

# WORLD

AGRICULTURE

*the pulse of global agriculture*

ISSN 2455-8184



VOLUME 10

ISSUE 03

March 2024

Rs. 200



**SHE**

*The Power Et Pride  
of Agriculture*





# AGRICULTURE INFRASTRUCTURE FUND

## Growing Together: Gender-Equal Opportunities in Agri Infra Investments



Bimbadhar

**CLICK an AIF Loan Today** [www.agriinfra.dac.gov.in](http://www.agriinfra.dac.gov.in)

### STIHL UPKARAN, *LAYE PARIVARTAN*

## Multiple Regions A Powerful- Multipurpose Engine



4 Stroke Stationary Engine

**6HP | 7HP**

German Quality and Innovation

[info@stihl.in](mailto:info@stihl.in) [www.stihl.in](http://www.stihl.in)

Call or Whatsapp

**9028411222**





# CONTENT

10. Dr M S Swaminathan
12. The Lady Who Has Always Championed For Justice, Equality
16. Daughters of the Soil, Await Recognition of their Toil
20. Beacon of Transformation
24. Pioneering Sustainable Agriculture for a Greener Tomorrow
26. Success is not a destination
28. Millet Women of India
32. AFC's Experience
36. Supporting Women Farmers
38. Leading From The Front
40. Marching Ahead
42. Leading From The Front
44. Nitte Jackfruit Processing Cluster
46. Journey, Challenges, Achievements
48. We Create Our Own Destiny
50. Empowering Agriculture
52. Leading From The Front
54. A Visionary Leader in Agricultural Innovation
56. Empowerment of Rural Women
58. The Challenge AgriWater
60. Leveraging Technology To Help Farmers
64. Beacon of Hope and Inspiration for Tribal Communities
68. Housewife to Successful Entrepreneur
70. Women in Agriculture
72. Brazilian Agriculture and The Gender Revolution
74. Role of women in Brazilian Agriculture
76. ABCZ for Women
78. Influential Pillars of Brazilian Agribusiness
80. What Leadership Means To Me
82. Entrepreneurship and Innovation
84. Go Woman! Go Strong!
86. Organic She Wrote
88. Greens and Me
90. Farm Science
92. The Rice Way to Growth
94. Empowering Women Through Sericulture
96. Journey of a Scientist

Founder & Editor-in-Chief	MC Dominic
Managing Director	Shiny Dominic
Group Editor & CEO	Mamta Jain
Executive Editor	Rajni Shaleen Chopra
Sr. Vice President Corporate Comm. & PR	P.S. Saini
GM - Business Development	Megha Sharma
GM - Events	Harsh Kapoor
Special Initiatives	Anika Bassi Parikshit Tyagi
Circulation	Abdus Samad Vaishali Das
Sr. Graphic Designer	Md. Nasim Ansari

Printed and Published by :  
MC Dominic  
60/9, 3rd Floor, Yusuf Sarai Market, Near Green Park Metro Station, New Delhi-110016

Printed at :  
Pushpak Press Pvt. Ltd.  
Shed No. 203, 204, DSIDC Complex Indl. Area, Okhla Phase-I, New Delhi-110020

All rights reserved.  
Copyright @ Krishi Jagran Media Group. Agriculture World is published by Krishi Jagran Media Group.  
Editor in Chief: MC Dominic

Content Disclaimer  
Please note that the information in this magazine, does not make any claims. Agriculture World has made a constant care to make sure that the content is accurate. and the views expressed in the articles reflect the author(s) opinions.

# THE VISION

## The Contribution Of Women To Indian Agriculture Is Immense And Multifaceted



**M C Dominic**  
Founder & Editor-in-Chief

The role of women in Indian agriculture is significant and indispensable. Their contributions are deeply rooted in the cultural and historical fabric of the country. Despite being often overlooked and underappreciated, women play multifaceted roles across various stages of agricultural production, from seed sowing to harvesting and post-harvest management. Their involvement in agriculture is not just a matter of economic necessity but also a reflection of their resilience, resourcefulness, and profound connection to the land.

Women are also actively involved in farm labour, especially in activities like transplanting, weeding, and harvesting. Despite the physically demanding nature of these tasks, women work tirelessly alongside men in the fields, often balancing their agricultural duties with household chores and caregiving responsibilities. Their labour forms the backbone of Indian agriculture, ensuring the timely cultivation and harvesting of crops that feed millions of people across the country.

Women play a vital role in the management of livestock and poultry, which are integral components of many smallholder farming systems in India. This contributes to household food security and generates additional income for rural families.

Beyond primary production, women are also engaged in various activities along the agricultural value chain. They are involved in food processing, including drying, grinding, and preserving fruits and vegetables. Many women operate small-scale agro-processing units, producing value-added products like pickles, jams, and dairy products, which are sold locally or in nearby markets. These enterprises not only create employment opportunities but also contribute to the diversification of rural economies.

Women play a crucial role in natural resource management and environmental conservation. They actively participate in community-based initiatives for soil conservation, afforestation, and watershed management, promoting sustainable agricultural practices that preserve the land for future generations.

From seed selection to post-harvest processing, women are integral to every aspect of agricultural production. Their knowledge, labour, and entrepreneurial spirit are essential for ensuring food security, alleviating poverty, and fostering sustainable development in rural India. It is imperative to recognize and support the crucial role that women play in agriculture by providing them with access to resources, training, and opportunities for leadership and empowerment. Only by harnessing the full potential of women in agriculture can India achieve its goals of inclusive and sustainable rural development.





# FROM THE MD



**W**henever the term 'farmer' is mentioned, the image of male farmers often springs to mind. However, this perception does not align with reality. The participation of women in agriculture is rapidly increasing, challenging traditional stereotypes. Women have long been actively involved in agricultural activities, extending their contributions beyond the confines of household chores to cultivating fields and managing barns. The theme of International Women's Day 2024, "Invest in Women: Accelerate Progress," underscores the importance of diversity and the empowerment of women across all sectors of society.

In rural India, women undertake 70 percent of the work in agriculture and allied sectors, and the same goes for animal husbandry. Their involvement in crop production exceeds 60 percent, while in fruit and vegetable cultivation, it surpasses 70 percent. Furthermore, women shoulder the majority of post-harvest tasks such as seed selection, cleaning, transplanting, weeding, harvesting, and threshing. Globally, women represent more than 42 percent of the agricultural workforce, highlighting their significant role in food production and security.

As per statistics, women in several Indian states are more engaged in agricultural activities than men. Both central and state governments prioritize women farmers in their schemes. At the same time, labor laws have been amended to enhance women's participation in the workforce and improve the quality of their employment opportunities. These efforts aim to create equal opportunities and a conducive working environment for women across all sectors.

We, as an organization, have consistently prioritized women's empowerment. A significant milestone in this journey was the

inauguration of Krishi Jagran's head office in New Delhi by the esteemed 'Seed Mother' of India, Rahibai Soma Popere. Moreover, the participation of female employees in the organization exceeds that of male employees, with many holding senior leadership positions. Numerous women farmers across the country have achieved remarkable success and gained respect in society through their pioneering agricultural endeavors. Their achievements serve as inspiration and examples to others, symbolizing the transformative potential of women in agriculture.

One such exemplary figure is Shri Ratnamma Gundamanta, a woman farmer from Srinivaspura town in Karnataka's Kolar district. Cultivating mangoes, millets, and caring for silkworms across her 4-acre land, Ratnamma has also excelled in food processing. With an annual income exceeding Rs 1.18 crore, Ratnamma received the 'National Award' in the 'Women Farmer' category by Union Cabinet Minister of Fisheries, Animal Husbandry and Dairying - Government of India, Shri Parshottam Rupala at Krishi Jagran's 'Millionaire Farmer of India Awards 2023'. This recognition not only celebrates Ratnamma's success but also highlights the changing landscape of Indian agriculture and the thriving endeavors of farmers. Furthermore, the substantial representation and success of rural women led by Shri Ratnamma Gundamanta at this award ceremony signify a significant shift towards self-reliance and financial independence among women farmers. Following the success of the Millionaire Farmer of India Awards 2023, we are poised to host the second edition from December 1st to 5th, 2024, in Delhi.

