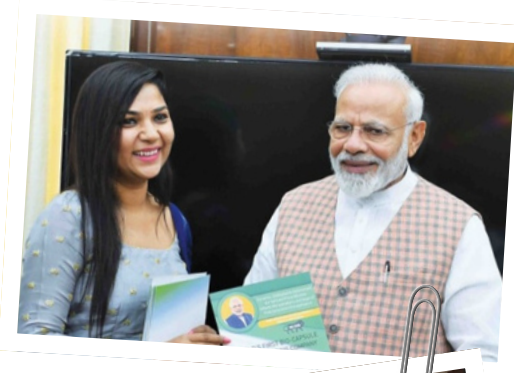


ROOTED IN SCIENCE, GROWN WITH GRIT: THE STORY OF KODAGU AGRITEC



"People thought I was crazy," laughs Dr. Chaitra Narayan. "Why would someone with a PhD and a UGC- NET qualification want to start a business instead of teaching at a top university?" But she had other plans—plans rooted deep in the red soil of Coorg and the smiles of struggling farmers. Back in 2015, in the sleepy town of Kushalnagar, Kodagu Agritec (then spelled "Codagu Agritec") was born. With just two products—Trichocap and Powercap—and a dream, Dr. Chaitra stepped into uncharted territory. "I had no business background. I didn't even know how to balance a ledger!" she recalls. What she *did* have was determination, a love for science, and a heart that beat for farmers. To kickstart her venture, she pledged all her gold to get a bank loan. "Yes, everything. Earrings, bangles, even my chain," she grins. "And a few hand loans from friends and family too."

Her inspiration came during her PhD, where she studied the anti-HIV properties of medicinal plants in the Western Ghats. Talking to farmers, I saw how dependent the farmers had become on chemical fertilizers. I knew I had to do something." That "something" came in the form of biocapsules—a revolutionary, eco-friendly farming solution developed by ICAR-IISR.





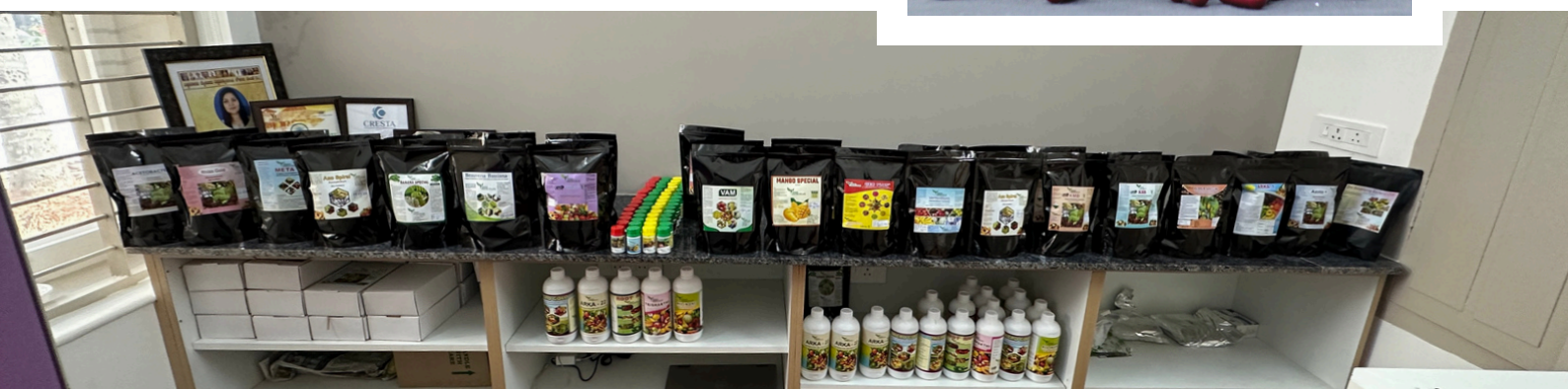
Thanks to the mentorship of Dr. Anand Raj, former Director of ICAR-IISR and unwavering support from scientists of ICAR-IISR, she secured a license to manufacture biocapsules. “They treated me like one of their own,” she says with gratitude. “Their love and guidance built the foundation for what Kodagu Agritech is today.” Fast forward 10 years, Kodagu Agritech is now a well-established firm based out of Mysore, offering over 40 eco-friendly agri-products to farmers across India. From two districts to pan-India, from local farmers to international markets like Vietnam and New Zealand—this journey has been as exciting as it was fulfilling.

The icing on the cake? “I got to present my startup to the then President of India, Shri Ram Nath Kovindji, in 2018,” says Dr. Chaitra. “Little me, from Kushalnagar, at Rashtrapati Bhavan. That moment—unreal!”

Today, Kodagu Agritech supports over 50 people through direct and indirect employment and is still growing. “Hard work, patience, and a little madness—that’s all it takes,” she smiles. And just like that, a scientist became a changemaker.

Awards and Accomplishments

1. Karnataka State Agri – Entrepreneur Award, 2022 by Government of Karnataka
2. Selected by Rashtrapathi Bhavan, New Delhi for the Festival of Innovation and Entrepreneurship, 2018.
3. Selected for presentation before the Hon’ble Prime Minister Shri Narendra Modi on Biocapsule Technology which is a Make in India Initiative.
4. “Karnataka Inspiring Woman Award – 2025” by Press Club of Bangalore, Karnataka.



SPIZAAR: BLENDING TRADITION WITH INNOVATION FOR A SPICIER FUTURE

SPIZAAR is a seven-letter word. But when you read it, you hear more – the whisper of spice, and a bazaar. That's who we are, built on the simple idea of a marketplace – Aloak Menon

Aloak Menon, a hotel management graduate from Kozhikode, Kerala, is the founder of Spizaar, an agro-spice value addition startup working to redefine how Indian spices are perceived, processed, and consumed. Through innovation and empathy, he has built a unique enterprise that bridges the gap between small-scale spice farmers and modern consumers. At the heart of Spizaar's success lies a range of over twenty natural, affordable, spice-based products. Among them, the most notable is a completely natural hair cream made using coconut oil and traditional Indian spices. But his work goes beyond product development. Aloak is currently pioneering soil-to-kitchen traceability systems, ensuring consumers know the origin of what they consume.

Aloak's professional journey began in the corporate world, where he worked with top multinational brands across India's major metropolitan cities. Despite promising career prospects, he returned to Kerala and joined an academic institution as an assistant professor, exploring the world of education and community engagement. It was during this period of transition that Aloak noticed the glaring disconnect between farmers and markets, particularly in the spice sector. Eventually, it turned into a mission to transform this gap into an opportunity.



Aloak's initial step towards change was the design of a direct supply chain that connected rural farmers with niche urban organic stores.

His initial step toward change was the design of a direct supply chain that connected organic rural farmers with niche urban organic stores. This model soon became the base on which he would build his product development initiative. The support from the Business Development Unit of ICAR-Indian Institute of Spices Research through skill development training in agro-processing, participation in market-focused symposiums, and dedicated mentorship in refining and scaling his products, has helped to convert his idea into a scalable enterprise. With this institutional backing, he was able to develop and test over twenty commercially viable products.

With strong protocols for prelaunch market analysis and consumer feedback, he zeroed in on viable products for niche markets. These early interactions helped refine Spizaar's product line and identify bestsellers. Among the first to gain traction were a completely natural hair oil and cream, and a premium variant of cardamom tea, both of which sold in impressive quantities.



Today, Aloak continues to expand Spizaar's reach while staying committed to his core vision. His plans include diversifying the product range, integrating full traceability systems to ensure transparency from farm to consumer, and creating more women-led producer groups to decentralize agro-processing. These initiatives, he believes, will help build more inclusive, sustainable, and resilient agri-business ecosystems. As he continues to evolve Spizaar and support more farmers and women entrepreneurs, his work stands prominent for the new generation of agri-innovators.



Among the first to gain traction were a completely natural hair oil and cream, and a premium variant of cardamom tea



CULTIVATING PEPPER, HARVESTING PEACE



3000 vines, with nearly 1000 vines aged 20–30 years.

“If you believe in agriculture with your heart and soul, it will never fail you.” This belief is the foundation of Mr. Lakshman Gowda G M’s inspiring journey. A seasoned farmer from Gowthahalli village, Mudigere taluk, Chikkamagaluru district, Mr. Gowda has turned his 10-acre farm into a model for sustainable black pepper cultivation.

Born into a family steeped in farming traditions, Mr. Gowda chose to stay back in agriculture while many of his peers moved to city jobs. For over five decades, he has blended traditional knowledge with scientific practices to grow crops sustainably. His estate now produces Arabica and Robusta coffee, arecanut, and an impressive 7-8 tonnes of black pepper annually.

His pepper plantation includes around 3000 vines, with nearly 1000 vines aged 20-30 years. Each year, he replaces unhealthy vines to maintain a disease-free garden. The farm features 15 varieties of black pepper, showcasing a living archive of varietal diversity, including Panniyur-1, IISR Thevam, Arka Coorg Excel, Sigandhini and Subhakara.

A watershed moment in his farming career came through his association with the regional station of ICAR-IISR at Appangala. This association led him to implement advanced nutrient and disease management practices in his farm. Integrated approach to disease management proved critical to his success, especially during the unprecedented floods in 2019 and thereafter. By integrating prophylactic chemical control measures with scientific cultural practices, Mr Gowda has been able to outperform other farms in the locality, in terms of efficiency of production and in yield realization.

Sustainability lies at the heart of his farming philosophy. His nutrient schedule includes on-farm compost made from coffee husk and bioagents, supplemented with split applications of fertilizers and micronutrient foliar sprays. Summer irrigation is practiced judiciously, complemented by efficient drainage systems that prevent waterlogging.



**Best Farmer Award from the
Dr. Y.R. Sarma Memorial Trust**



Apart from pepper, Mr. Gowda has ventured into fish farming and beekeeping, creating a self-sustaining ecosystem on his farm. His holistic approach has not only enriched his land but has also earned him widespread recognition including the Best Farmer Award from the Dr. Y.R. Sarma Memorial Trust in 2024. The award stands as a tribute to his enduring dedication, innovation and environmental stewardship.

Despite market challenges and unpredictable weather, Mr. Gowda remains committed to inspiring the next generation. “Youth are chasing stressful jobs, but the Earth gives peace-if you trust her,” he says. Mr. Lakshman Gowda’s journey is not just a success story; it is a call to reconnect with the soil and rediscover the enduring rewards of sustainable agriculture.



A TALE OF NUTMEG RENAISSANCE



The midlands of Kerala's Ernakulam district are a place where nutmeg trees punctuate the landscape with their evergreen grace. Here, Mr. P.L. Paulose, a retired ITI instructor turned full-time farmer, has become an advocate of scientific farming by successfully adopting site-specific soil fertility management for nutmeg - a crop widely grown in homestead systems but often hampered by Kerala's challenging soil conditions. Kerala's soils, though fertile in appearance, pose significant limitations for sustained crop productivity. The state's strong soil acidity, coupled with extensive deficiencies of secondary nutrients like calcium and magnesium, and other micronutrients such as boron, restricts the yield potential of many perennial crops, including nutmeg. The problem is compounded in deep-rooted species like nutmeg due to subsoil acidity, which directly affects root health and nutrient uptake. Based on scientific guidance from ICAR-Indian Institute of Spices Research (ICAR-IISR), Mr. Paulose was able to address the unrealized potential of his nutmeg trees.

He had all the ingredients for success, technology backing from ICAR-IISR and implementation support and monitoring from Krishi Vigyan Kendra (KVK) of ICAR-CMFRI. Through soil testing and customized nutrient advisories, a site-specific nutrient management plan was developed for his garden. This plan included the application of amendments like dolomite lime and gypsum to address soil acidity, along with targeted designer micronutrient sprays tailored for nutmeg. Mr. Paulose applied these inputs alongside his regular practices but confined them to a demarcated part of his orchard to compare results. The changes were evident within a season.

Trees in the treated plots displayed improved foliage, reduced premature fruit drop, and ultimately, a yield increase of up to 25% compared to untreated plots. Equally notable was the enhanced root zone health, owing to reduced subsoil acidity and better calcium-magnesium balance. Once convinced, nothing could stop this earnest farmer from adopting the package on his entire farm.

The adoption of this scientifically guided Best Management Practice (BMP) translated into tangible financial gains. Within a year, Mr. Paulose recorded an additional income of ₹30,000 to ₹40,000 from the improved plots. It's a remarkable return considering the modest investment for inputs. More importantly, he experienced a renewed confidence in farming, witnessing the impact of bridging traditional knowledge with scientific innovation. Beyond economics, the



transformation of Mr. Paulose's garden has become a live demonstration site for neighbouring farmers. His success has inspired interest in site-specific soil health management, especially in perennial spice crops where yield stagnation is a common challenge. With continued support from ICAR-IISR and KVK experts, he now advocates for wider adoption of soil test-based nutrient

management and the use of crop-specific micronutrient formulations to optimize productivity in Rhomestead farming systems. Mr. Paulose's journey is a shining example of how a retired educator's openness to innovation, paired with institutional support, can not only revitalize a crop but also sow the seeds of knowledge among a wider farming community.





THE TURMERIC TORCHBEARER OF CHAMARAJANAGAR

At 63, Sayid Nazir Ahmed of Nagavally, nestled in Karnataka's Chamarajanagar district, stands as a distinguished figure in the landscape of turmeric cultivation. A farmer by lineage and a visionary by choice, Sayid's agricultural journey began with conventional crops such as banana and other regionally suited staples.

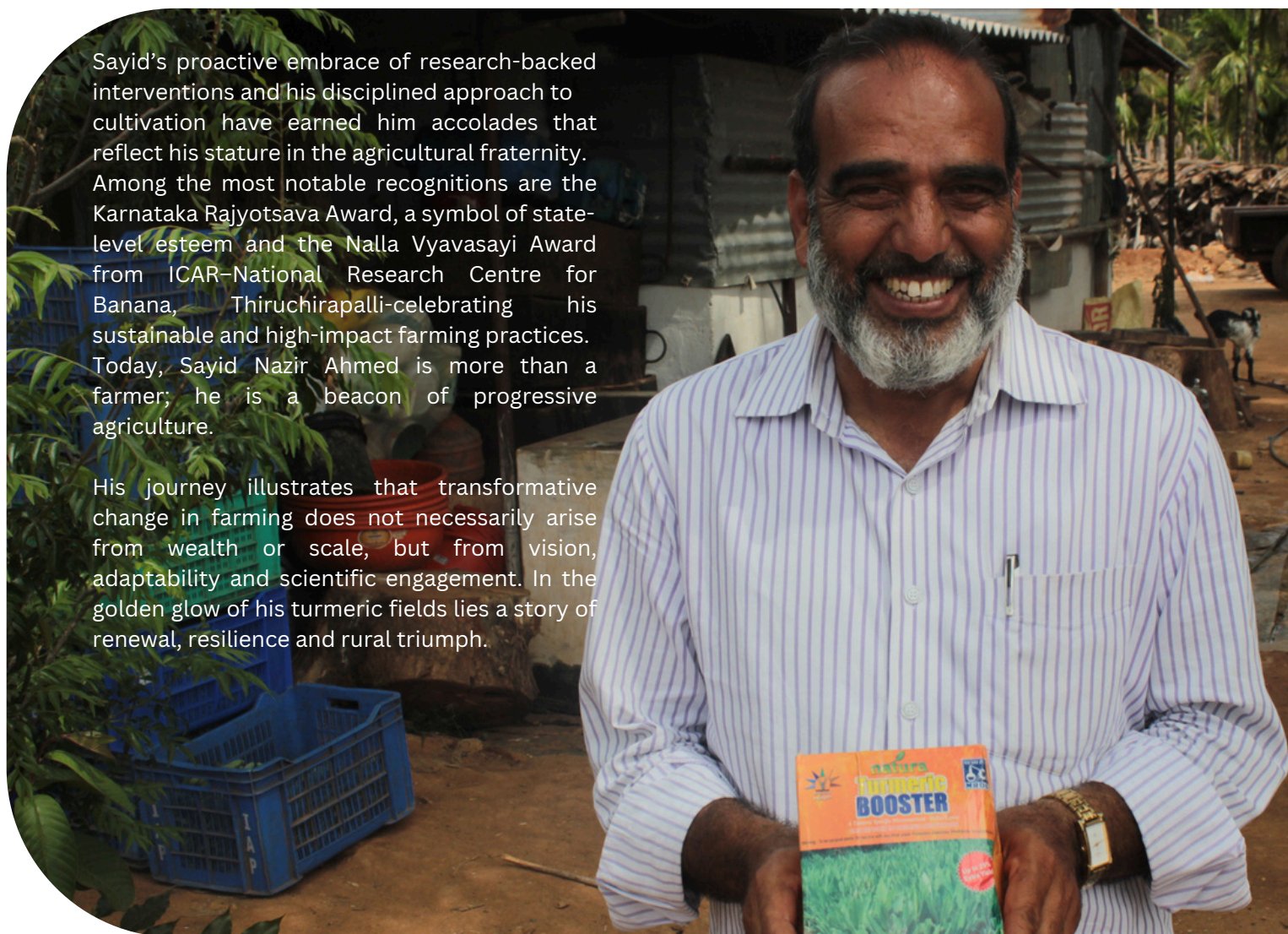
However, a pivotal transformation unfolded in 2009. That year, Sayid came across a superior turmeric variety- IISR Prathibha-pioneered by the ICAR-Indian Institute of Spices Research (ICAR-IISR). This variety, celebrated for its high curcumin content and enhanced agronomic performance, immediately captured his attention. Determined to enhance both the calibre and commercial value of his produce,

Sayid procured planting material of the variety immediately. Since then, Sayid has devoted between 6 and 10 acres annually to high-curcumin turmeric lines. Later, when the institute released IISR Pragati, he was one among the pioneering farmers who adopted the variety. His engagement with IISR's high-curcumin turmeric varieties has proven immensely rewarding. His achievements have surpassed expectations. With an average yield of 20 tonnes per acre, his fields have consistently outperformed regional benchmarks-testament not only to the genetic potential of these varieties but also to the meticulous farm management he practices. Integral to this success is his unwavering commitment to scientific innovation.