Similar to previous years, numerous women continue to play leadership roles in their respective fields, contributing to societal respect, economic prosperity, and livelihood improvement. It is hoped that more women farmers and entrepreneurs like Shri Ratnamma Gundamanta will emerge, driving forward the empowerment of women in the agricultural sector. Our initiatives, including the award programme, serve as pivotal steps toward achieving this goal.



**Shiny Dominic**  
Managing Director





Be smart Agri Entrepreneur



CHANGING  
FARMERS LIFE



हल ब्राण्ड

अम्बर के कृषि रक्षक उत्पाद अपनाओं  
स्वस्थ फसल और ज्यादा पैदावार पाओं

महिला कृषकों को अम्बर का सादर नमन!

Amber Crop Science Pvt. Ltd.

(AN ISO 9001 : 2015 CERTIFIED COMPANY)

E-mail : [ambercrops@gmail.com](mailto:ambercrops@gmail.com) • [www.ambercrops.com](http://www.ambercrops.com)



## EDITOR'S DESK



**E**mpowerment of women in India will not be complete without empowering those agri-women who are living at the country's socio-economic periphery. Gender based discrimination continues in multiple ways at all echelons, due to stringent patriarchal traditions! Women are not recognized as farmers in Indian society, thereby denying them equal opportunities. Bridging this gap is essential in order to accelerate the pace of growth in the Indian agriculture sector.

Despite these challenges, there have been **exemplary stories of triumph of women** in many facets of agriculture. As the world commemorates Women's Day, it's pivotal to spotlight the substantial contributions of women to India's agricultural sector, especially in engineering and technology. Women have emerged as key innovators and leaders, driving forward an industry critical to India's economy. There are exceptional women farmers, agro based entrepreneurs, scientists, women agri professionals, CEOs of business houses, bankers, women agricultural extension officers and many more. These **untold biographies of perseverance and determination need to be celebrated.**

We endeavour to highlight their indispensable role and celebrate initiatives like the "Drone Didi" program, which are pioneering change in agricultural practices through technology. This special edition of Agriculture World glorifies the immense contribution of influential women like Dr Poonam Malakondaiah IAS, Dr Purvi Mehta, Dr Reema Nanavaty, Dr Balvinder Shukla, Dr Glory Swarupa, Dr V Geethalakshmi, Dr Nutan Kaushik, Dr Maninder Kaur Dwivedi, Ms Sharmila Oswal, Dr Neelam Patel and many more.



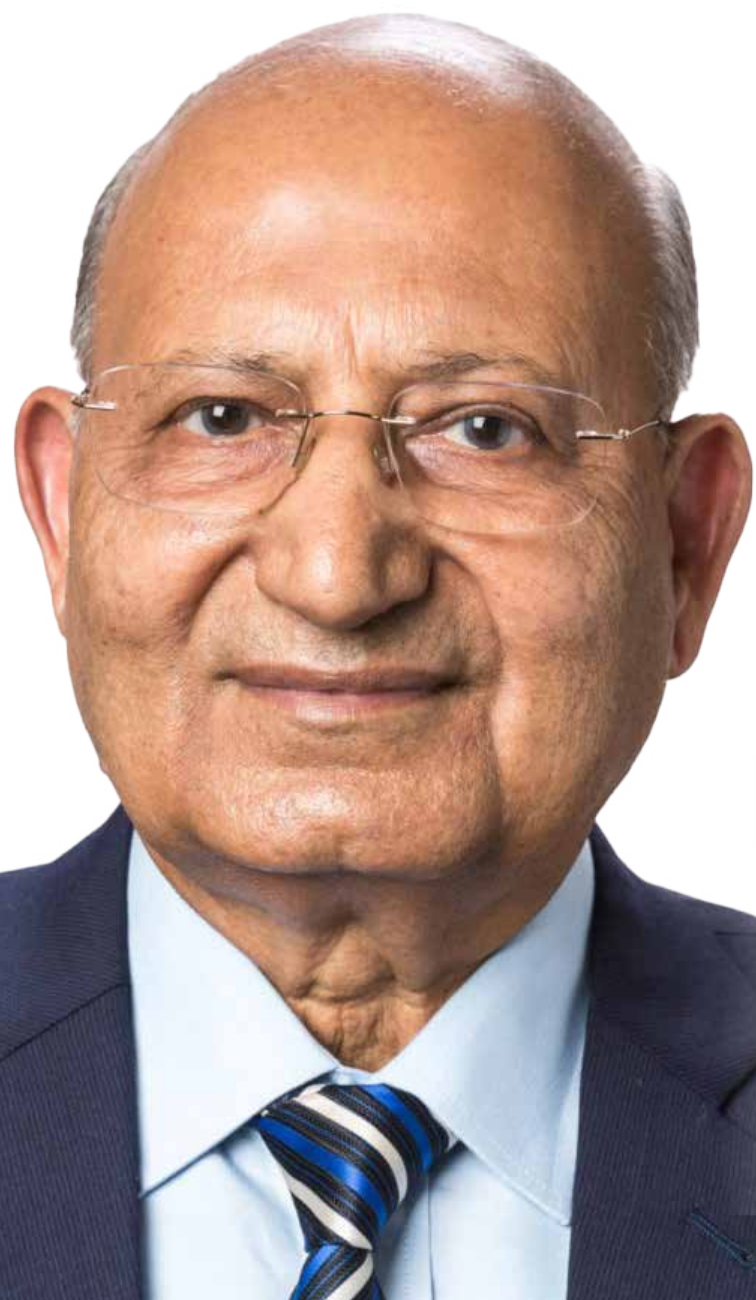
**Mamta Jain**  
Group Editor & CEO



# Bharat Ratna

**Dr M S Swaminathan**

*A True Son of India*



## ABOUT THE AUTHOR

**Dr R S Paroda**, former DG  
ICAR and secretary, DARE.

Dr Paroda is among the eminent agriculture scientists who had long been pitching for honouring Swaminathan posthumously with Bharat Ratna



**D**r M S Swaminathan, who has posthumously been awarded India's highest civilian honor, Bharat Ratna, will be remembered as the architect of the green revolution that transformed India into a food grain surplus nation and as a trailblazer for future reforms that shape policies in the agricultural sector.

The national food security law, gradual liberalisation of agri markets, and the consistent rise in minimum support price (MSP) for procurement of key crops factoring in weighted average cost of production are among his significant contributions.

The policies he championed dominated India's political discourse since the beginning of the green revolution in 1960s.

The seeds of the three farm laws, which were later repealed, were sown by the National Commission on Farmers led by Dr Swaminathan.

The commission had submitted five reports during December 2004 - October 2006. These continue to guide policymakers in the country.

Dr Swaminathan convinced the govt to come up with a national farmers welfare policy and gave recommendations to pay farmers MSP that should be at least 50% more than the cultivation cost.

### **M S Swaminathan Research Foundation**

First as director of the Indian Agricultural Research Institute (1961-72), and then as director general of Indian Council of

Agricultural Research (ICAR) and secretary of Department of Agricultural Research and Education (DARE) during 1972-79, Dr Swaminathan laid the foundation of research that resulted in development of several high-yielding and drought/flood-resistant varieties of seeds.

Our long awaited dream has finally come true. Contributions of Dr Swaminathan towards household food security shall be remembered with great respect by all. He has been a true son of India whose legacy through national farmers welfare policy will be remembered with great respect and admiration.

Creation of All India Agricultural Research Service, strengthening of all India coordinated projects ensuring networking of scientists from across the country, promoting cultivation of climate-resistant coarse cereals and including it in the public distribution system (PDS) network, starting of lab-to-land programme to transfer agricultural technologies to farmers, and establishment of the National Academy of Agricultural Sciences are some of the other significant contributions of Dr Swaminathan.

With the proceeds of the first World Food Prize that he received in 1987, he founded the M S Swaminathan Research Foundation (MSSRF) in 1988. The Foundation, a not-for-profit trust, aims to "accelerate use of modern science and technology for agricultural and rural development" to improve lives and livelihoods of communities.



# The Lady Who Has Always Championed For Justice, Equality



**During her stint in the health department, Dr Poonam introduced bike ambulances in agency areas where ambulances could not reach. It had lot of impact on reducing infant mortality and maternal mortality**

**D**r Poonam Malakondaiah, the Special Chief Secretary (Agriculture & Cooperation, Horticulture, Animal Husbandry, Fisheries, Dairy Development, Food Processing, Sugar to the Government of Andhra Pradesh) is a remarkable bureaucrat.

Dr Poonam has sown seeds of reforms in whichever department she was assigned to. She has held the reins of departments as diverse as education, agriculture, transport, medical health, Panchayati Raj. She was instrumental in bringing development in the districts where she was the Collector and District Magistrate.

Dr Poonam has always fought injustice, corruption and inequity to bring about justice and truth. Dr Poonam was born to Dr Sudama Singh and Urmila Singh on 1st July, 1964 in Shajahanpur, Uttar Pradesh.

She was a vivacious child and a quick learner who took to extracurricular activities with the same enthusiasm as her studies. Debate, Essay Writing, Sports, Quiz Competition, Painting, Poetry writing, Collage-making – she excelled in whatever she took part in.

Even as a student, Dr Poonam won over 300 merit certificates at School, College, State and National Level. These certificates tell us of her multifarious talents.

As a student, Dr Poonam was conferred with awards for the best outgoing Student in class XII, Avila Convent Matriculation Higher Secondary School, Coimbatore; gold medallist in B.Sc Botany (Honours) from Madras University; GOI Merit Scholarship from Ministry of Human Resource Development; Gold Medallist in

M.Sc Microbiology from Indian Agriculture Research Institute – she was excellent in her studies as well.

From her youth years, her leadership qualities were evident. She was elected as the School Pupil Leader and was also the President of the College Students Union.

Dr Poonam says, “I wanted to be a scientist like my father. My father was an agriculture scientist and was working in ICAR. We had our childhood spread all over India as he used to work in different research stations. We were in Coimbatore for 16 years. At that time, he was working in Sugarcane Breeding Research Institute. He was a simple person, hardworking and committed to his responsibilities. My mother was unable to study beyond tenth standard, as women in those days were denied education. But she compensated that with reading. She was well versed in Indian and international history. She was highly religious. My parents didn’t preach anything to us. We learnt by seeing them in their actions. They were my role models.”

## **Tryst With Civil Services**

Strange are the ways of destiny. Dr Poonam’s tryst with civil service was unplanned and arose out of her roommate’s desire to have a company to appear for the exam. She dutifully accompanied her into the exam hall came out with flying colours. With no formal coaching, she cleared all the levels at the very first attempt.

“This was most difficult moment for me because I had to choose between IAS and Research. Dr Subba Rao, my Research Guide, was initially not in favour of my drift towards IAS. But later, when I got through, he advised me to go for the civil services.”

All through her service years, Dr Poonam has intervened wherever she felt injustice was meted out. Her most successful intervention came while working as the Commissioner of Agriculture in Andhra Pradesh. This time it was the multinational company Monsanto who was taking undue advantage of the cotton farmers.

It was that time when there was widespread distress among cotton farmers. During 2000-2005, many farmers in AP committed suicide bogged down by the loss of cotton crop and the high cost of production. Dr Poonam studied the situation and found that about sixty per cent of the cost of cultivation was attributed to cost of seeds alone.

At that time Monsanto Bt seeds used to cost Rs 1850 per 450g packet, while the other seed cost ranged between Rs 450-500. Monsanto argued that Rs 1250 was the technology cost and the rest was for the local seed distributors. On further inquiries it was revealed that the same seed packets were sold (in rupee terms) at Rs 120 in USA and Rs 43 in China.

“We requested to bring down the costs but they did not relent. We decided to take them to MRTP (Monopolistic Restrictive Trade practices which is now known as Competition Commission). After hearing both the sides, MRTP passed order in the favour of the government and directed Monsanto not to charge more than what is charged in USA. We fixed the rate at Rs 750 – Rs 120 was trade cost and the remaining was the seed company cost.

Once Andhra government passed the order, seven other states too passed similar orders within a matter of 7-8 days. Monsanto appealed in Supreme Court, where too, we won the case. This brought down the cost of cultivation. It was a great victory for the farmers of this country. Farmers have been saving Rs 1000 crore every year due to this. The then Chief Minister, Dr YS Rajasekhara Reddy, gave his support for this case even though there was immense pressure from various quarters.

## **ABOUT THE AUTHOR**

**Dr Poonam Malakondaiah** is Special Chief Secretary (Agriculture & Cooperation, Horticulture, Animal Husbandry, Fisheries, Dairy Development, Food Processing, Sugar) to the Government of Andhra Pradesh







#### Unique Solution For Helping Tribals

In 1990-91, her first assignment landed her in Bhadrachalam. Tribals there were being exploited and their land was occupied by outsiders by force. They were fighting a case against the mighty with no formal knowledge of the proceedings of the court.

Dr Poonam felt immensely sad when she observed that the poor tribals were forced to come from their villages on foot to fight their case. They were terrified by the lawyers, the language, and the tone of the proceedings. But she had a unique solution to their problem.

"I saw their helplessness and the greed of the miscreants and said the court will be conducted in their village only; they need not come to the town. This created a flurry, but Constitution was in my favour, as there was no rule that courts should not be conducted in village. Thus I began a new practice, hitherto not prevalent anywhere, to benefit the needy."

#### Akshar Deeksha Project

Akshar Deeksha is another unique project initiated by Dr Poonam. It was borne out of her conviction that literacy stands central to any empowerment programme. While she was the District Collector of West Godavari, a women literacy programme began.

The pedagogy that was followed couldn't sustain the interest of the participants for long and they started seeing dropouts. Women wanted to learn quick. Dr Poonam invited professors from Telugu University to revise the methodology. A faster and quicker approach of 100-day literacy programme was devised and piloted on a Self Help Group (SHG). On evaluation the approach was found to be positive.

This was later up scaled to 4000 women SHGs. By the third phase, it it became a huge movement. "Awareness campaigns were carried out. Akshar Deeksha rallies were taken out. We had Akshar Deeksha torch being carried over from one village to another, nonstop, day and night. People in the villages would wait for the torch to arrive in the early mornings to receive it and carry forward. It sort of became an independence movement. People were coming forward to help us in the movement. Under National Literacy Mission cost of making one person literate per year came to around Rs 87. Ours was just around Rs 18. Deccan Paper mills came forward and met our paper needs. Someone else contributed pencils. Women volunteers from Self Help Groups came forward as teachers. They did not charge anything. It became less of a government programme and more of a yagya."

Dr Poonam received The Prime Minister's Award for Women Literacy Programme in West Godavari District.

#### Interventions In The Health Sector

During her stint in the health department, she introduced bike ambulances in agency areas where ambulances could not reach. It had lot of impact on reducing infant mortality and maternal mortality.

Dr Poonam has written three books - Water management in Godavari Delta, Winds of change, Agriculture and Literacy as a Tool for Women Empowerment.

A straightforward and fiery administrator, Dr Poonam Malakondaiah is a compassionate human being who had always worked for the upliftment of the downtrodden. Her interventions have transformed the lives of thousands of farmers. She is a real inspiration.