Sayid's proactive embrace of research-backed interventions and his disciplined approach to cultivation have earned him accolades that reflect his stature in the agricultural fraternity. Among the most notable recognitions are the Karnataka Rajyotsava Award, a symbol of state-level esteem and the Nalla Vyavasayi Award from ICAR-National Research Centre for Banana, Thiruchirapalli-celebrating his sustainable and high-impact farming practices. Today, Sayid Nazir Ahmed is more than a farmer; he is a beacon of progressive agriculture.

His journey illustrates that transformative change in farming does not necessarily arise from wealth or scale, but from vision, adaptability and scientific engagement. In the golden glow of his turmeric fields lies a story of renewal, resilience and rural triumph.



FROM CONTRACTOR TO CULTIVATOR: SOWING A NEW FUTURE IN SALUR



Leela Prasad Chalasani, an enterprising farmer from Krishna district, Andhra Pradesh, exemplifies transformative agricultural leadership rooted in innovation, scientific collaboration and ecosystem-based thinking. Originally engaged as a civil contractor working on infrastructure projects, Chalasani made a radical professional pivot after fifteen years, seeking a more grounded, purposeful lifestyle through agriculture. This turning point led him to acquire 100 acres of land in Salur, where he began reimagining farming, both as an economic pursuit and a regenerative practice.

His initial venture into oil palm cultivation marked the beginning of a broader agroecological experiment. Recognizing the risks associated with monoculture, Chalasani embraced a multi-tier, diversified cropping system, integrating multiple crops to ensure steady income. Crops such as cotton, dragon fruit, rambutan and later nutmeg, were introduced as part of a strategy to build a resilient, ecologically harmonized farm model.

His most pioneering effort was in the cultivation of nutmeg (*Myristica fragrans*), a crop largely unknown to this region. After an initial phase of failure, largely due to inadequate technical knowledge and varietal mismatch, Chalasani proactively engaged with scientists from the ICAR-Indian Institute of Spices Research (IISR). This collaboration deepened his understanding of nutmeg physiology, elite cultivars and appropriate agro-climatic practices.

With support from IISR, he mobilized a group of 20 local farmers and facilitated the introduction of 6,000 elite nutmeg saplings including IISR Vishwasree and IISR Keralashree to Salur. These were systematically intercropped with arecanut and banana, leveraging spatial complementarity to optimize sunlight, water and nutrient use. This scientifically informed, integrated model has started yielding results and validated nutmeg's commercial potential under restructured planting geometries.

Chalasani's interest in spice crops extended further to black pepper, which he promoted through organized cultivation in the region, enriching Salur's horticultural biodiversity. He also redefined conventional limits in farming – on a particularly challenging 11.5-acre plot with shallow soil, he managed to reengineer the topsoil to create favourable crop growing conditions, the audacious intervention underscoring his willingness to generate value in unconventional ways.

His work has earned him the Best Oil Palm Farmer Award in Andhra Pradesh. Beyond yields and profits, his legacy is one of agroecological transformation- a model of farming that champions sustainability, intercropping synergies and adaptive land management.

Leela Prasad Chalasani's journey exemplifies how scientific literacy, strategic risk-taking and collaborative innovation can reshape rural economies. His farm today is not merely a production site, but a living laboratory—one that challenges conventional paradigms and offers a scalable blueprint for climate-resilient, diversified agriculture.



CARDAMOM IN THE CLOUDS: A SPICE STORY FROM MALNAD

Mr. Pramod has recorded stable yields ranging between 550 to 700 kg/ha, effectively dispelling long-held assumptions about the crop's unsuitability in the region.

Long regarded as incompatible with the ecological tapestry of Karnataka's Malnad region, small cardamom (*Elettaria cardamomum*), famously revered as the "Queen of Spices," is now flourishing against all odds, thanks to the visionary efforts of Mr. C. P. Pramod, an enterprising planter from Makkandur, nestled in the lush terrains of Kodagu.

At an elevation of 1050 meters above sea level, Mr. Pramod's Cauvery Estate spans 45 meticulously managed acres, where he cultivates a diversified portfolio of crops including coffee, black pepper, fruit trees and notably, cardamom in over 10 acres. With an average annual rainfall of nearly 3000 mm, the estate is a testament to harmonious coexistence between natural endowment and agronomic precision.



However, sustaining cardamom cultivation in this non-traditional belt proved challenging, with yields declining steadily over time. Unwilling to yield to convention, Mr. Pramod sought scientific counsel and collaborated with experts at the ICAR-Indian Institute of Spices Research (IISR), Regional Station, Appangala. Through their guidance, he meticulously adopted a comprehensive suite of Good Agricultural Practices (GAPs), tailored to the region's specific agro-climatic constraints.

This holistic transformation began with terrain reconfiguration and soil fortification ahead of the monsoon. Site-specific nutrient management strategies were implemented, integrating both macro and micro-nutrients at critical phenological stages. During arid spells, calibrated irrigation ensured uninterrupted plant vigor, while the introduction of bee colonies fortified natural pollination, significantly boosting fruit set and quality. Disease and pest management followed an integrated approach, combining preventive cultural methods with timely chemical applications.

Efficient drainage systems and regulated shade ensured optimal microclimatic conditions. Field-based surveillance guided responsive interventions against sporadic pest incursions and nematode infestations.

The outcome of this sustained scientific intervention has been nothing short of remarkable. Over a consistent period of five to six years, Mr. Pramod has recorded stable yields ranging between 550 to 700 kg/ha, effectively dispelling long-held assumptions about the crop's unsuitability in the region. Today, Cauvery Estate stands as a beacon of innovation, resilience and agro-scientific synergy.

Mr. Pramod's journey exemplifies how empirical knowledge, when coupled with an indomitable spirit, can resurrect traditional crops and redefine regional agricultural narratives. His success offers a replicable blueprint for planters aspiring to transition from conventional practices to knowledge-driven farming systems.





AGAINST THE GRAIN: A LAWYER'S SPICE TRAIL IN EAST GODAVARI

Murali Krishna, a lawyer by profession from East Godavari district, Andhra Pradesh, redefined the agricultural narrative of his region by demonstrating that conviction, curiosity and collaboration can overturn conventional beliefs. In an area where nutmeg cultivation was largely dismissed as unviable, he envisioned an unconventional path and proved that the non- traditional crop could flourish, even under the canopy of oil palm plantations.

With a mind trained in analytical reasoning, Murali Krishna dared to challenge prevailing agricultural paradigms. While his contemporaries were skeptical of nutmeg's potential in the humid coastal belt of East Godavari, he identified a niche opportunity—intercropping nutmeg within existing oil palm plantations. His intuition was clear: by leveraging vertical and spatial efficiencies, he could cultivate nutmeg alongside oil palm without compromising yield or plant health.

What followed was a journey of meticulous

experimentation and persistent refinement.

Through an empirical trial-and-error process, Murali Krishna deduced that a 10x10 m square planting system of oil palm would allow nutmeg plants to establish and bear substantial yield. This insight, though simple in formulation, was revolutionary in practice. It opened new doors for integrating high-value spice crops into monoculture systems, enhancing both biodiversity and economic returns.

Recognizing the necessity of scientific rigour, he established a close collaboration with the ICAR- Indian Institute of Spices Research (ICAR-IISR). He introduced high-yielding IISR-developed nutmeg varieties that exhibited resilience and superior agronomic traits. These plants have already started bearing significantly in this non-traditional tract. Simultaneously, he extended his horticultural interests to polyhouse-grown black pepper—again, adopting improved IISR varieties, thereby transforming his farm into a model of integrated spice cultivation.

With soil testing and customized nutrient management as his foundation, he relied heavily on IISR's technical expertise. The Institute provided crucial support- from scientific advisories to tailored fertilization schedules helping him fine-tune cultivation protocols that defied geographical limitations.

His initiative is more than a personal triumph; it is a landmark demonstration of how non-traditional crops can be successfully introduced in non-traditional regions when guided by data-driven decisions and institutional handholding. By intertwining legal acumen with agricultural experimentation, Murali Krishna has not only diversified local cropping systems but also inspired a quiet horticultural revolution in East Godavari.

Several farmers, after seeing his experiments are coming forward to try out nutmeg as an additional crop in their existing cropping systems. Murali Krishna's journey underscores the potential of professional crossovers in reshaping rural economies and above all, it exemplifies the power of belief rooted in scientific inquiry.





SCENT OF SUCCESS

Not every story of agricultural innovation begins with a plough in hand- some begin in a laboratory, with a mind trained to decipher molecules and a heart drawn to the fragrance of nature. In a quiet corner of Andhra Pradesh's Alluri Sitarama Raju district, Appa Rao Vijayem and his wife, Sarva Lakshmi, two chemists by training and visionaries by spirit, have redefined what it means to farm with purpose and precision.

Both holding B.Sc. degrees in Chemistry from Madras Christian College and diplomas from the prestigious Central Food Technological Research Institute (CFTRI), the couple first made their mark in Chennai's industrial flavor sector. But by the year 2000, having settled in Visakhapatnam, Appa Rao saw an untapped opportunity in a government-allotted plot in Chintapalli, an area unfamiliar with cinnamon. Where others saw limitations, he saw latent potential.

Instead of focusing on the bark, the traditional target of cinnamon farming, he zeroed in on the plant's leaves for their exquisitely flavoured high-eugenol essential oil, an aromatic goldmine in the flavor and fragrance industry.



With seedlings sourced from Coorg and a self-designed stainless-steel distillation unit, Appa Rao Vijayem combined scientific rigor with rural sensibility. His essential oil extraction setup was a model of innovation, hygiene and efficiency. In tandem, he established a specialized laboratory in Vizag to develop customized industrial flavor profiles, with his wife, an accomplished chemist, playing a pivotal role in operations and quality control.

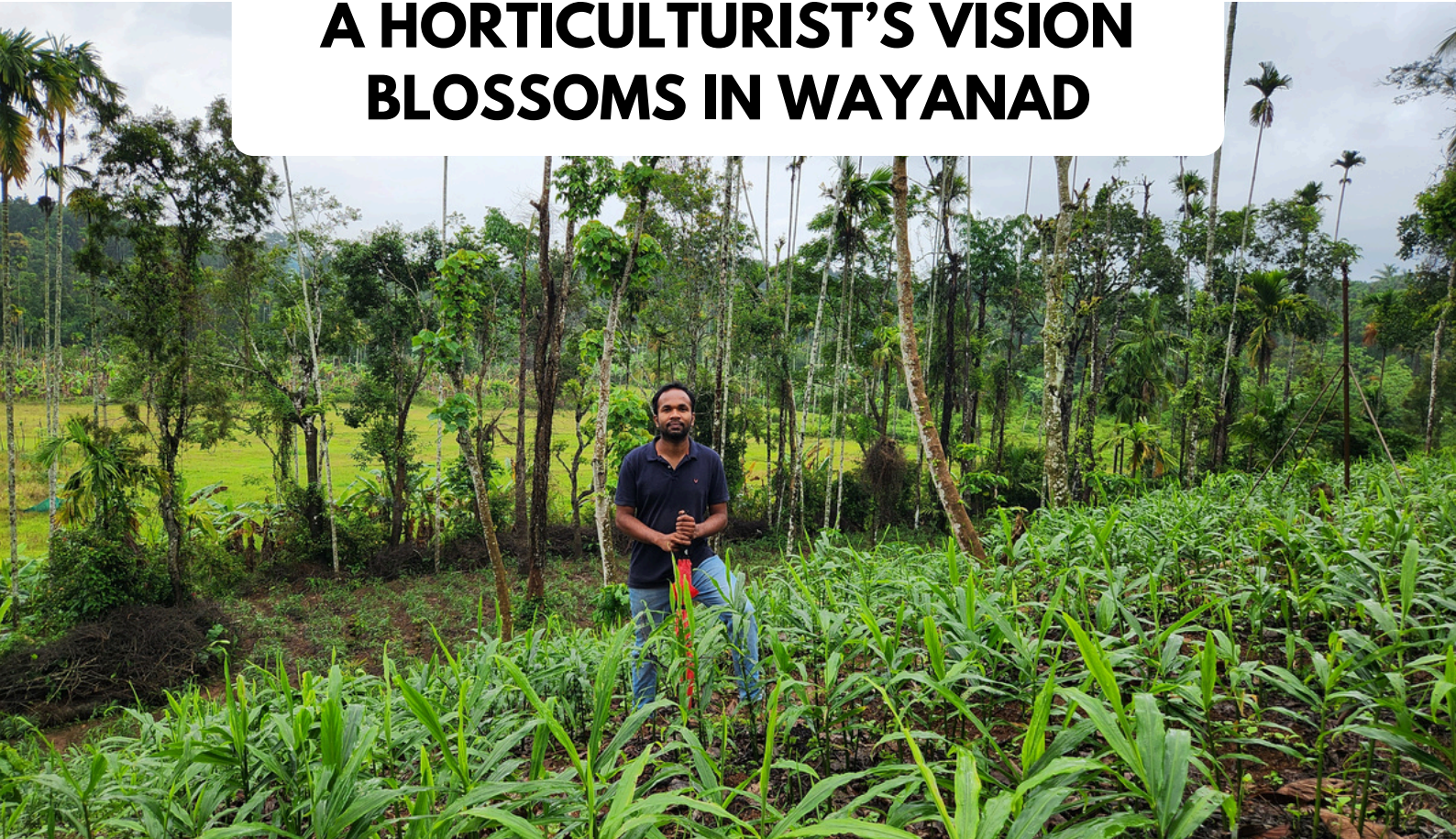
Their joint venture, M/s Aromatic Oil Company, quickly earned organic certifications under India Organic and NPOP, placing them among the pioneers of certified essential oil producers in the region. But their journey didn't stop at cinnamon leaf oil. Recognizing the market's evolving demands, Appa Rao reached out to the ICAR-Indian Institute of Spices Research (ICAR-IISR) for technical support in bark extraction. Technical personnel from IISR were deputed to his farm for providing training on scientific bark extraction from cinnamon. With this, he could expand into bark processing—launching high-quality products like cinnamon bark and organic cinnamon powder. Diversification became a natural progression. Citronella, lemongrass and vetiver followed,



enriching their aromatic portfolio and reinforcing their farm-to-lab ecosystem. His business success lay in cultivating trust, building strong marketing linkages with industries that valued purity, consistency and traceability. They have turned a once-unfamiliar crop into a thriving enterprise. Appa Rao and Sarva Lakshmi's journey is a tribute to transformative thinking.