## OUR BROILER FEEDS RANGE

Revolutionize your Broiler Birds diet with our Super Quality Feeds



## PREMIUM BRANDS

Noveltech feeds are formulated with premium raw materials, best in class feed additives/supplements to deliver

**'Balanced, Optimum and Economical Nutrition solution for your Broilers.'**



NOVEL POWER

EURO POWER

ROHINI DOCTORS' BRAND

NUOVO PREMIUM



www.noveltech.in



040-30903600

Also find us at :





# Daughters of the Soil Await Recognition of their Toil

*“A man’s got to do what a man’s got to do. A woman must do what he can’t.”*

*-Stand-Up Comedian Rhonda Hansome*



#### ABOUT THE AUTHOR

**Dr Tarun Shridhar** is a former Secretary, Ministry of Fisheries, Animal Husbandry and Dairying, GOI



**Our homegrown cowgirls are the real torchbearers and leaders of India’s dairy revolution. More than a third of the members of dairy cooperatives in India are women**

“Women’s worst invention was the plough. With the beginning of plough agriculture, men’s roles became extremely powerful. Women lost their ancient jobs as collectors”, thus Helen Fisher, the American Anthropologist, explains the evolution of the role of women in agriculture.

The invention of the plough may have allowed humanity to plant crops on hard and stony soil, it has also contributed to enslavement of generations of women, a group of US economists has claimed. The roots of inequality have taken hold in the soil of our own making, they argue; the plough being the instrument. The yoke wasn’t put around the necks of only the cattle, the women too were yoked. Does this theory fail to reason? It may, but credible research has identified the root of inequality down to whether you ploughed or hoed. Let us go to some specifics.

Participation of women in the labour force is a low 16% in Pakistan but on the other hand as high as 90.5% in Burundi. Both countries are underdeveloped, so the economic status of a nation or society does not offer much of an answer as to why, in the context of women’s role and position, do some societies have more gender equality than others? Many would attribute this stark difference down to cultural factors. No doubt a valid explanation, but it begs another question. Why did the cultures develop the way they did?

#### **How Ploughs Sidelined Women**

Women often played a significant role in tending the land in the distant past. But when ploughs were introduced in various regions, men were placed at an advantage.

Working with ploughs and the animals used to pull them required considerable strength, especially upper body. Women got sidelined and confined to households. We are one of the

typical plough-using societies which include Pakistan, of course. By contrast, societies in which hoeing is common are found in African countries such as Burundi, Rwanda, Kenya etc., surely amongst the poorest in the world. Yet, women here continue to have significant roles in working on the land because hoeing does not require the use of heavy force. So in Burundi, women make up more than 90% of the country’s agricultural workforce compared to Pakistan’s 16%.

Before the invention of the plough, shifting cultivation was the norm, which used hand-held tools such as the hoe and the digging stick. This kind of farming was labour-intensive and could be done intermittently, stopping and resuming when needed. This made it compatible with doing other tasks such as looking after the children and the kitchen, a task universally performed by women; so they were active participants in farm work.

This pattern was disrupted with the introduction of the plough; it required brute strength and power, not only to move it, but also to control the large animal with whose help the field was being ploughed. It also had to be used continuously rather than intermittently. With ploughing, there was also less need for weeding, an activity that was easily done by women and children.

#### **Gender Relations, Culture And Society**

French historian Fernand Braudel’s description of how gender relations, culture and society were transformed by the adoption of the plough in Mesopotamia between 4,000 and 6,000 BC. Braudel is an eye opener, “Until now, women had been in charge of the fields and gardens where cereals were grown: everything had depended on their tilling the soil and tending the crop. Men had been first hunters, then herdsmen. But now men took over the plough, which they alone were allowed to use. At a stroke, it might seem that the society would move from being matriarchal to patriarchal: That there would be a shift away from the reign of the all-powerful mother goddesses...and towards the male gods and priests who were predominant in Sumer and Babylon...and was accompanied with a move towards male domination of society and its beliefs.”

The use of the plough, undoubtedly, led to a marked increase in productivity, but it also changed gender roles. Women got relegated to the margins. Studies on the subject infer that the societies and ethnic groups who have descended from plough-using peoples are significantly more likely to cherish the belief that men should have a preference in society and economy, and that men make better leaders. These attitudes visibly persist even when societies have advanced in education and economy; the plough of gender inequality runs deep.

Gender equity, as defined by the International Labor Organization (ILO), refers to “fairness of treatment for women and





## In aquaculture, women account for 28 percent of the workforce in the primary sector

men, according to their respective needs.” Gender equality, on the other hand, is defined by the ILO as the “enjoyment of equal rights, opportunities and treatment by men and women and by boys and girls in all spheres of life”. The Sustainable Development Goal 5 makes a laudable statement: “Achieve gender equality and empower all women and girls.” It recognises that women and girls represent half of the world’s population and therefore also half of its potential. But gender inequality persists everywhere and stagnates social progress.

On average, women in the labour market still earn 23 percent less than men globally and women spend about three times as many hours in unpaid domestic and care work as men. The goal is further fine tuned as follows: 5.4: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate. 5.5 Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life. 5.A Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws. With only seven years of the SDGs remaining, a mere 15.4% of Goal 5 indicators are on track.

### Women’s Empowerment In The Livestock Sector

Women continue to be over-represented among the poor, suffer heavy workloads and have little control over resources for family care. Poverty and food insecurity are enhanced by lack of access to, and control over assets, and lack of access to institutions too. Women’s empowerment in the livestock sector, therefore, is essential to make progress toward gender equality. Women more easily control livestock than other high-value assets, such as land, and therefore livestock provide key opportunities for women’s empowerment.

What’s more, livestock provide animal-sourced foods that help underpin women’s traditional role in securing household nutrition.

India is the largest producer of milk in the world, contributing more than 23 percent of global milk production. This comes from the huge livestock population mostly tended by women. While Inaugurating the International Dairy Federation World Dairy Summit 2022, the Prime Minister had highlighted that women’s representation in the workforce in India’s dairy sector is as high as 70 percent.

Our homegrown cowgirls are the real torchbearers and leaders of India’s dairy revolution. Not only this, more than a third of the members of dairy cooperatives in India are women, the PM pointed out.

The dairy cooperatives have not only made the farmers self-sufficient but have also broken the shackles of gender, caste, religion and community. Since women producers form the major workforce of the sector, it is playing a leading role in women’s empowerment.

The success of women in dairying could be replicated in other livestock species like goats, pigs and poultry by organising women into self-help groups, women-producer organisations and cooperatives. Women-inclusive cooperatives and other producer’s associations or groups, if established, strengthened and supported, would surely improve their contribution in policy-making as well their bargaining power.

Although women make up half of the overall workforce throughout the fisheries and aquaculture value chains, occupying critical roles, they constitute a disproportionately large percentage of the people engaged in the informal, lowest paid, least stable and least skilled segments of the workforce.

In aquaculture, they account for 28 percent of the workforce in the primary sector; in fisheries 18 percent; and across the pre- and post-harvest components of the value chain an estimated 50 percent.

Social and cultural norms limit women’s participation in fisheries. Their traditional roles as household managers and primary caregivers push them to work closer to home, thus having less time for higher income-generating activities of the sector. The cultural taboos too prevent women from going out on boats or learning how to swim.

“She sells seashells by the seashore.” The tongue-twister we learned as children carries the literal truth about the role of many women in fisheries around the world; they would stay at the shore and not be allowed to venture into the sea; and the figurative truth about the entire realm of agriculture where despite their immense labour they remain marginalised.



## VAIKUNTH MEHTA NATIONAL INSTITUTE OF CO-OPERATIVE MANAGEMENT (VAMNICOM)

(A National Institute under the aegis of National Council for Cooperative Training (NCCT), Promoted by Ministry of Cooperation, Government of India)

Savitribai Phule Pune University Road, Pune – 411 007

### ADMISSION OPEN FOR 2 YEAR FULL TIME RESIDENTIAL PROGRAMME

#### POST GRADUATE DIPLOMA IN MANAGEMENT-AGRI BUSINESS MANAGEMENT PGDM- ABM (2024-26)- 32nd BATCH

(Approved by AICTE & Recognized as equivalent to MBA degree by AIU & accredited by National Board of Accreditation, New Delhi)

**ADMISSION PROCEDURE :** The selection to PGDM-ABM programme is based on Entrance Examination comprising of (1) Latest valid test score of CAT / XAT / GMAT / CMAT (NTA) at the time of application (GMAT / GRE for foreign national candidates) (2) Group Discussion (GD) & (3) Personal Interview (PI)

**ELIGIBILITY FOR ADMISSION :** Any Graduate from a recognized University, with minimum education of 15 years full time education (10+2+3) with at least 50% marks for General/OBC (non-creamy)/EWS candidates and 45% for SC/ST candidates and having valid test scores of one of the National Level Common Entrance Tests - CAT/XAT/GMAT/CMAT (NTA). These guidelines may get modified / subject to be modification by AICTE or Government guidelines from time to time. Candidates appearing in forthcoming degree examinations can also apply subject to fulfillment of conditions by 14.08.2024. Reservation of seats for OBC (Non Creamy)/SC/ST/Differently Abled persons and wards of Kashmiri Migrants and Kashmiri Pandit/Kashmiri Hindu families (non-migrants) living in Kashmir Valley as per Govt. of India rules. Few seats are available for wards of NCCT / NCUI /VAMNICOM employees, co-operative sponsored candidates and foreign nationals. The Group Discussion and Personal Interviews will be conducted at selected centres during April/May 2024, subject to sufficient number of candidates opting for it.

**HOW TO APPLY :** Candidates can apply online on VAMNICOM website and pay fees online. The prescribed application form may be downloaded from the VAMNICOM website and apply with valid score of CAT/XAT/GMAT/CMAT (NTA) from 11th January 2024 to 31st March 2024. Pay Rs. 500/- through online in favour of "The Director, VAMNICOM, Pune". For details on the admission criteria, programme structure, application form, please visit [www.vamnicom.gov.in](http://www.vamnicom.gov.in)

**WHO CAN APPLY :** Students willing to make career in Agri Business Sector.

#### PGDM AT URICM, GANDHINAGAR

The application form and merit list is valid for taking admission in 17th batch of PGDM Programme offered by URICM, Gandhinagar.

**DIRECTOR, VAMNICOM**



# Beacon of Transformation



Dr. V. Geethalakshmi embodies the spirit of progress and empowerment, shaping a future where agriculture thrives, and women stand tall as equal partners in building a sustainable tomorrow



In the heartland of Tamil Nadu, amidst the verdant fields and the whispers of the wind, Dr. V. Geethalakshmi stands as a beacon of transformation. As the first woman Vice Chancellor of the Tamil Nadu Agricultural University (TNAU), her journey has been nothing short of extraordinary, marked by a fervent dedication to revolutionizing agriculture and uplifting women across the region. Dr. V. Geethalakshmi has doctoral degree (Ph.D. in Agronomy) from Tamil Nadu Agricultural University.

Started the career during January 1989 and continuously serving in Tamil Nadu Agricultural University (TNAU) for the past 35 years under various capacities as Assistant Professor, Associate Professor, Professor, Professor and Head, Director (Crop Management) and Vice Chancellor of Tamil Nadu Agricultural University.

#### Resilience, Brilliance, Unwavering Commitment

Dr. V. Geethalakshmi's story is one of resilience, brilliance, and unwavering commitment to her craft. Rising from humble beginnings, she traversed the hallowed halls of academia, earning accolades for her groundbreaking research in agronomy, climate resilience agriculture, water budgeting, digital agriculture, sustainable farming practices and artificial intelligence. Her passion for agriculture, coupled with an innate sense of social responsibility, propelled her to receive International and National level funded projects to augment the agricultural innovation in India. She contributed more than 134 research papers in International and National Peer reviewed Journals and authored 11 books, 40 book chapters besides bringing out many technical briefs, policy briefs and manuals.

#### ABOUT THE AUTHOR

The fourteenth Vice-Chancellor of this prestigious University **Dr. Geethalakshmi Vellingiri**, a specialist in Agricultural Meteorology and an internationally acclaimed climatologist, has served in Tamil Nadu Agricultural University for more than 32 years in various capacities including Professor and Head, Agro Climate Research Centre and Director, Crop Management. Dr. V. Geethalakshmi acquired agricultural education in TNAU and had undergone Post Doctoral trainings in the fields of weather forecasting, climate modeling, climate change and climate resilient technological development in the renowned International Institutes of Australia, UK, US, Israel and in Japan

Under her visionary leadership, TNAU has become a bastion of agricultural excellence, pioneering cutting-edge research and fostering collaboration between academia, industry, and farming communities. Her initiatives have revitalized farming practices, promoting organic cultivation, water conservation, and climate-resilient agriculture to ensure food security in an era of environmental uncertainty has led TNAU as second top agriculture institution in India.

#### Staunch Advocate For Gender Equality And Empowerment

However, Dr. V. Geethalakshmi's impact extends far beyond the fields. Recognizing the pivotal role of women in agriculture, she has been a staunch advocate for gender equality and empowerment. Through targeted programs and initiatives, she has empowered women farmers with knowledge, skills, and resources, enabling them to take charge of their livelihoods and become agents of change in their communities.

#### Awards And Accolades

Dr. V. Geethalakshmi's efforts have not gone unnoticed. She has received more than 25 prestigious accolades and awards for her contributions to agriculture and women empowerment. Dr. V. Geethalakshmi is a recipient of 22 prestigious awards that include "Tamil Nadu Best Young Women Scientist award", "National award for Women's development through the application of science and technology", Best Scientist award for four times from TNAU, Scientist of Excellence in Niche Area Award in the field of Agricultural Meteorology, Harit Kranti Award, Fellowship of Association of Agrometeorologists, Fellow of Indian Meteorological Society and Dr. P. Balakrishna Pillai, Best Scientist award in the field of Agrometeorology for the year 2023. Yet, for Dr. V. Geethalakshmi, the true measure of success lies in the smiles of farmers and the newfound confidence of women who have embraced their potential to transform the agricultural landscape.

As Dr. V. Geethalakshmi continues to break barriers and sow the seeds of change, her legacy serves as an inspiration to generations of aspiring agriculturists and champions of gender equality. With her unwavering resolve and indomitable spirit, she embodies the spirit of progress and empowerment, shaping a future where agriculture thrives, and women stand tall as equal partners in building a sustainable tomorrow.



### International Exposure

I have international exposure through export of more than 20 Quintal Organic Pickles, Jam, Mellow etc. @ Australia and Nairobi. Nutra - Capsules of SHGs are available at largest e-commerce site AMAZON also.

As far as electronic media exposure is concerning Ministry of Agriculture Govt. of India prepared Documentary on Soya Entrepreneur & uploaded on YouTube link - <https://youtu.be/ZqW8r5dfUic>. Similarly DD Kisan channel <https://youtu.be/1T6ns49kUq8> New Delhi, ZTV, 1st India, ETV Rajasthan, A1

News, News 18, Rajasthan Patrika, Denik Navjyoti etc. also made documentary and uploaded it on YouTube.

A step towards Start-Up India, prepared more than 1000 entrepreneurs, developed "Inventory of First 100 Agro Entrepreneurs", Success Stories of 50 Entrepreneurs in (English & Hindi). The theme and title is "Dream, Desire & Goal".

I have published 51 Research papers in high repute national & international journals, 61 extension articles in highly reputed magazines, 5 Books on Food Processing techniques, Women empowerment, Self-employment through processing & preservation, Social Psychology & General Psychology. Developed 135 leaflets, pamphlets, table calendars, wall calendars and training manuals, 2 Ext. Games, 28 folders etc.

### Awards and Recognition

I received Best Paper Presentation Award in International Conference at Las Vegas, USA in 2004, Best Extension Worker Award by ICAR New Delhi in 2007, Best Women Extension Worker Award by Agriculture Today in 2021. In the same year by India Book of World Record for outstanding Work in the Field of Agripreneurship. Best KVK Professional Award by National Society of Extension Education. Jiyo Dil se Award by 94.3 MY FM in 2014 at Indore.