A HORTICULTURIST'S VISION BLOSSOMS IN WAYANAD



At just 27, Sreeram Ravindranathan is crafting a success story from Kakkavayal in Wayanad, Kerala. With a degree in horticulture from the Tamil Nadu Agricultural University, Sreeram has seamlessly merged academic precision with traditional farming sensibilities, cultivating not just crops but a blueprint for sustainable spice farming that balances innovation with ecological mindfulness.

While he holds a professional role as a Horticultural Assistant with the Karappuzha Mega Tourism Project, Sreeram's real triumphs are sown in the rich red soils of his family's farmland. Over the past three years, he has been cultivating turmeric and ginger independently, selecting the elite IISR Prathibha and IISR Varada varieties, both developed by the ICAR-Indian Institute of Spices Research for their superior characteristics. His strategic decision to focus on these cultivars underscores a deep understanding of agro-climatic compatibility and market dynamics.

Farming is not new to Sreeram. His father, a seasoned cultivator, has been managing the 14-acre coffee plantation for four decades. However, the ageing coffee plants presented a unique agronomic challenge and opportunity. As sections of the estate undergo phased rejuvenation, with 2 to 3 acres grafted annually using high-yielding hybrids, interim spaces are created before the canopy regrows. Sreeram, with clarity and purpose, has repurposed this temporary void to grow turmeric and ginger, making full use of land that would otherwise lie underutilized.

This rotational intercropping system is not only spatially efficient but ecologically astute. By shifting the ginger-growing plots each year, he mitigates the risk of soil fatigue and curbs the recurrence of soil-borne pathogens, which often plague monoculture systems. His approach represents a pragmatic adaptation of agroecological principles, balancing productivity with sustainability.

An active contributor to ICAR-IISR's participatory seed production programme, Sreeram has supplied 1600 kilograms of certified IISR Varada seed rhizomes to the institute, a feat that signals both trust and technical competence. He retains a similar quantity for his own fields, ensuring seed integrity and consistency in crop performance. His disciplined agronomy has translated into tangible economic returns, with annual profits ranging from ₹3 to ₹4 lakh—a testament to what informed, small-scale spice farming can yield when aligned with best practices.

Beyond the furrows and terraces, Sreeram engages in private landscaping assignments, channeling his horticultural acumen into aesthetic and ecological designs.

Yet, his vision extends further. He envisions transforming his coffee estate into a farm tourism destination, where visitors can witness the intricacies of spice cultivation amidst the scenic expanse of Wayanad. With its undulating hills and sylvan charm, the region already beckons nature lovers; Sreeram's initiative may soon invite them into the rhythm of rural enterprise.

In Sreeram's journey, agriculture is neither static tradition nor a mere occupation, it is an evolving dialogue between science and soil, ambition and ancestry.



THE REMARKABLE RISE OF MAHESHGOWDA'S PEPPER ESTATES

In the mist-cloaked hills of Chikkamagalur, where the scent of coffee blossom wafts through dense canopies, a planter's journey has quietly become a lodestar for the Malnad region. Maheshgowda I. M., exemplifies how tradition, innovation and persistence can converge to redefine agricultural success.

This legacy began with Malleshgowda, a visionary farmer who cultivated a large tract of wetland and plantation with quiet dedication. Inspired by his passion for the land, his three sons- Nageshgowda, Maheshgowda and Purnesh-joined hands after completing their education to carry the family's agrarian heritage forward. Together, they expanded their holdings, eventually dividing them so that each brother managed nearly 200 acres. As they transitioned much of the land to coffee and black pepper plantations, they laid the foundation for a profitable, sustainable cropping system.

At the turn of the century, the brothers introduced a key innovation: the vertical

integration of black pepper vines on existing shade trees like silver oak and arecanut within coffee estates. This agroforestry model optimized land use, improved biodiversity and significantly boosted returns. Among the trio, Maheshgowda emerged as the torchbearer of scientific farming. He manages two vast estates-Malleswara in Chikkamagalur and Nandipura in Mudigere-totaling 200 acres.

Maheshgowda's approach is marked by a commitment to lifelong learning. He actively participates in training programs by ICAR-IISR, Appangala, as well as the Spices Board and Coffee Board. Initially harvesting 10-15 tonnes of black pepper annually, he sought expert guidance to enhance productivity. His collaboration with Dr. S. J. Ankegowda of ICAR-IISR proved pivotal. After a thorough assessment of local rainfall, cropping patterns and land conditions, the scientists recommended a comprehensive monthly regimen- improved planting methods, regulated shade, timely irrigation and the adoption of high-performing black pepper varieties.



Maheshgowda adopted every recommendation with precision. The results were dramatic. His black pepper yield soared to 35–50 tonnes annually, a testament to the transformative power of science-backed agriculture. His continued interaction with experts ensures that his practices remain productive, adaptive and environmentally sound.

His success has not only elevated his own standing but has inspired his brother Nageshgowda as well, who now harvests around 30 tonnes annually. Theirs is a story of how ancestral wisdom, when fused with scientific rigor, can produce extraordinary outcomes.

Maheshgowda's journey encourages young planters across Chikkamagalur to rethink cultivation as a conscious, informed and evolving enterprise. With knowledge, resolve and openness to change, he has transformed a conventional plantation into a vibrant model of sustainable success.



POOPPARA'S SUSTAINABLE SPICE REVOLUTION



The tribal hamlet of Pooppara, within the Parambikulam Tiger Reserve, in Kerala's Palakkad district, has emerged as an unlikely exemplar of ecological resilience and agricultural ingenuity. Home to 54 families of the Muthuvan community, this forest-bound village once depended almost entirely on pepper cultivation, a lifeline that stitched together their economy, culture and identity.

For decades, these farmers practiced organic agriculture, guided more by inherited wisdom than formal instruction. Their devotion to nurturing the land earned them an organic certification, aided by the Kerala Forest Department. Beyond pepper, they gradually embraced coconut, arecanut, kasturi turmeric, nutmeg and clove, an intentional diversification aimed at fortifying both the soil and their economic prospects. Of the 70 acres the community inhabits, 65 are dedicated to agriculture, each patch a testament to their profound bond with the ecosystem.

Yet, the promise of prosperity was disrupted when quick wilt disease, caused by *Phytophthora*, began decimating pepper vines. This fungal menace struck at the core of their livelihood, threatening not just income, but a way of life. The calamity was compounded by the devastating floods of 2018, which further destabilized an already vulnerable agricultural sector.

In response, the Department of Agriculture intervened, enlisting the expertise of the ICAR-Indian Institute of Spices Research (ICAR-IISR) in 2019. What followed was a quiet but transformative revolution. Scientists from ICAR-IISR and Kerala Agricultural University ventured into the village not with prescriptions but partnerships, engaging the Muthuvan farmers in participatory training programs. The intervention was timely and impactful. The farmers were trained on low-cost technologies of phyto-sanitation, shade regulation in plantations and biological control of diseases. The farmers of Pooppara, eager to learn and adapt, welcomed these changes wholeheartedly with the support of local leaders.

With active involvement from the Muthalamada Krishi Bhavan, a series of organic pest and disease management strategies were rolled out across the village. Organic crop health management solutions like PGPR (Plant Growth Promoting Rhizobacteria) capsules became part of their daily routine—a radical departure from their traditional, monoculture practices. Planting material of improved varieties of nutmeg were supplied by IISR and by planting 400 nutmeg trees and 100 clove trees a shift from mono cropping of pepper to a mixed agroforestry system was adopted.

In 2022, Pooppara earned statewide acclaim, winning the Kerala Agriculture Department's first prize for tribal organic farming. In 2023, the community's agricultural renaissance garnered national attention when ICAR-IISR bestowed upon them the prestigious Spices Excellence Award.

By reviving the land and reimagining their practices, the tribal farmers of Poppara have not only safeguarded their legacy but have cultivated a future rooted in sustainability and self-reliance.



IISR CARDAMOM SPECIAL PROVES A GAME-CHANGER IN IDUKKI

Farming amidst the undulating hills of Idukki has always been a formidable task. Depleted soils, erratic monsoons and escalating input costs have long plagued the region's tribal cultivators, particularly those reliant on cardamom—often revered as 'green gold.' Yet, amidst these perennial challenges, a quiet agricultural revolution is unfolding.

In the cardamom-growing hamlets of Pettimudi and Rajakkad, farmers are beginning to witness an extraordinary turnaround. Their crops are healthier, the capsules more robust and yields noticeably higher. At the heart of this transformation lies an innovation developed by the ICAR- Indian Institute of Spices Research (IISR), Calicut, IISR Cardamom Special, a targeted micronutrient formulation.

The catalyst for this change was a strategic memorandum of understanding (MoU) between ICAR-Krishi Vigyan Kendra (KVK), Idukki and ICAR-IISR, enabling the local production and dissemination of the micronutrient mix. Spearheaded by Dr. R. Marimuthu and Ms. Manju Jincy Varghese, the KVK team introduced this foliar spray to a pilot group of progressive farmers.

Among them are farmers like Mr. Vadakkal Benoy Varghese, who initially applied the mix on a limited portion of his land. "I had never witnessed such vigorous growth before. The plants appeared healthier, the capsules were larger and more plentiful. Encouraged by the outcome, I extended its use to my entire three-acre holding," he shared.

Farmers in Idukki reap benefits with innovative Cardamom Special Technology

The nutrient mix is developed by the ICAR-Indian Institute of Spices Research and can be applied as a foliar spray. Specialist says it is an ideal solution for the challenging terrains of Idukki, where soil fertility is often low. The mix has also proven to be cost-effective and environmentally sustainable

Sandeep Vellaram
IDUKKI

Cardamom farmers in Idukki are embracing an innovative nutrient mix, developed by the ICAR-Indian Institute of Spices Research (IISR), and the results are promising. This mix, called Cardamom Special Technology, promoted by the ICAR-Krishi Vigyan Kendra (KVK), Idukki, is helping farmers reduce production costs while ensuring premium-quality cardamom capsules.

Vadakkal Benoy Varghese, a farmer from Rajakkad, started using this mix on one acre of his plantation last year as a trial. The result, he says, was remarkable, with healthier plants that had lush foliage, increased flowering,

and high-quality capsules. "I am now planning to expand its use across my entire three-acre plantation," he adds.

The technology addresses key nutritional gaps in cardamom cultivation, explains Manju Jincy Varghese, subject matter specialist (soil science), ICAR-KVK, Idukki.

"In Idukki, the overuse of fertilizers has become a matter of concern. Farmers often follow recommendations from pesticide shop owners without proper guidance, leading to increased costs, nutrient imbalances, and environmental harm," she says.

"Cardamom plants often face issues like nutrient deficiencies of potassium, magnesium, zinc, and boron, which affect their growth and productivity.



Vadakkal Benoy Varghese, a cardamom farmer in Rajakkad in Idukki, now uses Cardamom Special Technology on his entire plantation. SPECIAL ARRANGEMENT

This special mix that can be applied as a foliar spray is an ideal solution for the challenging terrains of Idukki, where soil fertility is often low. The mix has also proven to be cost-effective and environmentally sustainable," adds Ms. Varghese. Ms. Varghese says that the IISR Cardamom Special provides a

balanced mix of essential micronutrients when applied as a foliar spray. "This cost-effective solution enhances nutrient uptake, promotes plant growth, and boosts yield quality. At just ₹220 per kilogram, with a recommended dosage of 1 kg per 200 litres of water, farmers can spray it 2-3 times a year



Cardamom plants face issues like deficiencies of potassium, magnesium, zinc, and boron. This mix that can be applied is an ideal solution

MANJUJINCY VARGHESE
ICAR-KVK

to meet the plant's nutritional needs efficiently. The mix is available at ICAR-KVK, Santhanpara," she adds.

Location-specific tech

R. Marimuthu, senior scientist and head of ICAR-KVK, Idukki, emphasised the broader impact of this innovation: "The success of the IISR Cardamom Special underscores the value of location-specific agricul-

tural technology. Beyond improving yields and profitability, it has revived interest in cardamom cultivation as a sustainable livelihood option in the district."

Sunny M.K., a farmer from Rajakumari, near Neddumkandam, also vouched for the special mix.

"I manage a five-acre cardamom plantation, and high production costs were a major challenge. I initially applied the IISR Cardamom Special on a smaller plot, and the result convinced me to expand its use across my entire plantation. By replacing other foliar fertilizers altogether, I have significantly cut costs while improving earnings. Encouraged by my success, two of my friends have now adopted the technology too," he says.



Empirical data corroborates these claims, field trials have demonstrated a 20–25% surge in yields. The capsules are heavier, more uniform and command a premium in the market. With a price tag of ₹220 per kilogram the formulation is an economically viable option for farmers.

Unlike conventional fertilizers, which often overlook essential micronutrients, IISR Cardamom Special is scientifically formulated to address specific deficiencies commonly seen in cardamom—potassium, magnesium, zinc and boron. This precise supplementation promotes better tillering, enhanced capsule set and significantly improved yield quality and quantity.

Moreover, this innovation supports a paradigm shift toward sustainable agriculture. Several farmers report a reduced reliance on chemical fertilizers and a renewed interest in eco-conscious practices.

As word spreads, KVK Idukki is scaling up the initiative to other tribal regions across the district. For the farmers of Idukki's remote and rugged terrains, the availability of specialized products like IISR Cardamom Special near their location is also a boon to transform their cardamom cultivation.





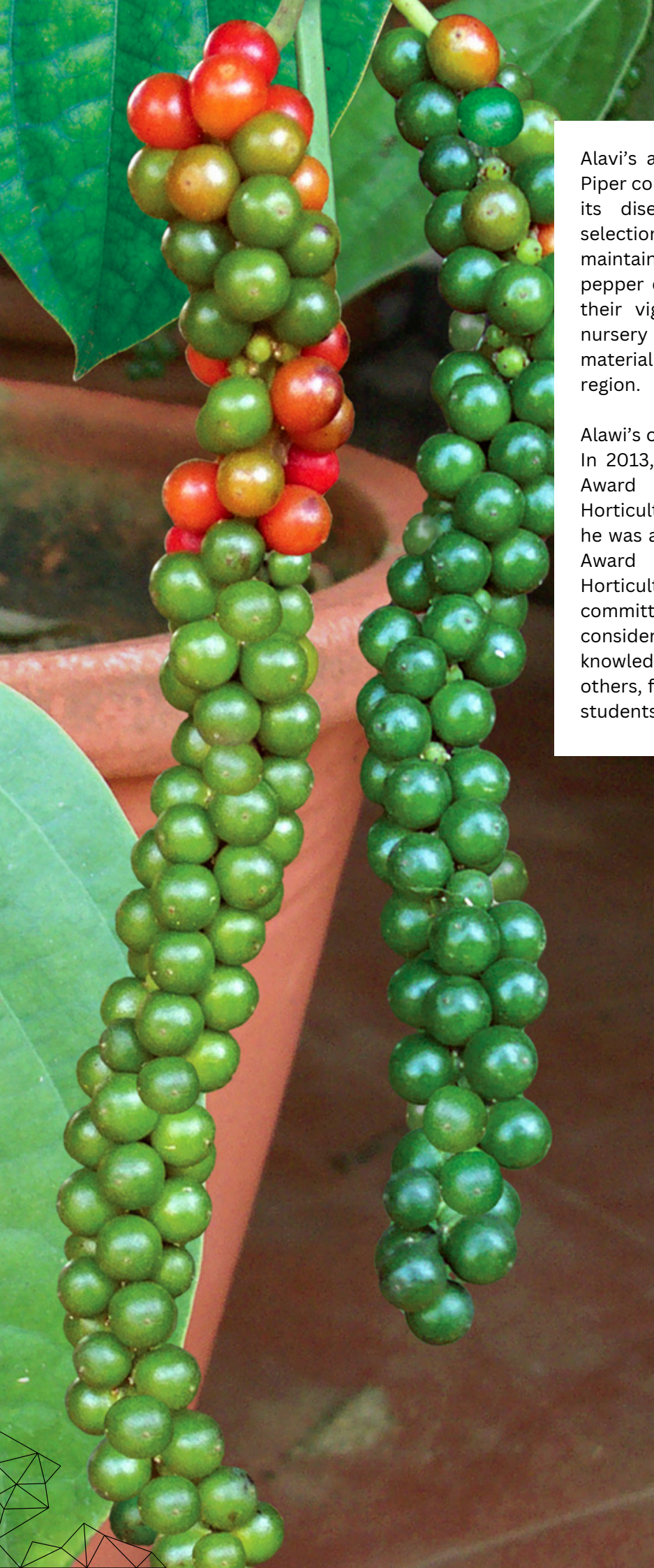
THE BUSH PEPPER MAESTRO OF WAYANAD

In the highlands of Wayanad, a quiet revolution in spice cultivation has been unfolding for over a quarter of a century. At its helm is Mattil Alavi, a name that has become almost synonymous with bush pepper in Kerala's agricultural circles. With a singular dedication to this unconventional form of pepper cultivation, Alavi has transformed not just his own fortunes, but also the very approach to spice farming in the region.