Best Extension Worker award and Best Team Worker Award by MPUAT Udaipur, in 2004 and in 2012. Best Team Worker Award was also received in 2017 by Agriculture University Kota. Best Extension Worker Award by the District Collector Kota was also received in 2005 for contribution in making rural women self-reliant.

I feel proud to write my path of struggle taking me towards success.

### Life History

When I was 11 months old, I was attacked by Polio in lower half of the body. One of the renowned Orthopedician Dr. P. K. Sethi from SMS hospital Jaipur Rajasthan treated me. Immediate treatment cured me but partially, my right leg could not gain strength, became weak and therefore I was suggested to walk with Callipers. I used to walk to school with an escort.



Always fascinated by science, Medicine was my priority. Biology classes, being on the second floor and at basement in the school, was hard to approach and attend. I was often delayed in the class by uneven stairs and hurting knee.

Anyway, I completed my schooling with first division. Sooner I took admission in B. Sc. in the college of Home Science at Udaipur (Raj.). Stairs were difficult challenge and were tough to conquer, every day. Still with efforts I managed to pass B. Sc. with first division. The difficulties were although same during M. Sc. from Faculty of Home Sc. Baroda (Gujrat), which was one of the best institutes in Asia.

I had to travel in train alone, walk to large distance on the platform, accompanied by luggage and often used to fall, hurting myself. But in spite of all these I never felt like quitting my studies and passed M.Sc. with first division. I firstly appointed as Lecturer in Govt. Girls College, Sri Ganganagar (Raj.) Even after the bitter experiences during studies. I gained my strength to do Ph. D. From

SNDT Women University Mumbai (Mah.) Though we had hostel in the campus itself, I was always cursed with the stairs and often ended up with cuts and bruises.

At the end I must say that with God grace I completed my 32 years service and retired from the post of Director Human Resource Development from Agriculture University Kota (Raj.) successfully and awarded 16 times over the 32 years in my job.

### Youth and Women Empowerment

I have developed many entrepreneurs who are self-employed and earn their livings independently. Through my constant efforts numbers of women are empowered socially and economically. I was Member of BOM of Agriculture University Kota, member secretary of Food Processing & Value Addition committee of Agriculture University, Kota, Member of Board of Studies (BOS) of University of Kota, NIOS, New Delhi. Looking to the pity situation of the women in rural areas, seeing their potential to work, I have decided to uplift their status through their technological, social, and economic development.



### Post Retirement

It's been one year, I got retired even today I feel that there is no end to my service to nation and I want to religiously dedicate my entire life in empowering and making our Nation stronger, and our youths more skilled.

With the vision of making youth and women independent and empowered, I am still working in the field for the same.

Presently associated with SSG's of women and other youth entrepreneurs. Constantly motivating and guiding young entrepreneurs and women as a result recently Shri Om Birla Speaker of the Lok Sabha and Shri Nitin Gadkari, Minister of Minister of Road Transport and Highways of India acknowledged the work and awarded all these entrepreneurs.

I owe a lot to this nation and society with this feeling I try to extend whatever is in my capacity. I believe skill development is the tool with which our youth and society can be empowered, making our nation prosperous and strong.





#### ABOUT THE AUTHOR

Dr. Vibha Dhawan is Director General of The Energy and Resources Institute (TERI). Her research includes biofuels and sustainable development

plants annually through tissue culture technology, a legacy initiated by Dr. Dhawan.

Her role extended to the development of genetically modified (GM) crops, including GM mustard with enhanced vitamin A content and insect-resistant cabbage and cauliflower. Despite the success in development, regulatory challenges prevented their commercialization. Dr. Dhawan played a pivotal role in creating awareness and advocating for regulations related to genetically engineered crops, emphasizing issues like intellectual property rights (IPR) and biosafety.

#### Global Impact and Leadership Roles

Dr. Dhawan's influence transcended national borders as she served as an Advisor to the Director General at CIMMYT and later as Adjunct Professor & Consul General for the College of Agriculture and National Resources at Michigan State University, USA, contributing significantly to wheat and maize improvement in South Asian nations.

Her leadership prowess shone through as she assumed the role of Vice-Chancellor of TERI School of Advanced Studies from 2005-2007, further solidifying her impact in academia and research.

#### Overcoming Personal and Professional Challenges

While immersed in groundbreaking agricultural research, Dr. Dhawan adeptly balanced her professional commitments with her responsibilities as a wife and mother. The challenges inherent in juggling these roles occasionally led to moments of doubt, but with unwavering support from her family, she persevered.

"At times, it was tough. I remember one day I was almost in tears, and I said I wanted to quit my job. But my family, my husband, and especially my father stood behind me," she recalls. The challenges she faced, both personally and professionally, only fueled her determination and made her stronger.

#### Continued Impact and Future Initiatives

Dr. Dhawan's journey continues with an undeterred commitment to research and leadership. Currently spearheading TERI, she played a pivotal role in establishing the DBT-TERI Centre on Integrated Production of Advanced Biofuels and Bio-commodities. Under her stewardship, TERI recently launched the Green Shipping program in collaboration with the Ministry of Ports, Shipping, and Waterways, Government of India.

Her parting words reflect a visionary perspective: "We need to keep pushing the boundaries and find solutions to arrest global warming. We must come up with innovative and smart solutions in the field of renewable energy, and agriculture."

Dr. Vibha Dhawan's life and career stand as a testament to her enduring commitment to sustainable development, agriculture, and environmental stewardship. Her legacy continues to inspire and pave the way for a greener and more sustainable tomorrow.

# Pioneering Sustainable Agriculture for a Greener Tomorrow



**We need to keep pushing the boundaries and find solutions to arrest global warming. We must come up with innovative and smart solutions in the field of renewable energy, and agriculture**

In the intricate tapestry of women achievers, Dr. Vibha Dhawan emerges as a trailblazer, navigating the realms of sustainable agriculture, biotechnology, biofuel, and bioresources. With an illustrious career spanning nearly four decades, she currently serves as the Director General of The Energy and Resources Institute (TERI), a globally recognized organization for its remarkable contributions to energy, environment, and sustainable development.

#### Awards and Accolades

Dr. Dhawan's stellar achievements have earned her accolades, including the prestigious Woman in Agriculture Award and the Social Impact Leadership Award. Her influence extends beyond borders as she actively participates in various institutions, contributing significantly to research and policy development on both national and international fronts. Driven by an unwavering commitment, she tirelessly works towards creating a better, healthier, and sustainable world for future generations.

#### Balancing Roles with Grace

Beyond her professional triumphs, Dr. Dhawan seamlessly wears multiple hats – a researcher, an environmentalist, a visionary leader, and a devoted mother. Her journey, marked by personal and professional challenges, reflects her resilience and strength of character.

From the outset of her career, Dr. Dhawan displayed a passion for agricultural research. Raised in a middle-class family, she faced the challenge of convincing her parents to allow her to pursue a career in agriculture. Undeterred by societal norms that questioned a woman's entry into the research domain, she remained steadfast in her determination.

"After my MSc., I insisted on going for research rather than pursuing a B.Ed. degree, as my parents suggested. I worked in the field of plant tissue culture and submitted my thesis," she recalls.

Joining TERI in 1985 marked the beginning of a transformative journey. Within three months, she secured an externally funded project in her field of expertise, granting her independence. With a substantial grant from the Department of Biotechnology, she established a Tissue Culture pilot plant in 1991, a pioneering initiative that showcased India's capabilities in this emerging field.

#### Contribution to Technological Advancements

Dr. Dhawan's indigenously designed laboratory became a hub for large-scale propagation of elite planting material, particularly in the forestry sector. The project not only broke new ground in tissue culture technology but also generated employment opportunities for school dropouts. Today, India produces millions of banana



# SUCCESS IS NOT A DESTINATION

## IT'S A JOURNEY.....



**Dr Prabhakar has extensively worked in the field of vegetable breeding and production of hybrids and developed irrigation schedules for effective water management and nutrient use efficiency in onion**

### ABOUT THE AUTHOR

**Dr. Boga Neeraja Prabhakar** is Vice Chancellor, Sri Konda Laxman Telangana State Horticultural University, Mulugu, Siddipet District, Telangana

**D**r. Boga Neeraja Prabhakar is Vice Chancellor, Sri Konda Laxman Telangana State Horticultural University, Mulugu. Despite facing numerous challenges, she embraced her passion for excellence in horticulture and soared to new heights, leaving a lasting legacy in the field of Horticulture. Her trailblazing journey serves as an inspiration for women in leadership roles, [breaking barriers](#) and achieving success.

Dr. B. Neeraja Prabhakar was born in 1966 in a middle class family with two siblings. She was a meritorious student who ranked first in school education and second in her post matric studies. She lost her elder brother due to ill health in her teenage years. Due to this loss, her parents were reluctant to send her to higher studies at Hyderabad. The commitment and dedication of Neeraja Prabhakar made her mother realize and encourage for higher studies as she was married at the early age of ten. But with the motivation of Sri. Vijay Kumar (Zoology lecturer), and with her sole interest and zeal to study, she decided to join B.Sc (Agriculture).

Dr. Neeraja came to Hyderabad for her under graduation along with her classmate's father and applied on the last day of admission. She stood second in the merit list during 1983 at university level and joined B.Sc (Agriculture) and bagged National merit scholarship and passed B.SC(Ag) from APAU in the year 1987 with distinction (8.89/10.00 OGPA).

#### Pursuing Higher Education

In the year 1987 she left home with a petty amount of Rs.1000 to pursue M.Sc (Ag) to the same APAU campus and never turned back for money. She has perceived M.Sc (Ag) Horticulture despite of unwillingness of her parents and completed her Master's in Agriculture & Horticulture from Andhra Pradesh Agricultural University, College of Agriculture, Rajendranagar, Hyderabad in the year 1989 with 9.08 OGPA missed her gold medal with less than 0.02 percent. She has completed P.G. Diploma in Personnel Management from Annamalai University. Dr. Neeraja Prabhakar earned doctoral degree in Horticulture from College of Agriculture, Rajendranagar, Acharya NG Ranga Agricultural University in the year 1998.

Before completion of PG degree, she was selected as Assistant Superintendent in Timber and Plantation department at The Singareni Collieries Company Limited, Godavarikhani & continued for 3 years of Godavarikhani. She started her career as an Assistant Superintendent in the Timber and Plantation department at The Singareni Collieries Company Limited, Godavarikhani from 1989 to 1992.

Her husband Boga Prabhakar encouraged her to pursue Phd due to her passion towards higher studies. He is the strongest pillar for her career. She joined Ph.D during 1992 in Horticulture and was awarded SRF from CSIR. She was the first candidate to obtain NET certificate in Horticulture from erstwhile Andhra Pradesh during 1992. Although, She was selected in ASRB for S-I post, she

preferred to join as (Asst prof) ARO-Nursery at FRS, Sangareddy and joined as Scientist at Fruit Research Station, ANGRAU, Sangareddy in June 1994 and served for about 29 years in Research (11 years), Teaching (15 years) and administration (3 years).

She has extensively worked in the field of vegetable breeding and production of hybrids and developed irrigation schedules for effective water management and nutrient use efficiency in onion. She has guided 30 PG/ Ph.d students as chairman and member of advisory committee and has published about 115 research papers in peer reviewed national and International journals, 130 popular articles and also presented several research papers in National and International conferences/seminars.

#### ICAR Accreditation

Presently she is the first regular women Vice Chancellor of Sri Konda Laxman Telangana State Horticultural University (SKLTSHU), Mulugu, Siddipet District among 74 SAUs (State Agricultural Universities) across India.

After assumption of Charge as Vice Chancellor, many significant achievements progressed in the University and to list few., SKLTSHU has got ICAR accreditation for University and colleges for UG, PG and Ph.D. programmes for a period of 5 years from 28th March 2021 to 27th March 2026. Release of First e-newsletter, University trademark logo, University song and Launch of University Website. University has got sanctioned new Horticulture Polytechnic college at Kolhapur, Nagar Kurnool District and Horticulture college for UG programme at Malyal by the Govt. of Telangana in the year 2023. University has successfully conducted two convocations. University accorded affiliation to the Forest College and Research Institute (FCRI), Mulugu and 3 Private Horticulture polytechnics by amending the Act and Statues of the University.

Under her Chairmanship, University has submitted Geographical Indications (GI) of Chapta chillies and submitted project for NABARD funding to file for Geographical Indication (GI) registration of Balanagar variety of Custard apple and Armour variety of Turmeric from Telangana state for the first time in India. Constituted Zonal heads of Agro climatic region of Telangana state for monitoring of ongoing research activities for better results. The university has successfully filed registration of Nalgonda Dosakaya of Oriental pickling melon with PPVFRA, New Delhi as farmers from Telangana state. It's the first of its kind from Telangana state.

#### State level Best Scientist Award

She has received "State level Best Scientist Award" in 2007, "University Meritorious Teacher Award" in 2010, "Badam Saroja Jayanthi Puraskaram" in 2011, "State Best Teacher Award" in 2019 from Govt. of Telangana, "Best Organization Women Empowerment Award, Queen of the Nation 2022 and "CHAI Honorary Fellow Award 2022" from Confederation of Horticulture Association of India (CHAI) New Delhi in the year 2022. She has been nominated as Chairperson of the Regional Advisory Committee (RAC) of Indian Institute of Oil Palm Research (IIOPR), Pedavegi from 13 June 2023 for a period of three years.





Unwanted girl child to becoming Millet Woman of India, recognised and awarded in Top 100 most powerful women of the world by United Nations, titled as Water Woman for reviving dead wells, watershed, rain water harvesting etc

Sharmila Oswal



# MILET WOMAN of INDIA

With immense pride I Sharmila Jain Oswal call myself as a born Warrior, because I was born as unwanted Girl Child and was deprived of any warmth or love that is usually showered upon a just born baby, by the family. Rather my very adorable mother was cursed, humiliated, tortured, and kept isolated. There was no warm welcome by my grandparents. On the contrary there was only bitterness and hatred for me and also my mother nor any affection or love. My Grandparents didn't even touch me, not even to mention that they didn't even lift me with any overwhelming love or care which normally is extended to a just born baby. And why would they do so, because for them I was an unwanted girl child who was a curse to the family. The problem was not in me being born but in their conservative thinking that stormed in their ghastly minds.

### Poor Educational Facilities

I was born in a very small village where the education facilities were very limited or even scarce, with only one Marathi Medium School – N.G. Patil Highschool. Under such circumstances the chances of children being encouraged to take up education or get admitted in schools was a remote thought or possibility and moreover if it was about a girl child then that consideration was never on the minds of the villagers or even parents for that matter. The girl child was definitely never a priority and her welfare was never on the minds of the village people.

So I grew up in a very discouraging environment as far as education was concerned, however my loving parents played a very instrumental role in me being educated. As they were the only ones who wished that me – their daughter shouldn't end up as an illiterate village belle pushed into early matrimony and only pushed to fend for her family, being in the family home kitchen from dawn to dusk, cooking food, washing utensils, tending to the sick and elderly, nurturing the kids etc. which was the case with many girls from our village.

Our family was a conservative one and as per our tradition, the household females – my mother, my grandmother, my aunts et al, had to follow the tradition of being under a face-veil (Goonghat) – to keep our face always hidden under the veil, whenever we were at home, in front of the elderly men or men in general, or even while we stepped out of our homes, which used to be only on rarest occasions.

As an unwritten rule or tradition, the women in our homes were supposed to be within the confines of the home, conducting their daily duties towards their families like being in the kitchen – cooking all meals, cleaning of the house, attending to the elders and children etc.