It was in 1996 that Alavi's journey with bush pepper began, an encounter sparked not by design but by curiosity. Until then, his focus had been on ginger, a common crop in the hilly terrains of Wayanad. However, a chance visit to an agricultural exhibition on the sands of Calicut beach introduced him to the concept of bush pepper.

The concept of bush pepper sparked his interest immediately and made him realize that this unique cultivation method, which allows black pepper to grow in limited space, held great potential, especially for small-scale farmers like him.

Determined to learn more, he reached out to the ICAR-Indian Institute of Spices Research (ICAR-IISR) in Kozhikode. There, under the guidance of scientists, Alavi began to understand the science and practice behind bush pepper production. Through regular study visits, interactions, and hands-on training, his expertise in bush pepper production improved over time. Soon, he established a 40-cent bush pepper nursery on his land. Alavi's depth of practical knowledge and experience now places him in front of university students and researchers, to whom he delivers training sessions and live demonstrations.



Alavi's approach involves grafting pepper on *Piper colubrinum*, a robust rootstock known for its disease resistance. Through years of selection and experimentation, Alavi now maintains over 16 different varieties of bush pepper on his farm. His plants are known for their vigour and consistent yields, and his nursery remains a trusted source of planting material for aspiring pepper growers in the region.

Alavi's contributions have not gone unnoticed. In 2013, he received the National Innovation Award from ICAR-Indian Institute of Horticultural Research, Bengaluru. Before that, he was awarded the Best Bush Pepper Farmer Award in 2008 and the District's Best Horticulture Farmer Award in 2007. Alavi is committed to share what he has learned. He considers it a responsibility to pass on his knowledge of bush pepper cultivation to others, freely offering guidance to farmers and students alike.



SALEEM'S JOURNEY OF HEALING, FARMING, AND ORGANIC FAME



Now 74, Mr. Saleem from Kodungallur in Thrissur has turned a personal healing experience into a passionate mission to grow and promote the power of turmeric. . What began as a desperate search for a cure has evolved into an enduring crusade to popularize the turmeric as a way of life. Years ago, struggling with skin condition that refused to heal, Saleem found solace in turmeric. Convinced that the golden spice was the key to his recovery, he dedicated himself to promoting its health benefits and cultivating it organically. Saleem is not new to business.

No stranger to enterprise, Saleem had already spent over three decades in the timber trade and continues to operate a furniture processing unit from his home. Yet, it was fifteen years ago that he embarked on an altogether different journey - one rooted in the earth and driven by belief. Starting with a local turmeric variety on just 1.5 acres, his initial harvests were modest. But everything changed in his third year of farming.

It was then that he discovered IISR Prathibha and IISR Pragati, two high-curcumin turmeric varieties developed by the ICAR-IISR. Enchanted by their promise, Saleem procured authentic seed material and transitioned wholeheartedly to these improved lines. Today, he cultivates turmeric on nearly seven acres annually, harvesting an impressive 10–11 tonnes of fresh turmeric per acre - a yield that converts to around 2 tonnes of turmeric powder per acre.

Unlike many farmers who sell their produce in bulk to institutional buyers, Saleem has tapped into the premium retail market by processing his turmeric and selling it as powder. His business model focuses on quality and uniqueness. He produces two varieties of turmeric powder, one made from steamed turmeric, with a shelf life of about two years, and the other made by sun-drying fresh turmeric. The steamed version is sold at ₹550 per kilogram, while the powder from sundried fresh turmeric fetches a premium price of ₹750 per kilogram.

Saleem's commitment to organic farming and turmeric promotion has earned him not just a loyal customer base but also some celebrity attention. A chance encounter at an All India Radio program introduced him to a wider audience, including celebrities from film field and performing arts. Today, Saleem supplies turmeric powder regularly to many of these celebrities, who are only eager to endorse his products.

He counts among his clientele, political leaders, ministers, actors and artists, several of whom have visited his fields in admiration.

As one drives toward his home 'Kattakath house', the road is lined with lush, organic turmeric fields on both sides. More than a farmer, Saleem has become a turmeric evangelist, often seen advising people on the health benefits of turmeric with the same conviction that once led him to healing.

Convinced that the golden spice was the key to his recovery, Saleem dedicated himself to promoting its health benefits and cultivating it organically.





MISTY HIGHLANDS, RESILIENT SPIRIT: PREMA GANESH'S GREEN LEGACY

In the misty highlands of Kodagu, Karnataka, where coffee and pepper vines flourish under the watchful shade of silver oaks, a quiet yet powerful revolution is underway. At its heart is Mrs. Prema Ganesh, a progressive farmer from Maragodu village, who has redefined the role of women in agriculture with grit, vision and scientific acumen.

A graduate of Teresian College, Mysore, Mrs. Ganesh assumed responsibility for her family's 10-hectare plantation of coffee, black pepper, cardamom and arecanut over twenty years ago. The initial years were fraught with declining productivity, pest infestations and market uncertainty, challenges that almost rendered the enterprise unviable.

The turning point came when she attended a seminar on spice cultivation organized by ICAR-IISR, Regional Station, Appangala. Inspired by the scientific insights, she invited IISR experts to her farm.

Their assessment revealed key constraints—overcrowded planting, poor basin management and spike shedding in black pepper. Acting on their recommendations, she undertook a comprehensive overhaul: optimizing plant spacing, adopting organic manures and micronutrients, introducing basin irrigation, regulating shade through pruning and practicing precise pest and disease management using Bordeaux mixture and copper-based fungicides. Her unwavering adherence to these scientific practices paid off. Today, she harvests 10–12 tonnes of black pepper annually, earning a net profit of approximately ₹3.5 lakhs per acre, at testament to the potential of informed, sustainable agriculture. A champion of eco-friendly practices and innovations, Mrs. Ganesh constructed rainwater harvesting pits that also serve as composting units for farm residues. She enriches soil fertility using 20 loads of composted coffee husk mixed with cow dung and Trichoderma, drastically cutting input costs.

A well-laid underground irrigation system ensures year-round water availability, while the development of internal motorable roads has eased the physical burden on plantation workers.

Her estate is home to high-performing cultivars such as IISR Thevam, Arka Coorg Excel and Panniyur-1. With a meticulous, hands-on approach to every aspect of farm management, she embodies the modern face of Indian agriculture- innovative, sustainable and inclusive.

Recognized for her exemplary work, Mrs. Ganesh has received accolades from ICAR institutes, state departments and planter associations. Most recently, she was honored with the prestigious State-Level Krishi Pandith Award for 2023-24. Mrs. Prema Ganesh's journey is a compelling narrative of transformation where knowledge met perseverance and tradition embraced technology. Her story underscores the vital role of empowered women in reshaping Indian agriculture and stands as an inspiring blueprint for sustainable rural development.

She harvests 10–12 tonnes of black pepper annually, earning a net profit of approximately ₹3.5 lakhs per acre



GOLDEN TRANSFORMATION: BOOSTING FARMER INCOMES WITH PRAGATI TURMERIC IN ASSAM

For generations, the fertile fields of Boko Block in Assam's Kamrup district told a story of untapped potential. While tribal communities had cultivated spices like black pepper, turmeric, and ginger for centuries, these crops remained confined to subsistence farming. Farmers possessed traditional knowledge but lacked technical expertise and market connections to transform their practices into profitable enterprises. Their fields remained underutilized, serving primarily household needs rather than generating meaningful income.

This scenario changed dramatically when a collaborative intervention brought together Tata Trusts, ICAR-Indian Institute of Spices Research, and the Centre for Microfinance and Livelihood. Their vision was to unlock Boko Block's agricultural potential by providing farmers with tools, knowledge, and market access needed to transform traditional spice cultivation into thriving commercial ventures.



An Initiative of **TATA TRUSTS**

The breakthrough came with 'IISR Pragati', a revolutionary turmeric variety developed by ICAR-IISR scientists. This high-yielding cultivar promised superior productivity and the vibrant color and quality characteristics modern markets demand. In 2023, demonstration plots were established across selected farms using 1,000 kilograms of Pragati seed material to showcase the variety's potential. Results exceeded expectations. Farmers witnessed how scientific breeding dramatically improved traditional crops, while market response to high-quality turmeric was overwhelmingly positive. The vibrant color, superior yield, and excellent processing qualities immediately caught buyers' attention, creating unprecedented demand for locally grown turmeric. Encouraged by this success, the program expanded significantly in 2024, distributing 2.5 metric tonnes of seed material to more participating farmers.

The transformation was quantifiable and impressive. Farmers adopting Pragati variety reported average yields of 2.8 metric tonnes per hectare, commanding prices between ₹30-40 per kilogram—substantial improvements over traditional varieties. Success extended beyond better seeds through comprehensive support via hands-on training sessions by experts from CML, ICAR-IISR, KVK Kamrup, and the Spices Board. Educational programs covered optimal planting methods, scientific nutrient management, efficient water systems, proper mulching techniques, and crucial post-harvest practices that reduced losses and improved quality.

Recognizing sustainable success required reliable market access, the existing Pragati Farmer Producer Organization expanded from black pepper to support turmeric growers. The FPO committed to purchasing three metric tonnes directly from farmers, ensuring stable pricing and eliminating uncertainty. To add value, the FPO secured essential processing equipment from the Spices Board—boilers, slicers, washers, and polishers—minimizing

post-harvest losses while improving shelf life and quality for higher-end markets. Today, turmeric cultivation in Boko Block represents remarkable transformation from subsistence farming to commercial agriculture. What was once backyard activity has evolved into promising income-generation opportunity, demonstrating how improved varieties, scientific knowledge, and market integration can unlock agricultural potential and transform rural livelihoods.



ECONOMICS SCHOLAR CULTIVATES ENTREPRENEURIAL SUCCESS IN AGRI-BUSINESS



At just 21, Helen T. Nabeel has mastered the rare art of balancing rigorous academic pursuits with the dynamic world of agripreneurship. A postgraduate Economics student at John Mathai Centre, University of Calicut, Helen defies conventional trajectories by steering a flourishing agricultural enterprise - Zingiber Agrotec - while pursuing her higher studies.

Helen's agrarian journey germinated in 2021, the year she turned 18, inspired by her father, Mr. Abdul Nabeel P., a seasoned ginger cultivator from Meppayur. Fueled by an innate passion for farming and backed by generational wisdom, Helen secured a seed cultivation license for the high-yielding IISR Mahima ginger variety from the ICAR-Indian Institute of Spices Research. With 100 kilograms of certified planting material, Zingiber Agrotec took root.

Ambitious from the outset, Helen complemented the initial stock with an additional 1000 kilograms of IISR Mahima seed rhizomes sourced from authentic suppliers. Her inaugural harvest - an impressive 15 tonnes - became the cornerstone for a structured seed value chain model. In 2022, she engaged 15 contract farmers for seed multiplication, thus ensuring a scalable and sustainable supply pipeline.

A postgraduate Economics student at John Mathai Centre, University of Calicut, Helen defies conventional trajectories by steering a flourishing agricultural enterprise - Zingiber Agrotec

What began as a modest endeavour has now blossomed into a robust enterprise. Zingiber Agrotec currently caters to seed ginger demands across 14 Indian states, including key pockets in the North East. The venture has diversified, venturing into tuber crop production in collaboration with the ICAR-Central Tuber Crops Research Institute, Trivandrum and has also embarked on cinnamon cultivation through a dedicated nursery in Meppayur.

Operating on a hybrid business model, Helen runs the enterprise remotely from Bengaluru, aided by real-time camera surveillance, periodic site visits and a lean but effective team comprising a full-time manager and two staff members. On-ground operations, including planting and harvesting, are executed through strategic contract labor.

Despite her academic commitments, Helen's enterprise has handled transactions exceeding ₹5 crore, a testament to her meticulous planning, entrepreneurial foresight and exceptional time management.

In an era where young minds often seek direction, Helen T. Nabeel stands as an exemplar of self-driven success - harmonizing intellect with innovation and proving that age is no bar when vision is clear and roots run deep.



NO FARM, NO CLUE? NO PROBLEM!!

AGRIBLOSSOM IS THE STARTUP VENTURE BY CLASSMATES ROHITH AND LIBIN.

Once novices in the world of agriculture, two engineering graduates from Kerala, Rohith B. G. and Libin N. K are now at the forefront of a transformative agri-startup journey. Their venture, Agriblossom, did not emerge from conventional farming roots, but rather from the ashes of an early business failure and an unwavering passion for clean food. “Back then, we didn’t even know what a startup pitch deck looked like,” says Libin N K, co-founder of Agriblossom. Alongside his college buddy, Rohit B G, the two Kerala-based engineers-turned- entrepreneurs went from completely unrelated careers - electronics and medical, to shaking up India’s agri-scene.

The journey started with a flop. “We tried delivering toxin-free food online,” says Rohit. “Amazon had just landed in India, and we thought we’d ride the wave. But... high costs, low demand and it crashed fast.” Still, the duo couldn’t shake off their passion for healthy food. That failure just redirected their path to farming.

That’s when they stumbled into agriculture. “If selling clean food doesn’t work, what if we help grow it instead?” That was our logic, says Libin. But with zero agri-background, they needed help. That was when ICAR-IISR Kozhikode and its Agribusiness Incubator (ABI) came up. The support was unreal, says Rohit. “They didn’t just give us advice, they gave us labs, training, even connected us to banks!”

“We just brought a little professionalism to farming, It’s not about knowing it all, it’s about being willing to learn, fail, and grow. What we did was to act as a bridge between research and farmers.”



With training in micronutrient formulation, Rohith and Libin launched micronutrient formulations for banana, pepper, and ginger. “We invested Rs. 15 lakhs,” says Libin. “And we made it back in six months. That was the moment we knew we were onto something real.” From farm visits and exhibitions to digital ads and word-of-mouth, Agriblossom built a growing network of loyal farmers. Today, these two friends turned partners work with over 2,000 farmers and 60+ institutions.

With a turnover of Rs. 4 million and employment opportunities for more than 20 people, they’ve proven that even outsiders can bloom in agri-biz, with the right grit, and the right guides.

“We just brought a little professionalism to farming, It’s not about knowing it all, it’s about being willing to learn, fail, and grow. What we did was to act as a bridge between research and farmers.” And that’s Agriblossom: born from a failed idea, bloomed through perseverance, and growing stronger every season.

“For us, coming from the IT and medical sectors, the agricultural field was a complete wonder”

What they sell?

- Biocapsules
- Microbial Formulations
- Micronutrients
- Seed Materials



www.agriblossom.in



THE ‘TURMERIC MAN’ OF HIMACHAL PRADESH

In the verdant folds of Himachal Pradesh’s Kangra district, where the Dhauladhar ranges cast long shadows over rustic hamlets, a remarkable transformation is unfolding, led by a 75-year-old retired Colonel. Prakash Chand Rana, revered today as the ‘Turmeric Man’ of Himachal, has rewritten the narrative of post-retirement life with soil-stained hands and golden-hued dreams.

After dedicating 43 years to the Indian Army and retiring as a Colonel, Prakash Chand Rana returned to his native village of Soharan in Himachal Pradesh’s Kangra district to begin a new journey in farming. While many would have opted for the comfort of a city post-retirement, Colonel Rana was drawn back to the land he grew up on, motivated by a desire to engage with agriculture.

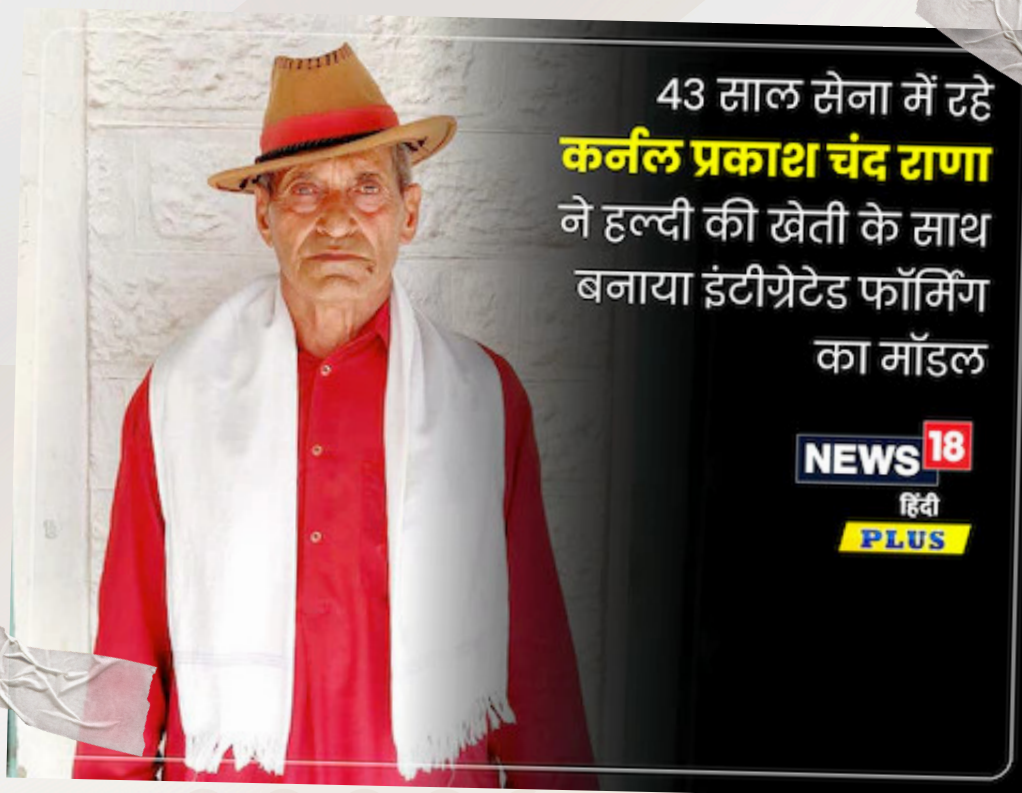
His crop of choice, Turmeric was unconventional for the region. In a region where stray cattle and wild animals frequently destroy crops, turmeric offered a practical advantage. But this decision wasn’t made on a whim. For three years, Colonel Rana immersed himself in learning everything he could about turmeric, with a level of diligence and thoroughness, he had nurtured from his days in the armed forces. He travelled extensively, visiting leading turmeric-growing states such as Andhra Pradesh, Tamil Nadu, Kerala, and areas in Northeast India. Along the way, he connected with experienced farmers and scientists at the ICAR-Indian Institute of Spices Research, who helped him choose the IISR Pragati variety, known for its high yield and shorter growing period of about seven months.

From one tonne of seed, Rana's maiden harvest yielded an astounding 25 tonnes- a testament to diligence, discipline and empirical precision. The success drew the attention of state agricultural departments, and soon, seeds from his farm were being distributed to encourage turmeric cultivation across Himachal Pradesh. Shortly he opened up his farm to train young people directly, eventually mentoring more than 700 individuals in turmeric cultivation.

He is a staunch advocate for curcumin-rich turmeric, cautioning cultivators against substandard varieties with less than 4% curcumin. His commitment extends from cultivation to processing, where he rejects middlemen in favor of value addition. Every batch is processed in-house, yielding an artisanal range of products- organic turmeric, medicinal honey and piquant pickles- that are celebrated for their purity and shelf life.

His 60-acre estate is a microcosm of ecological harmony. From apiary and indigenous poultry to medicinal plant cultivation and hardwood forestry, Rana has architected an ecosystem of sustainable abundance. He rears livestock, integrates horticultural diversity and envisions turmeric varieties enriched with up to 10% curcumin.

Today, his farm employs over 20 individuals, supporting five families who help craft his signature condiments. At an age when most retreat, Colonel Rana advances- his connection to the earth deepening, his influence expanding. Colonel Prakash Chand Rana exemplifies how purposeful reinvention can yield not only personal fulfilment but also communal prosperity



FROM KITCHEN TRIALS TO TURMERIC TRIUMPH: THE RISE OF 'HOME TO HOME'

Amid the uncertainties of the 2020 lockdown, when most were confined to routines of survival, Geetha Saleesh from Thrissur was quietly crafting a revolution, one spoonful of turmeric at a time. What began as a modest culinary experiment evolved into 'Geetha's Home to Home', a flourishing enterprise rooted in the transformative potential of turmeric.

Her flagship product, Curcumeal, a health-boosting superfood supplement, was the result of two years of research into turmeric value addition. Through this journey, Geetha discovered the incredible benefits of high-curcumin turmeric varieties, especially IISR Prathibha, developed by ICAR-IISR. This led her to secure a license for large-scale cultivation in July 2022, planting the seeds for a sustainable turmeric value chain. Leveraging strong mentorship from the institute and with her own persistent efforts, she improved her product offering, making it an attractive choice in the crowded nutraceutical market. She also started cultivation of the variety IISR Prathibha, starting with 10 acres across Thrissur and Pathanamthitta.



Geetha's Home to Home works closely with 305 farmers, including 150 women, and collaborates with Farmer Producer Organizations (FPOs)

Today, Geetha's Home to Home works closely with more than 300 farmers, including 150 women, and collaborates with Farmer Producer Organizations (FPOs) to ensure consistency and quality. The team also offers regular training, both online and offline to farmers, creating a strong foundation for sustainable growth. Within a year, the brand's products had reached major retail chains and found shelves in states including Kerala, Karnataka, Maharashtra, Delhi, and Jammu & Kashmir. The venture now employs 30 people in production and marketing and continues to grow in a robust manner. Geetha's inspiring journey has garnered national attention and a string of prestigious accolades, The Women's Manifesto Award 2022, Prajahitha International

Award 2022, Lions Club New Voices Excellence Award 2022, Manorama News Pentharam Award 2023, to name a few. Additionally, her flagship product Curcumeal was selected for the PACE Programme under the RKVY-RAFTAAR Agri-Business Incubation scheme, cementing its credibility as a high-potential startup. Geetha's efforts were nationally recognized when she was selected to exhibit her products at the 95th ICAR Foundation Day & Technology Day in July 2023. From a home-based idea to a national value chain model, Geetha's Home to Home has shown that passion, backed by science and community, can truly turn a humble root into gold.



Fig. Mrs. Geetha Saleesh receiving Kairali TV Phoenix award 2022 for her entrepreneurial activities

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Geetha's efforts were nationally recognized when she was selected to exhibit her products at the 95th ICAR Foundation Day & Technology Day in July 2023.

LESSONS IN THE VINES: A HEADMASTER'S SECOND ACT



In the serene highlands of Wayanad, Mr. Vilson C D, after superannuating from his career as a teacher from Chooralmala panchayat, has embarked on a quiet yet extraordinary second act, one rooted in soil, sweat and scientific curiosity. A man who once led classrooms with authority and insight now spends his days beneath the canopy of pepper vines with the same earnest dedication that once shaped young minds.

Vilson's agrarian aspirations took seed in the late 1990s when he acquired a three-acre plot in the lush terrains of Wayanad. Back then, the idea was a modest one: a peaceful life in retirement, cultivating coffee and black pepper. A loan from the Central Bank enabled him to establish the initial framework for his dream. A pivotal moment arrived during an exposure visit to ICAR-Indian Institute of Spices Research by the Meppadi Krishi Bhavan. The encounter was transformative. It awakened in him a profound appreciation for scientific innovation in agriculture.

No longer content with conventional methods, he began acquiring high-quality pepper vines directly from the institute, determined to cultivate not just crops, but knowledge.

His initial foray post-retirement began with the planting of 200 vines. Since then, he has expanded his holdings to an impressive 1,500 vines, encompassing all prominent IISR-developed varieties, in addition to the versatile Panniyur-1. The farm now yields an average of five quintals of dry black pepper annually- an astonishing feat for someone who delved into scientific cultivation in his seventies.

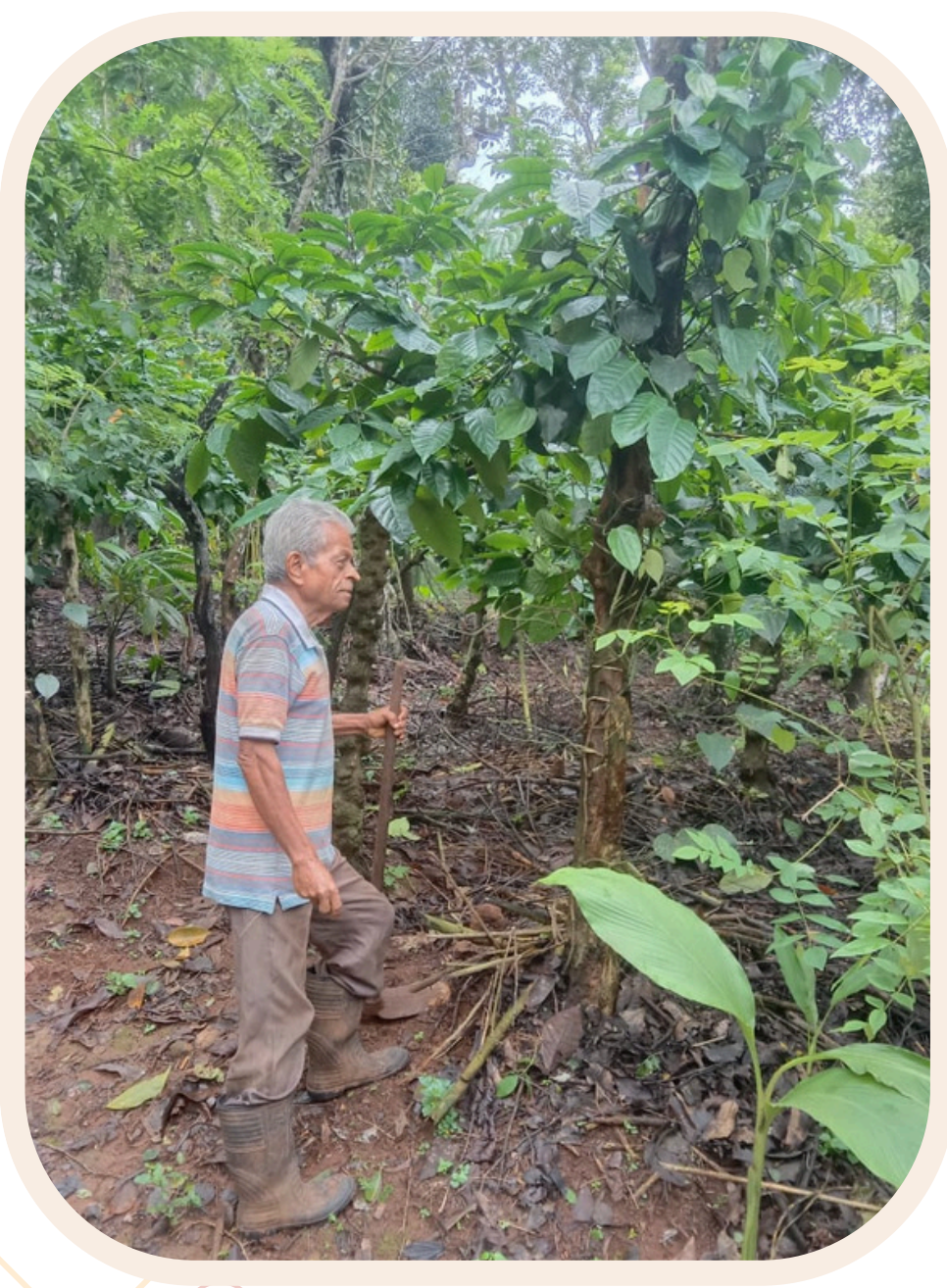
While Vilson employs two workers to assist with daily operations, he remains firmly at the helm. A teacher by temperament, he views his farm not just as a source of livelihood but as a living classroom. He imparts agronomic wisdom to fellow cultivators, encouraging the adoption of sustainable practices and varietal improvements.

Vilson maash to his acquaintance, his guidance is sought and valued, a testament to the respect he commands within the local farming community.

Yet, Vilson's journey has not been untouched by tragedy. He was witness to the Chooralmala landslide of 2024, which occurred just one kilometre from his home. He reflects with sadness on the loss, which was not only of lives but also of potential.

Many victims, he notes, were active in pepper cultivation, and he believes that if not for the disaster, Chooralmala could have emerged as a strong pepper-growing hub in the years to come.

Undeterred, Vilson continues to learn and adapt. Each pepper vine offers a new lesson; every harvest, a renewed sense of purpose. His story is not merely one of post-retirement activity, but of reinvention and resilience.





REDEFINING HILLSIDE FARMING IN MIZORAM: LALSANGPUII'S JOURNEY FROM JHUM TO JOY

For decades, Jhum cultivation, an age-old practice of shifting agriculture dominated the rugged terrains of Northeast India. Among its practitioners was 62-year-old Mrs. Lalsangpuii of Venglai, Thingdawl village in Mizoram's Kolasib district. Bound by tradition and the constraints of limited resources, she, like countless others in the region, laboured through slash-and-burn cycles that yielded meagre returns and left the soil increasingly barren.

But a quiet revolution took root in her fields when she enrolled in a training initiative spearheaded by the AICRP on Spices and ICAR-IISR, under its outreach mission for the North Eastern Hill (NEH) region. The programme illuminated a path previously uncharted for Mrs. Lalsangpuii, integrated farming systems that fused scientific innovation with indigenous knowledge.

Fascinated by the newfound insights, she embraced spice-based intercropping, transitioning her farm from subsistence Jhum to a diversified, sustainable model. She began with high-yielding varieties of ginger ('Bold Nadia') and turmeric ('IISR Pragati' and 'RCT-1'), both uniquely suited to the local agro-climatic conditions. Soon, her fields flourished not just with spices, but with complementary crops such as sweet corn, upland rice and *Acacia pennata*, forming a symbiotic mosaic of productivity.

Determined to make her farm more climate-resilient, she installed a jalkund, a rainwater harvesting pit, to ensure irrigation during dry spells and constructed a vermicomposting unit to produce nutrient-rich organic manure. The outcome was transformative: improved soil fertility, enhanced crop quality and significantly higher yields.

Venturing beyond cultivation, Mrs. Lalsangpuii stepped into value addition. By processing her turmeric into finely ground powder and marketing it under her own brand ‘Sangpuii Aieng’, she raised her enterprise from farmgate sales to niche consumer markets. The economic impact was swift and substantial. Her annual income surged to ₹3,68,243, a staggering leap compared to earlier years.

Her pioneering efforts were recognized on a grand stage when she was honoured with the ‘Best Innovative Farmer Award’ at the North East Krishi Kumbha in 2023. Yet, perhaps her greatest achievement lies in the ripple effect she has set off, igniting a wave of curiosity and change among fellow farmers in her community. Mrs. Lalsangpuii’s journey is a compelling testament to how science-led spice cultivation can sow the seeds of prosperity and inspiration.



TURMERIC REVIVAL IN BADE: A TALE OF RESILIENCE AND RENEWAL



For over twenty years, Venuh Evotso H. Keyho, Vekhruneyi Venuh, Khosato H. Keyho and Ranu Khamo of Bade village in Nagaland's Chumukedima district toiled on their five-acre farm, cultivating turmeric using a traditional local variety. Their annual yield hovered around 10 tonnes, modest yet steady, until the COVID-19 pandemic brought their efforts to a grinding halt. With markets shuttered and transportation networks paralyzed, their freshly harvested turmeric sat in limbo, rapidly deteriorating. The absence of post-harvest infrastructure or processing facilities only worsened the blow, leading to devastating losses. Disease-prone and low-yielding crops offered little consolation, casting a long

shadow over the future of turmeric cultivation in the village. But in 2021, things began to change, when the ICAR-All India Coordinated Research Project on Spices (AICRPS) intervened with a timely training initiative. The program introduced the farmers to IISR Pragati, a high-yielding and disease-tolerant turmeric variety developed by ICAR-Indian Institute of Spices Research (IISR). Beyond varietal improvement, the initiative equipped the growers with essential tools, spades, rakes, sprayers, neem oil, micronutrients and more crucially, knowledge. Hands-on training in scientific cultivation techniques, integrated pest management and rudimentary post-harvest handling empowered the farmers with skills previously out of reach.

Starting with 500 kg of IISR Pragati seed rhizomes and newly acquired agronomic insights, the group embarked on a new planting season in 2022. What followed was nothing short of a transformative miracle. Their turmeric harvest soared to 25 tonnes, an astonishing 150% increase from previous years, achieved without expanding the land under cultivation. More importantly, the paradigm shift from traditional methods to science-backed practices translated into tangible economic gains. The Bade Organic Turmeric Growers (OTG) group reported a net profit of ₹2,80,500 from the sale of fresh rhizomes, a milestone that marked not just financial revival but also restored dignity and optimism.

Yet, perhaps the most profound change was in their mindset. Exposure to quality planting material and the importance of timely disease control, proper rhizome storage and home-based processing instilled a newfound confidence. Riding this wave of success, the group now envisions establishing a small-scale turmeric processing unit in their village, an ambitious but promising venture that would allow value addition through turmeric powder production and open up new market linkages.

The story of Bade's turmeric farmers is no longer one of subsistence but one of abundant harvest and sustainable progress.





BUDS OF GOLD, WILL OF IRON: THE ELLICKAL CLOVE STORY

In 1977, when the daily wage of a farm labourer was a mere six rupees, the market price of a single kilogram of clove stood at an astonishing ₹640. For a visionary like Ellickal Joseph, this disparity wasn't just an economic fact, it was a turning point. The idea that selling just one kilogram of clove could offset an entire year's farm expenses sparked his lifelong pursuit of clove cultivation. What began as a profit-driven experiment eventually blossomed into one among the most prominent clove plantations in Kerala.

Nestled in the scenic Kavilumpara panchayat of Kozhikode district, Joseph's 30-acre plantation is now the epicentre of a thriving clove-growing community. Alongside clove, Joseph cultivates black pepper and coconut, maintaining a balanced and productive mixed farming system.



It was over 45 years ago that Joseph planted his first clove saplings, sourced from the Black Rock Estate in Nagercoil. Today, those initial saplings have multiplied into nearly 1,500 well-spaced trees, each planted more than 20 feet apart to allow for optimal growth. Though they demand minimal upkeep, harvesting cloves is a delicate task requiring precise timing. To ensure the health of the trees during harvest, Joseph's team uses aluminium ladders, carefully secured with ropes to avoid damaging the branches.

To reduce harvest-related challenges, Joseph's plantation became the pilot site for an innovative clove-harvesting technique introduced by the ICAR-IISR. A large-scale trial of a chemically induced bud-drop method was carried out on 500 trees in his estate. This novel approach drastically slashed harvesting costs from ₹350 to ₹66 per kilogram of dried clove. By eliminating the need for skilled climbers and enabling bud collection from shade nets on the ground, it addressed one of the most persistent labour issues in clove farming.

Continuing this legacy of innovation is Joseph's son, Shine Joseph, whose keen eye for

practical hurdles led to a breakthrough in post-harvest processing. The conventional method of separating clove buds from their stalks-entirely manual and dependent on up to 40 workers to process 600 kilograms per day- was both strenuous and unsustainable. In response, Shine invented India's first mechanized clove bud separator in 2018. Capable of processing up to 400 kilograms per hour, the machine has revolutionized post-harvest handling, rendering it faster, safer and scalable.

In 2023, Shine's innovation was honoured at the National Biennial Grassroots Innovation Awards conducted by the National Innovation Foundation (NIF)-India. With the support of the Grassroots Innovation Accelerator Program, he is now working towards commercialization of the machine for broader adoption by clove farmers.

From Joseph's foresight in the 1970s to Shine's engineering acumen decades later, the Ellickal family has not only cultivated cloves- they have cultivated change. Their intertwined legacies continue to inspire spice farming, making Kavalumpara synonymous to excellence in clove.





HARNESSING SCIENCE FOR SUSTAINABLE PEPPER PRODUCTION

“It is believed that the future of agriculture lies in the synergy between traditional knowledge and modern technology.” Farmers who grow perennial crops like black pepper face the challenge of limited variety replacement and climate stress. Yet, when science meets experience, success follows -as proven by Mr. Numan Adil and Mr. Mahamad Iqbal, two progressive farmers from Chickanahalli village, Belur Taluk, Hassan District, Karnataka.

The brothers inherited 86 acres of ancestral land and have dedicated their efforts to sustainable farming. Mr. Numan Adil, after completing his pre-university education, focused on cultivating Arabica and Robusta coffee across 80 acres, with black pepper as an intercrop. Initially, he struggled with pepper yields, harvesting just 4 tonnes from 40 acres.



A turning point came after attending a seminar organized by ICAR-IISR, Appangala. Following field visits and expert guidance from ICAR – IISR, a customized plant health schedule was developed. The transformation was profound. His pepper yield steadily rose to 15 tonnes in 2009-10, and 54 tonnes in 2022-23, getting the result of adopting improved crop and disease management strategies.

**‘Best Black Pepper Grower – 2022’ award from the
International Pepper Community**

Today, the brothers meticulously manages 16,000 pepper vines, trailing on silver oak and native trees ensuring annual replacement of unproductive vines to maintain vigour and consistency. The farm now averages 700-800 kg of dry black pepper per acre. His plantation includes several modern varieties of black pepper

The success is rooted in the methodical integration of scientific practices into day-to-day farming. Mr. Adil maintains regular irrigation schedules and strategically regulates shade to optimise growth conditions. His approach to nutrient management includes the application of compost, Trichoderma, neem cake, lime and NPK in a balanced manner. Diseases are effectively managed through the use of Bordeaux mixture, copper oxychloride and potassium phosphonate, while pests and nematodes are controlled under expert guidance.

Furthermore, the timely execution of planting, harvesting and blanching ensures that both yield and quality remain uncompromised.

Operating at an expenditure of ₹75,000 per acre, Mr. Adil now achieves a net profit of ₹2 lakh per acre, an extraordinary leap that demonstrates the potential of evidence-based agricultural innovation. Today, Mr. Adil serves as a mentor to numerous aspiring farmers, advocating a progressive vision where “technology is the bridge to the future of farming.”

His contributions have not gone unnoticed. In 2022, Mr. Numan Adil received the ‘Best Black Pepper Grower - 2022’ award from the International Pepper Community and was honoured by ICAR-IISR, Kozhikode in 2023. Mr. Adil believes that Technology is the critical cog in the farms of the future. His journey proves that with the right guidance and determination, traditional farms can thrive in modern times.

Traditional farms can thrive in modern times.



SOWING A GOLDEN LEGACY: THE PRAGATI PIONEER

When the turmeric variety was released in 2017, the institute was on the lookout for skilled farmers who could really help multiply this new turmeric and spread it widely. Enter Mr. Kasaraneni Prabhu Kumar, an enterprising farmer from Guntur district of Andhra Pradesh, who took a varietal license for IISR Pragati from ICAR-IISR. Both the variety and the licensee never looked back from then on. Working diligently, Mr. Prabhu Kumar was instrumental in the robust growth of area under the turmeric variety IISR Pragati across several locations. A man who knows the pulse of the turmeric farmers, the licensee partnership with Mr. Babu has given a fillip to the efforts of the institute for enhancing the area under modern varieties of the golden spice.

Prabhu Kumar shows how dedication and smart teamwork can really make a difference in farming. He's been a critical cog in making the 'IISR Pragati' turmeric variety a widely grown variety.

His contributions go beyond just having the license. The efforts of Mr. Prabhu Kumar has directly and indirectly effected an annual supply of at least 10,000 tonnes of planting material of the variety every year. This is not a trivial achievement. Besides supplying seeds, he's also an important source of processed turmeric, which is needed by industries for extracting curcumin. The turmeric produce from his farm is sought after by several intermediaries who cater to niche markets.

Prabhu Kumar knows the challenges and needs of turmeric farmers quiet well. His efforts have given a big push to he spread of modern turmeric varieties in the country.



WAYANAD'S GREEN HEARTBEAT: A FARMER'S RESILIENCE, A REGION'S HOPE

Amid the mist-clad hills of Wayanad, where ginger farming once flourished and later faltered under the weight of dwindling yields and rising pestilence, one man's unwavering determination has rekindled hope in the spice belt of Kerala, setting a new benchmark for sustainable agricultural practices. Mr. Sunny Thomas, from Madhavath House, has emerged as a hope for ginger farmers in the region, proving that innovation, resilience, and commitment to science-led approaches can breathe new life into traditional farming systems.

While many have moved away from ginger cultivation due to declining yields and mounting challenges, Sunny took a bold leap of faith. Determined to make a difference, he embraced modern technology and sustainable practices to overcome the hurdles that ginger farmers commonly face.

His journey began with the adoption of soil solarization, a technique used to control soil-borne pests and pathogens by harnessing the sun's energy. He further incorporated the use of biologicals for seed treatment and plant protection, ensuring eco-friendly solutions that safeguard both crop and soil health. Throughout, Sunny remained steadfast in his dedication to modern agricultural technologies while upholding strong principles of good agricultural practices (GAP), recommended by ICAR-IISR.

This approach has not only revitalized his farm but also helped him earn a premium price for his produce. His produce meets international quality standards, underscoring the potential of Wayanad's ginger to reclaim its rightful place in the market when cultivated responsibly.

In recognition of his efforts, Mr. Sunny Thomas was conferred the Spice Award by ICAR - Indian Institute of Spices Research (IISR) in 2020 for his outstanding role in promoting sustainable technology practices in ginger cultivation. This accolade not only honored his personal achievements but also highlighted the importance of innovation and sustainability in the spice sector.

Sunny's success story is more than just about personal triumph- it's a message to the wider farming community. It shows that with the right tools, training, and a willingness to adapt, even a struggling crop like ginger can once again become a viable source of livelihood. He stands today as an inspiration to farmers across Wayanad and beyond, proving that sustainable farming is not just possible, it is profitable.





FROM CITY DREAMS TO SPICE SUCCESS: THE ANITHA NANDA STORY

Like countless urban dwellers, Anitha Nanda harbored dreams beyond the city's bustling streets. Her heart belonged to Kodagu's misty hills, where childhood vacations to her native place left an indelible impression. Those visits to Coorg's lush coffee plantations weren't mere escapes—they planted seeds of a lifelong passion that would transform her from city resident into one of the region's most accomplished agricultural entrepreneurs. The rolling hills adorned with coffee plants and the intoxicating aroma of ripening cherries created lasting memories. What began as innocent childhood fascination gradually evolved into a deep calling that shaped her future. Marriage presented the golden opportunity she awaited—a chance to permanently return to Coorg's enchanting landscape and pursue her agricultural dreams.

For 37 years, Anitha has been intimately involved in every aspect of her Somwarpet plantation, transforming from novice to master through hands-on experience and unwavering dedication. Initially, her venture centered on the traditional combination of coffee and black pepper, with intercropping systems allowing pepper vines to climb coffee plants in efficient symbiosis.

However, 2013 brought a devastating wake-up call. Wilt disease swept through her plantation, destroying 3,000 to 4,000 pepper vines. This catastrophic loss became a profound learning experience highlighting the critical importance of scientific methods in modern agriculture. Rather than viewing disaster as defeat, Anitha chose to see it as an opportunity for transformation.

Determined to rebuild on stronger foundations, she partnered with ICAR-Indian Institute of Spices Research Regional Station at Appangala. This marked her formal education in scientific agriculture through regular training sessions, extensive interactions with agricultural scientists, and frequent research station visits that revolutionized her cultivation approach.

Armed with scientific knowledge, Anitha introduced disease-resistant pepper varieties including IISR Thevam, IISR Shakti, and IISR Girimunda. She adopted IISR Pepper Special, a scientifically formulated nutrient mix that dramatically improved plant health and productivity. Results were immediate—plants exhibited enhanced vigor, better disease resistance, and significantly increased yields.

Recognizing her success's broader impact, Anitha expanded operations to include a nursery specializing in improved varieties, providing high-quality plants to fellow farmers. Her plantation now serves as a model of scientific intercropping, demonstrating how traditional wisdom enhances through modern innovation.

Never content with achievements, Anitha ventured into beekeeping with eleven Cerana bee colonies, understanding the symbiotic relationship between bees and coffee. The gentle buzzing throughout her plantation symbolizes her complete transformation from city dreamer to agricultural innovator.

In 2020, ICAR-IISR recognized her outstanding contributions with the Best Spice Farmer Award, validating her approach and positioning her as inspiration for farmers combining traditional knowledge with modern scientific methods.



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For 37 years, Anitha has been intimately involved in every aspect of her plantation, transforming from novice to master through hands-on experience and unwavering dedication.

SOWING TRUST, GRAFTING SUCCESS: THE NIRAPPEL NUTMEG STORY



In the heartland of Mannuthy, near Thrissur, revered as Kerala's nursery capital, a quiet revolution in spice propagation has taken root. Paulson Thomas, a visionary cultivator with an eye for quality and a penchant for perseverance, chose to diverge from the well-trodden path when he established Nirappel Nursery. At a time when many depended on plant stock sourced from beyond state borders, Paulson embraced the more arduous route: cultivating every sapling from the soil up. Focusing his expertise primarily on nutmeg (*Myristica fragrans*), Paulson curated a meticulously maintained mother garden comprising elite trees, ensuring a consistent

supply of genetically superior planting material. Today, his nursery stands as a paragon of excellence, producing over one lakh grafted nutmeg plants annually and earning the trust of growers across Kerala. His enterprise has since expanded to include other high-demand tropical species such as jackfruit, rambutan and more. Years of tireless fieldwork have rendered Paulson an authority in budded nutmeg plant production. His deep-rooted understanding of the crop has culminated in the development of two exclusive cultivars - Golden Nutmeg and Sri Lankan Nutmeg, both of which enjoy considerable popularity among cultivators and are available solely through his nursery.

Key to the nursery's sustained success is a dedicated bud wood bank, housing superior grafting material maintained with scientific precision. A committed team of skilled women staff forms the operational backbone, executing propagation protocols with dexterity and devotion. Complementing this is Paulson's rigorous strategy for rootstock development, annually sourcing nearly four tonnes of wild nutmeg seeds from the biodiversity-rich forests of Idukki. This infusion of genetic diversity not only strengthens the rootstock but also contributes to the conservation of native nutmeg germplasm.

What sets Nirappel Nursery apart is not merely its scale or success, but its steadfast commitment to farmers. With a farmer-centric ethos, the nursery provides personalized advisory services, cultivation guidance and hands-on training to clientele. Paulson himself frequently engages with farmers, demystifying cultivation techniques and recommending appropriate varieties based on regional requirements. For those unable to visit the nursery, a reliable home delivery service ensures timely and convenient access to planting materials.

Further amplifying the credibility of his enterprise is his official licensing to propagate IISR-Vishwashree and Keralashree, elite nutmeg varieties developed by ICAR-Indian Institute of Spices Research (IISR). This collaboration underscores the scientific rigor behind Paulson's practices and reinforces the institution's endorsement of his contribution to the spice farming community.

In cultivating a legacy rooted in quality, trust and sustainability, Paulson Thomas has transformed Nirappel Nursery into more than a commercial venture, it is a beacon for Kerala's nutmeg growers and a testament to what passion and persistence can yield when paired with purpose.





FIELDS OF HOPE: A TURMERIC REVOLUTION IN WAYANAD'S FOREST FRINGE

In the serene foothills of Wayanad, where forest whispers intertwine with the rustle of cultivated land, a quiet transformation is happening. The villages of Chakkittappara and Pannikkottur, though secluded from the bustling arteries of Kozhikode, have emerged as unlikely epicenters of a burgeoning turmeric revival, fueled by the synergy of community spirit and scientific intervention.

At the heart of this metamorphosis are two farmer collectives, Varada Kanthi and Gramasree, forged through the Scheduled Caste Sub Plan (SCSP) initiative spearheaded by ICAR-IISR, Kozhikode. These groups were formed with a vision: to embed structured, sustainable group farming practices among SC farmers and, in the process, rekindle agricultural optimism in a region long overlooked.

What began as a series of modest dialogues and awareness meetings soon blossomed into a comprehensive and meticulously orchestrated program. Training modules, field demonstrations and persistent on-ground mentoring became the bedrock of this initiative. At its core was IISR Pragati, a high-yielding turmeric variety developed by the institute, which was distributed to the farmers alongside a curated package of scientifically recommended inputs—slow-release fertilizers, turmeric-specific micronutrient blends, biological control agents like *Trichoderma* and essential plant protection materials, each tailored to local soil diagnostics.

For most of the participating farmers, this marked their first foray into organized, technically guided cultivation.

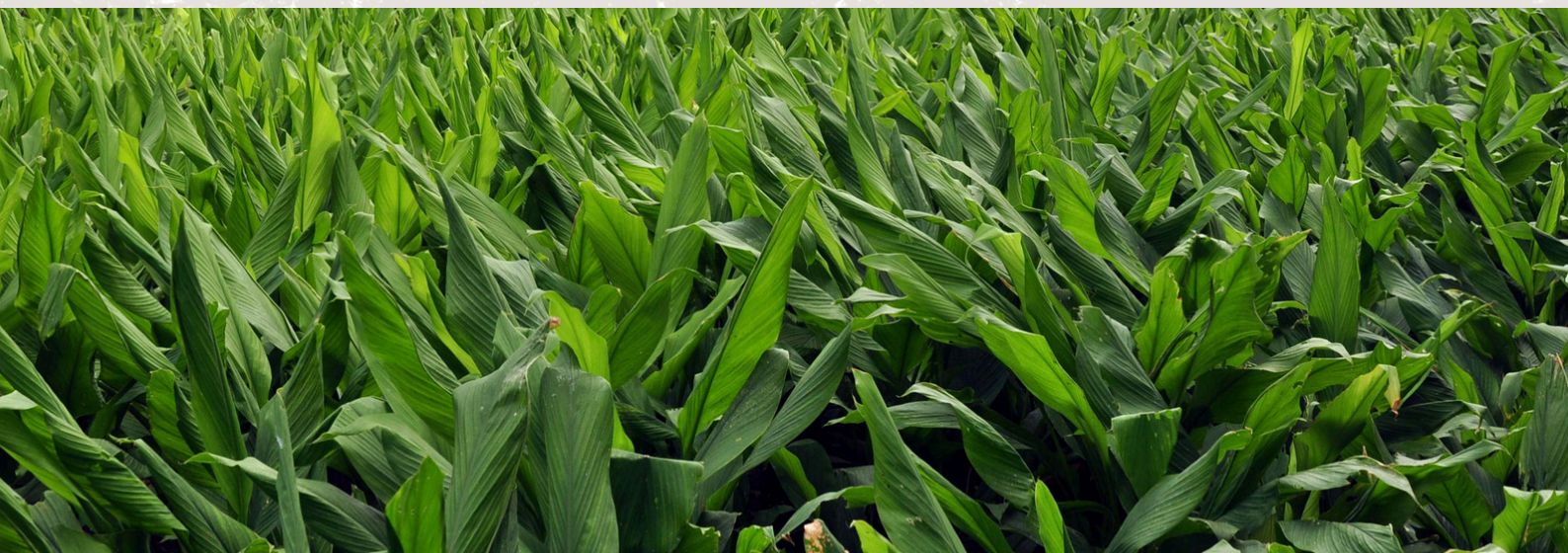


As the harvest season unfurled, the fields bore witness to more than just golden turmeric. They revealed a deeper transformation: Individual efforts melded into collective resolve. Decision- making grew informed and inclusive, a reflection of both camaraderie and competence.

Yet, perhaps the most pivotal milestone lay beyond the fields. Through a strategic partnership with Biomountain FPO, an established Farmer Producer Organization based in Iritty, Kannur, these farmer groups secured an assured marketing channel for their

produce, eliminating a long- standing barrier that had perennially undermined rural agricultural enterprises.

The success of Varada Kanthi and Gramasree is not merely measured in kilograms harvested or incomes enhanced. It is etched in the quiet dignity of a community rediscovering its agency, in the reawakening of dormant land through collective stewardship and in the enduring impact of an institution that chose not just to disseminate knowledge, but to walk alongside its beneficiaries.





DELIVERING DREAMS, HARVESTING LOYALTY: DINESH'S RECIPE FOR AGRI-BUSINESS TRIUMPH

Agricultural entrepreneurship differs from other forms of enterprise in its close link to sustainability, community engagement, and direct marketing. Mr. Dinesh T.K's story reflects these values and offers a fine example of how determination and steady learning can lead to a successful agri-based enterprise.

Coming from Manassery in Kozhikode district, Kerala, Dinesh started his career as a vehicle driver, distributing newspapers. His first brush with agri-business came when he began distributing products like fruit drinks and ginger candy from Vazhakkulam Agro and Fruit Processing Company Ltd., a Kerala government undertaking. This experience sparked his interest in value-added products from farm produce.


He began attending training programmes to learn about processing fruits, vegetables, and spices. These sessions also helped him understand the importance of regulatory requirements such as Udyam registration and FSSAI licensing. His turning point came in 2019, when he approached ICAR-IISR to explore business opportunities in spice processing. Learning about their incubation facility, he initiated discussions with scientists to decide on products and plan production. The same year, he attended a hands-on training in nutmeg value addition at the institute, where he learned the processing methods for products such as squash, candy, jam, and pickle. After the COVID pandemic, he signed an MoU to access the incubation unit for spice-based product manufacturing.

Processed at :
Spice Processing Facility
ICAR - Indian Institute of Spices Research,
Marikkunnu Post, Kozhikode, Kerala- 673012.
Email :- director.spices@icar.gov.in
Phone :- 0495-2731410
 Lic.No. 11322011001713

 ICAR-Indian Institute of Spices Research
(Indian Council of Agricultural Research)
Kozhikode-673012, Kerala, India

Processed and marketed by :

M/s. Al Dina Home Made
MM 24/604 Manassery,
Near Urban Bank Building,
Kozhikode, Kerala - 673 602.
Email : dineshaldina200500@gmail.com
Customer Care : 8078730229

 Reg.No. 21323246000332

Nutmeg Rind *Pickle*



Sample item-Not for sale

Nutritional Facts :

Parameters	Result
Carbohydrate (g/100 g)	20.51
Energy Value (kcal/100 g)	338.28
Total Fat (g/100 g)	27.56
Total Protein (g/100 g)	2.05
Crude Fibre (g/100 g)	4.42

Ingredients :

Nutmeg rind, mustard, fenugreek, garlic, ginger,
mustard oil, gingelly oil, curry leaves

Date of manufacture :

Best before 3 months from the date of manufacturing

Pictures are for representation purpose only



He received product licenses for four nutmeg-based items and began small-scale production. The participation in the 2020 'VAIGA' agricultural expo organized by the Kerala State Department of Agriculture gave him an exposure in the market. The event helped his products gain visibility and credibility. He continued to participate in similar exhibitions and steadily grew his customer base. His business model centers on direct-to-consumer sales, delivering his products to households himself. This personalized approach has allowed him to develop a loyal clientele while also managing costs creatively.

Dinesh then developed a new ginger squash product using coconut water, which received positive consumer feedback.

He also became an active member of the Kunnamangalam Coconut Farmers' Federation (CPF), supported by the State Agriculture Department. Through this platform, he diversified his offerings to include virgin coconut oil and tender coconut ice cream, and began producing millet and rice-based items using hired machinery.

Dineshan's growing expertise has also made him a resource person in training programs at IISR and other institutions. His services as a trainer and mentor in training programmes on value addition is highly regarded. Besides sharing his knowledge, he manages a retail outlet called 'Al Dina' in Manassery, which acts as a sale point for his complete range of products.



His business model centers on direct-to-consumer sales, delivering his products to households himself. This personalized approach has allowed him to develop a loyal clientele while also managing costs creatively.

SPICE VALUE CHAIN SPARKS TRIBAL REVIVAL IN CHINTAPALLE

A transformative spice value chain initiative is reshaping livelihoods in the tribal hamlets of Chintapalle andhra Pradesh. Spearheaded by the ICAR-IISR in partnership with the Integrated Tribal Development Agency (ITDA), Society for Elimination of Rural Poverty (SERP), Tata Trust and local NGOs, this science-driven project is turning black pepper and turmeric cultivation into engines of economic empowerment. Chintapalle lies within the Paderu Tribal Agency of Visakhapatnam district, a region encompassing over 3,500 tribal hamlets where indigenous communities constitute nearly 90% of the population. Historically dependent on traditional farming methods, these communities faced low yields, poor infrastructure and scant market access, with average annual farming incomes below ₹10,000 - barely sufficient for subsistence.

This narrative shifted dramatically starting in 2011 with the launch of the multi-institutional value chain programme. Central to this effort was the introduction of high-yielding turmeric varieties, replacing local cultivars. These varieties elevated dry turmeric yields from 3 to 8 metric tonnes per hectare and improved the dry recovery rate. As a result, farmers' net returns nearly tripled. The initiative also prioritized farm mechanization to alleviate the labor-intensive post-harvest processing traditionally done with firewood and manual tools. The installation of affordable turmeric processing units markedly reduced labor and fuel consumption while enhancing product quality. This mechanization enabled farmers to command an additional ₹3–5 per kilogram in local markets, substantially increasing profits for smallholders.





Beyond production, the programme empowered women through self-help groups affiliated with the Giri Chaitanya Cooperative Society and Marketing Mutually Aided Cooperative Society. Trained in value addition, branding, packaging and quality assurance, these groups have successfully ventured into niche markets, fostering tribal entrepreneurship and economic independence.

Parallel efforts in black pepper cultivation yielded impressive expansion through a master block nursery established at the ITDA farm in Chintapalle. Starting with 6,000 cuttings from eight improved IISR varieties, the nursery distributed 1.45 lakh cuttings over two seasons. Since 2015, black pepper cultivation area has grown by at least 20,000 acres. This expansion is integrated within traditional coffee-based

agroforestry systems, delivering ecological benefits like carbon sequestration alongside economic upliftment. Institutional support for farmers culminated in the formation of Farmer Producer Organizations (FPOs), collectively encompassing more than 1,050 cultivators. Notably, the Maathota FPO achieved organic certification and now markets its premium produce directly to spice industries.

From an era marked by agricultural stagnation and subsistence living, Chintapalle's structured, science-led spice value chain demonstrates that with the right combination of seed, soil, skill and support, tribal farming can be transformed into a sustainable and profitable enterprise. The initiative offers a replicable model for tribal empowerment and rural development across India's marginalized regions.

A PLANTER'S ODE TO THE LOWER PULNEYS



Pavala Rajan, a planter from Pattiveeranpatti in Dindigul district, Tamil Nadu, has dedicated his life to cultivating the rich slopes of the Lower Pulney Hills quietly scripting an extraordinary tale of perseverance, science and wisdom. After completing his Bachelor's degree in Farm Technology from Tamil Nadu Agricultural University (TNAU), he made a clear choice of returning to the land and build a future through farming. Since 1974, he has been growing and managing a wide range of horticultural and spice crops, turning his plantation into a sustainable and profitable venture.

Over the course of nearly five decades, Rajan has nurtured an impressive palette of crops ranging from black pepper, nutmeg, clove, coffee, arecanut and coconut, his success flowing from intuitive observation, practical experience, careful observation, and and strategic adaptability to his terrain's nuanced demands. His work is not the result of short-term interventions, but of a long and steady process of learning what works in the terrain he chose to farm. The knowledge he applied on his land has brought him significant financial benefits, but more importantly, a deep understanding of crop behaviour and long-term plantation health.

What sets Rajan apart is not merely his crop diversity, but the scientific temper that reinforces his practices. His enduring engagement with research institutions, particularly ICAR-IISR, has fortified his farm with scientific interventions. A landmark in this collaboration was the systematic soil analysis facilitated by IISR, which yielded tailored nutrient and crop management protocols. By rigorously applying these recommendations, Rajan improved productivity while preserving the long-term vitality of his soil, a rare combination of profitability and ecological stewardship.

Beyond the farm, Rajan's intellectual curiosity found an outlet in authorship. His book, *My Agricultural Experience in Lower Pulney Hills*, distills a lifetime of field wisdom into an accessible guide.

In it, he chronicles both triumphs and trials, offering a candid and instructive account for aspiring agriculturists, policy makers and students of sustainable farming. His writing reflects the practical realities of plantation management in hill regions, offering a valuable resource for anyone interested in long-term horticulture planning.

Today, his plantation stands as a living classroom with a blend of tradition and innovation. Rajan remains a receptive mentor, welcoming learners and fellow farmers alike, with a humility that reflects his belief in continuous learning. His journey is a testament to the idea that farming is not merely a livelihood, but a disciplined dialogue between land and mind - where science enriches spirit and the soil, in turn, rewards devotion.



RAMPRASAD REDDY'S LEAP OF FAITH

In a bold departure from convention, 34-year-old Ramprasad Reddy relinquished a lucrative IT career overseas to return to his roots. His mind was set on farming. Fuelled by purpose and a desire to reconnect with the soil, he made his way back to Dhanasri village near Zaheerabad in Telangana, where he took charge of his ancestral 14-acre farmland.

In 2013, while exploring sustainable crops suitable for the semi-arid landscape, Ramprasad encountered Mr. Chandra Sekhar Azad, a progressive farmer from Guntur, Andhra Pradesh, who had adopted high-yielding turmeric varieties licensed by ICAR-Indian Institute of Spices Research (ICAR-IISR). Inspired by Azad's success, Ramprasad procured seed rhizomes of IISR Prathibha, a superior turmeric variety known for its high curcumin content, and planted them in a 2.5 acre plot with drip irrigation facility.

With guidance from Mr. Azad and constant interaction with scientists from ICAR-IISR, Kozhikode, Ramprasad saw promising results. The initial effort yielded four tonnes of dry turmeric. The local market responded enthusiastically, at ₹7,500 per quintal, the premium price reflected the quality and potency of the IISR Prathibha variety.

Spurred by this success, he expanded turmeric cultivation the following year to include two trial varieties from ICAR-IISR alongside Prathibha, while diversifying the rest of his land with ginger, pigeon pea (arhar) and sugarcane. Not one to overlook the importance of post-harvest management, Ramprasad meticulously cleaned, boiled and sun-dried the turmeric, ensuring high-quality output for both bulk and niche retail segments.



His next innovation was born out of curiosity and foresight. Experimenting with small-scale value addition, Ramprasad powdered four quintals of turmeric and marketed it through his brother's grocery outlet in Sangareddy. The response was phenomenal. Customers raved about the unique colour, robust aroma, and earthy flavour of the turmeric. The entire batch sold out in no time, reaffirming his instinct for reading the customer sentiments and market trends correctly.

Capitalizing on this newfound demand, he soon acquired a one-acre plot in Zaheerabad to establish a spice powder manufacturing unit, a significant step toward agri-preneurship and rural value addition.

Today, Ramprasad's farm has become a hub for local farmers eager to learn and emulate his model. For many, the story of IISR Prathibha is no longer just about turmeric, it's about transformation.

"I own my work now," Ramprasad reflects with quiet pride. "Unlike the corporate grind, farming has no time zones or deadlines—only the profound satisfaction of nurturing life."

What began as a leap of faith has now become a story of innovation, resilience, and rooted success, proof that with the right variety and vision, the land truly rewards those who believe in its promise.





CUSTODIAN OF LIVING HERITAGE: JOHN JOSEPH'S GREEN LEGACY

In the verdant village of Kodencherry in Kozhikode, Kerala, where the monsoons nourish the soil with relentless generosity, a farmer has been silently establishing an enduring legacy of biodiversity. Mr. John Joseph, an unassuming man with a passion for conservation of crop diversity, was recently recognized for his efforts and conferred with the Plant Genome Saviour Farmer Reward for 2021-22 by the Protection of Plant Varieties and Farmers' Rights Authority, Government of India. This prestigious national honour is not merely a personal accolade, it is a reverent salute to a lifetime of stewardship over the planet's diminishing genetic reservoirs.

John Joseph's farm is no ordinary patch of cultivated land, it is, in every sense, a living museum of plant diversity. A landscape of thriving nutmeg trees, aromatic black pepper vines, turmeric beds, medicinal plants, tuber crops, and an array of bamboo species, his land breathes biodiversity. His journey was not one of serendipity, but of vision rooted in memory. It was during his childhood escapades on his grandfather's plantation that the seeds of ecological devotion were first sown. By the time his family settled on their current property in 1969, the passion for conservation had imprinted itself into his identity.

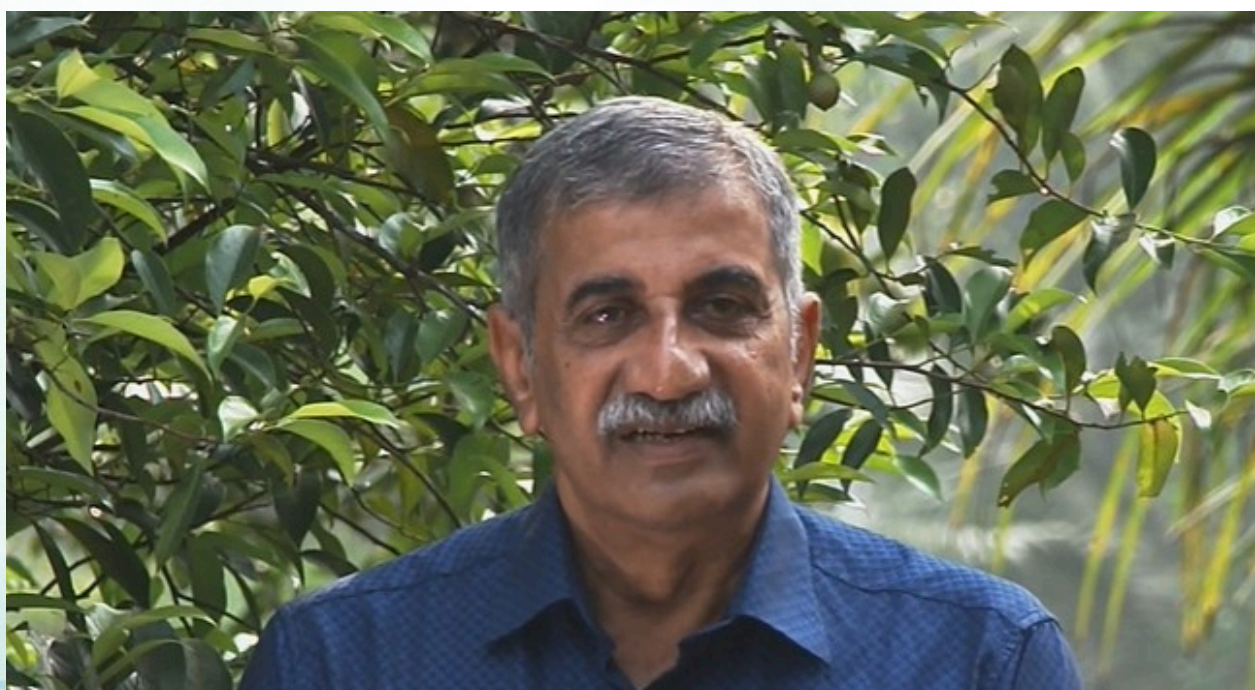
As a college student, he turned his focus to nutmeg, traversing across Kerala in pursuit of scions from the finest mother trees. Each acquisition was documented with the name of the contributing farmer, an act both scientific and sentimental. Today, over 100 nutmeg varieties flourish amidst his intercropped coconut trees, creating what is arguably the region's most diverse on-farm nutmeg collection, totaling nearly 1000 individual trees.

His collaboration with premier agricultural research institutions has only amplified his impact. Notably, it was from his farm that the original rhizome of a unique, non-pungent ginger line was sourced. After years of evaluation by ICAR-IISR, it culminated in the official release of the variety named IISR Surasa in 2024, crafting yet another success in farmer participatory development of spice crop varieties.

His connections span a constellation of institutions: ICAR-NBPGR Vellanikkara, ICAR-IIHR Hirahalli, DASD-Kozhikode, Kerala Agricultural University, Krishi Vigyan Kendra, the Department of Agriculture and the Malabar Rural Development Foundation, all of which have recognized his field as a bastion of conservation.

Beyond genetic preservation, John's multifaceted agricultural excellence has earned him the National Innovative Farmer Award, National Dairy Farmer Award, ATMA Award, and Kerala Feeds' accolade for highest milk production. These are not disparate recognitions, but interconnected affirmations of a philosophy that sees the farm as both sanctuary and engine.

John Joseph stands not as a passive custodian of tradition, but as an active architect of a sustainable future. In an age of monocultures and genetic erosion, his life's work radiates the quiet strength of diversity, a green testament to what a single determined individual can protect, preserve and bequeath.



FROM SHIFTING CULTIVATION TO SPICE SUCCESS IN ARUNACHAL PRADESH: THE NOSAAP STORY

In the relatively young district of Namsai in Arunachal Pradesh, tribal communities have long practiced traditional shifting cultivation methods that barely sustained their livelihoods. The tribal communities faced persistent challenges of low agricultural yields, limited market access, and virtually no value addition to their produce. Despite the region's exceptional agro-climatic conditions that were naturally suited for cultivating high-quality spices like turmeric, ginger, and black pepper, the absence of organized agricultural initiatives had consistently prevented these communities from achieving commercial success.

The transformation began with a visionary idea to organize scattered farmers into a powerful collective that could harness their combined potential, minimize post-harvest losses, and integrate them into a structured spice value chain. This vision materialized in 2018 with the establishment of Namsai Organic Spices and Agricultural Products Producer Company Ltd, commonly known as NOSAAP. The company emerged as a beacon of hope, demonstrating how collective action, scientific support, and unwavering local determination could fundamentally reshape rural livelihoods.

NOSAAP's foundation was built upon the solid support of ICAR-Indian Institute of Spices Research under their Tribal Sub Plan, with invaluable technical guidance from the Spices Board of India. What began as a modest initiative to assist tribal farmers in growing and marketing spices using organic methods has evolved into a comprehensive enterprise that now empowers over 575 farmers across 22 villages throughout the district.

The pre-NOSAAP era was characterized by uncertainty and limited opportunities. Farmers relied heavily on traditional practices that yielded inconsistent results, income remained unpredictable, and awareness about scientific farming techniques or market possibilities was minimal. The transformation began in 2016 when ICAR-IISR launched extensive awareness programs, comprehensive training sessions, and practical field demonstrations. These initiatives introduced farmers to improved spice varieties and sustainable cultivation practices, while providing access to quality planting materials including 'Megha Turmeric'; and 'Rajendra Sonia' varieties.



Additionally, farmers received thorough training in good agricultural practices and organic cultivation techniques that would form the foundation of their future success. The impact has been remarkable and measurable. NOSAAP now produces an impressive 125 tonnes of turmeric annually, with 100 tonnes supplied directly to government departments, ensuring stable demand and reliable income for farmers. The company has successfully established branded retail outlets and actively participates in prestigious national and international trade fairs, including exhibitions in Vietnam and the United States, showcasing the global potential of their products.

The enterprise has diversified into value-added products, marketing turmeric powder,

aloe vera gel, and processed mushrooms under the distinctive NOSAAP brand. With strategic support from NABARD and MSME, a state-of-the-art common processing unit was established, further enhancing their capacity and product quality. Farmers who previously cultivated turmeric merely for household consumption now earn over ₹2 lakh annually through scientifically-guided farming methods. Looking forward, NOSAAP continues to innovate, currently working towards securing a Geographical Indication tag for traditional 'Khaw Tai' rice, demonstrating their commitment to protecting and promoting indigenous crops. Today, NOSAAP stands as an inspiring model of sustainable rural development, proving that with proper guidance, unity, and determination, small farmers can indeed achieve extraordinary dreams.



FROM PATENT TO PRACTICE: CATALYZING A GREEN REVOLUTION WITH BIOCAPSULE INNOVATION



The road to innovation in agriculture is often strewn with hurdles, chief among them being the slow pace of technology adoption. But when vision meets resolve, transformation becomes inevitable. This is precisely the story of SRT Agro Science Pvt. Ltd., a pioneering agri-biotech firm founded by enterprising brothers Shirish Taunk and Rajesh Taunk, who are spearheading a quiet revolution with biocapsule technology licensed from ICAR-Indian Institute of Spices Research (ICAR-IISR).

Since acquiring the rights to the microbial encapsulation technology in January 2018, SRT Agro Science has meticulously worked to bring this pathbreaking innovation to the fields of thousands of farmers across India. Their efforts have catalyzed the nationwide adoption of a precision, eco-conscious alternative to conventional agrochemicals.

At the heart of this innovation lie biocapsules, gelatin-coated, shelf-stable capsules containing potent microbial strains such as nitrogen fixers, phosphorus solubilizers and *Trichoderma*.

These microbes remain in a dormant state, only springing to life when activated by water. The result is an intuitive “smart delivery system” that retains microbial viability at room temperature, boasts a shelf life of 16–18 months and simplifies the usage process to something as effortless as dissolving a vitamin capsule.

SRT Agro Science has effectively scaled this technology from lab to land, developing a diversified portfolio of microbial solutions tailored for 18 key crops, including rice, pulses, turmeric and vegetables.

Their product suite extends beyond biocapsules, offering specialized biofertilizers and biofungicides such as Rhizo (for nitrogen fixation), PSB Plus (for phosphorus mobilization), Mycomarshall (VA mycorrhiza) and Cryskiller (biocontrol agent). Popular brands like Trichocap and Powercap have gained significant traction, with widespread adoption seen across southern, central and northern India.

A notable stride in their journey has been the integration of ICAR-IISR's seed-coating technology, enhancing the precision of microbe delivery right from the sowing stage. This not only ensures robust plant establishment but also underlines their commitment to sustainable intensification in agriculture.

In an era marked by the paradox of needing to boost food production while mitigating environmental degradation, biotechnological interventions like this stand as beacons of hope. The rampant use of synthetic fertilizers and the ecological toll of intensive farming have made it clear: the future of agriculture must be green and smart.

In this evolving landscape, SRT Agro Science Pvt. Ltd. is not just a commercial success story, it is a symbol of science-led entrepreneurship with deep societal impact. By synergizing advanced research with farmer-centric outreach, the company is redefining the agri-input ecosystem, one biocapsule at a time.



FROM MACHINES TO MAHIMA: CULTIVATING A GINGER LEGACY



In the heart of Karnataka's Shimoga district, Kaviyesh N charted an unexpected path, one that diverged from the hum of machines to the humus-rich embrace of the soil. Trained as a mechanical engineer, Kaviyesh could have spent his life amid engines and assembly lines. But, coming from a family of farmers, his roots in agriculture were deep, and after earning his diploma, he chose to return to the land. Forsaking conventional career prospects, he returned to his agrarian roots—an instinctive decision that, over the span of twelve years, matured into a transformative journey of agricultural innovation and acclaim.

'A thriving plantation is the reward for those who nurture the land with knowledge and love' – Akram

The Spice That Changed Everything

The turning point came when Kaviyesh discovered IISR Mahima, a ginger variety developed by the Indian Institute of Spices Research. Initially dabbling with types like Rio de Janeiro, popular as vegetable ginger, he quickly recognized Mahima's promise—its remarkable disease resistance, exceptional yield and superior suitability for dry ginger production. What began as an experiment soon evolved into a full-scale commitment. He expanded his holdings to a dedicated seven-acre tract near Shivamogga Airport, devoted exclusively to Mahima cultivation, transforming his farm into a benchmark for scientific spice farming.



Kaviyesh's success is no accident; it is the result of calculated precision and relentless refinement. He espouses a holistic agronomic philosophy, integrating organic amendments such as cow dung and tailored micronutrient sprays to preserve the vitality of his soils. Disease surveillance is meticulous and operational efficiency is enhanced by outsourcing the labor-intensive operations like harvesting, leaving him enough time to focus on enhancing yield quality and strategic expansion.

Yet, perhaps the most enterprising dimension of his story lies in his pivot from commodity sales to seed entrepreneurship.



While most ginger cultivators contend with volatile markets and storage anxieties, Kaviyesh has carved out a niche by specializing as a supplier of high-quality Mahima seed rhizomes. This direct-to-farmer model not only ensures consistent income but has positioned him as a trusted source of elite planting material. By eliminating the bottlenecks of middlemen and price speculation, he has ushered in a business model both sustainable and replicable.

With global and domestic demand for dry ginger on the ascent, Kaviyesh stands at the confluence of tradition and innovation, a figure who exemplifies how modern agronomy, when anchored in sustainable traditional practices, can create robust, resilient livelihoods. His journey from the drafting table to the furrowed fields is not merely one of personal success but a powerful narrative of dedicated approach to farming.



FROM BLUEPRINTS TO BLACK GOLD: A REMARKABLE JOURNEY



“Most people couldn’t understand why I would leave a successful civil contracting business for farming. But for me, it wasn’t just about the land. It was about building something meaningful.” recalls Mr. Kanthraj K.M, his voice steady with conviction. With a diploma in civil engineering and years of experience in executing government infrastructure projects, Mr. Kanthraj had a stable career. Yet in 1998, he made a bold decision: to purchase 12 acres of land in Kerehalli village, nestled in the verdant Somvarpet taluk of Kodagu, to pursue farming.

What commenced as a conventional coffee plantation with Robusta and Arabica varieties soon evolved into something far more ambitious. Silver oak trees dotted the estate to provide shade and black pepper vines were introduced with high hopes.

“The yields were disheartening” he admits. The tables turned in 2016, when a chance encounter with Dr. S. J. Ankegowda of ICAR-Indian Institute of Spices Research transformed his approach. Training programs at IISR’s research station at Appangala equipped Mr. Kanthraj with critical scientific knowledge. And with a contractor’s precision and discipline, he was quick to implement it.

He began regulating shade meticulously during the crucial months of March and April, resulting in synchronized spike emergence and enhanced berry setting. A comprehensive irrigation system with both sprinklers and hoses was installed, helping mitigate the effects of heat stress during summer. “It felt just like executing a civil project” he chuckles. “Only now, the blueprint was for a plantation.”

Kanthraj's farm is a live case study in how scientific farming, careful planning, and persistence can turn challenges into triumphs.

Yet nature threw its share of challenges. The estate's flat terrain made it vulnerable to quick wilt disease—a formidable threat to pepper cultivation. Mr. Kanthraj responded with a multi-pronged approach: Bordeaux mixture sprays, Copper Oxychloride drenching and strategic drainage measures. Later, he integrated Metalaxyl-Mancozeb treatments for added protection. Ever forward-thinking, he introduced IISR-Thevam, a Phytophthora-tolerant variety and adopted micronutrient foliar sprays during May and October to bolster plant vitality.

His dedication soon bore fruit-literally. Pepper production, which once languished at 6 tonnes in 2016-17, soared to 13 tonnes by 2020-21, harvested from over 2,500 vines. His success resonated beyond his fields. His farm soon became a live case study in how scientific farming, careful planning, and persistence can turn challenges into triumphs.

"Farmers from Hassan, Chikkamagaluru and even scientists from ICAR-IISR began visiting my estate" he shares with pride.

In 2021, Mr. Kanthraj was honored with the Progressive Pepper Grower Award by ICAR-IISR, a testament to his pioneering spirit and relentless pursuit of excellence. Yet for him, the true accolade lies elsewhere. "The real reward," he reflects, "is when young farmers visit my farm, ask thoughtful questions and leave feeling inspired."

Mr. Kanthraj's journey stands as a compelling testament to the transformative power of mindset. From engineering blueprints to nurturing the "black gold" of Indian spices, he has reimagined success not as a destination, but as a cultivated legacy, rooted in science, perseverance and purpose.



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