But my parents are quite liberal in their thoughts and were very loving, caring and supportive even then, as much as they are today. And that came as a saving grace for me and I was brought up with

### ABOUT THE AUTHOR

Ms Sharmila Jain Oswal is known as the Millet Woman of India for her immense contribution to the field of millets



immense love, care and they were the ones who instilled within me, along with the valuable sanskar, a new hope and an instinct to survive against all odds in life.

#### My Ideals

As I grew up, I drew inspiration from many life-situations and from many people that I came across in my life. But the two most inspiring persons in my life, who actually paved the course of my life journey and the foundation of my life are none other than these two great leaders, our country had, during and post freedom – freedom fighter Lokmanya Balgangadhar Tilak and Barrister Dr. Babasaheb Ambedkar.

A newly found realisation had dawned upon me! By then I had realised, that freedom is not easily obtained, given or offered on a platter, but it has to be earned or even snatched. And that to gain freedom one needs to think like a revolutionary, like a rebel and get equipped to spearhead a movement, a mission called freedom and embark on the journey of achieving freedom as a birth right – my birth-right!

I forever am indebted to both of them and as I mention their names I humbly bow in front of them with so much awe and much more reverence – My salute to these two pillars of my life.

#### School Life

A new chapter had already commenced in my life – my school, in fact it paved a solid foundation for my life journey. Because it was at my school, that I got exposed to the rich and cultural diversity of our country. It was here that I learned about the sacrifices made by our Freedom Fighters and how with faith and valour, with a do-or-die outlook towards their mission for freedom, finally they achieved freedom for our country, for all of us.

I drew not only inspiration but a solid dose of courage to fight for my freedom, as a girl child, as a girl student and as a Woman. I decided to create the life of my choice and go for everything that I wished, for myself and achieve my dreams. A deep patriotic sense also got instilled within those growing up days and it's forever been my endeavour to give back to my country by serving in a way that would rid India of the various dilemmas that plagued it as a nation.

#### Education Is My Birthright

But as they say goals need to be specific, which I read much later in my life after reaching England. Yes I went to England for my higher studies on full scholarship of Rs 28 lakhs (after rigorous efforts, hard work, extreme situations & opposition) after completing my law studies – a 5 year course in law studies, from ILS College, Pune. I was deeply touched by the famous freedom slogan of Lokmanya Tilak which was – “Swarajya is my Birth Right and I shall have it for sure!” I was mightily impressed and also inspired, by this quote and then I penned my own quote, which turned into my mission statement for life, which was – “Education is my Birth

right & I shall have it at any given cost!” This became the slogan of my life mission and I even wrote it down on a paper and pasted the paper above the door frame within my constant visibility. This becomes my Daily Affirmation which I looked up every morning and at regular intervals as I went about spending my day at home.

My marriage, my loving husband soulmate best friend became my solid support and strong foundation for all my life, with his support and being there for me in all my odds I could win the battles of war .....

At the age of 45 proved age is just a number, pursued and successfully accomplished to be Agro Water Diplomat from MIT Harvard University with full funding from USA.

My extreme hard life, millions of rejections, and failures in life couldn't limit my determination and desire to achieve my goals .

After returning from Canada , I started NGO Green Energy Foundation, started working with farmers. Water, Agriculture, food security attracted to me as Maharashtra Rajasthan I witnessed greatest discrimination and injustice to vulnerable farmers.

#### Work With Marginal Farmers

I started working with farmers handholding them for their water issues, through watershed management practices, was fortunate to get funding from NABARD for my water management project of Junnar Taluka, during covid times realised food security, nutritional security is the biggest need of the world, started focussing on Regenerative Sustainable Agriculture, growing millets.

Initiated conceptualised capacity building programs for farmers. I travelled across India in very small, isolated villages meeting farmers of different parts of India. I travelled to Khansi hills, Jantia hills at Meghalaya met north east farmers and their unique ways of organic farming, met Odisha Rajasthan Gujarat Maharashtra Vidarbha Palakkad Kerala farmers.

I also travelled to USA, Georgia Tbilisi meeting International farmers, and studying their strengths and weaknesses. I conducted capacity building program for overseas farmers.

2023 became milestone year of my life as I was declared as Millet Woman of India!

#### Milestones Of My Life

2018 I was invited to Delhi by Prime Minister Narendra Modi, to meet him at Parliament, he appreciated and applauded my empowering women farmers and vulnerable women training them digitally making them Digital Women Warriors ! This meeting was 22 minutes, I can never ever forget these special

moments in my life ! And how Prime Minister gave me special warm welcome also blessed me keeping his hand on my head “Ben Tame Jeevta Rejo “ tame bahu saras kam kari Rajya cho ! ( You are going very noble work, Sister god bless you )

2023 another milestone, Prime Minister Narendra Modi mentioned in his Maan ki Baat about my millet farming , empowering farmers growing millets, my millet story covered.

Prime minister Narendra Modi became my Inspiration, Mentor as I was again privileged to be invited at PUSA for personal interaction with Prime Minister.

After that again had great opportunity to be his attention at Global Millet Conference, where I was been given special proxy pass to interact with Prime Minister!

Isn't this a miracle? Repeatedly meetings Prime minister in this lifetime gave me an indication, special message that my responsibility has increased. I also became director of Pahale India Foundation!

I founded start up Gudmom / Badillia Organics with my Son Shubham Oswal, my start up grown in abundance with our global Brand Ambassador Prime Minister himself promoting millets globally.

Today Gudmom is become more than a business entity. Gudmoms vision to empower women and farmers creating employment, livelihoods,

#### Contributing to Climate Healing

Contributing to Climate Healing through Regenerative Agriculture, Growing climate resilient millets.

Unwanted girl child to becoming Millet Woman of India, recognised and awarded in Top 100 most powerful women of the world by United Nations, titled as Water Woman for reviving dead wells, watershed, rain water harvesting etc.

My journey has just begun. Long way to go. I want to make larger social impact. I want to create historical legacies. I am super excited today to be Climate Healer, Plant based Smart Food Revolutionist, and most importantly Millet woman of India.





# Perspectives on Increasing Farm Revenue

## AFC's Experience

AFC India Limited (AFC), established way back in the year 1968, is wholly owned by NABARD, Commercial Banks and EXIM Bank. AFC is a Deemed Government Organization and is accredited with ISO 9001:2015, 14001:2015, CMMI LEVEL 3 and ISO 27001:2018 certification

In its five decades of operations, AFC has accomplished more than 6500 consulting assignments of diverse nature to clientele ranging from GoI, State Governments, NABARD, Banks and multilateral agencies viz. World Bank, IFAD, ADB, UNDP, FAO etc.



**AFC understands that organic farming has a potential to play a significant role in the ambitious goal of doubling farmers' incomes by providing higher profits, reduced input costs, high global and domestic demand**

### ABOUT THE AUTHORS

#### Mr. Mashar V and Ms. Garima Khanna

Mr. Mashar V is a Post-Graduate in Agriculture with specialization in Soil Science, Agricultural Chemistry and Agronomy, from Kerala Agriculture University. He started his career in the Department of Agriculture, Govt of Kerala, and later switched over to The Federal Bank Ltd.

Subsequently, he worked with National Bank for Agriculture and Rural Development (NABARD) in various capacities and superannuated as General Manager.

During his stint in NABARD, spanning over more than three decades, he worked in states such as Andhra Pradesh, Kerala, Bihar, Maharashtra, Tamil Nadu and Andaman & Nicobar. Presently, he is working as Managing Director, AFC India Ltd, which is promoted by NABARD, Exim Bank and Commercial Banks

### Doubling of Farmers Income

Indian farmers face multiple challenges, primary among these are excessive stress on land, water and soil health, lack of knowledge/information about high value/growth products, limited exposure to high productivity practices, weak market linkages, inefficient supply chains with high levels of food wastage, and an acute dependence on rainfall.

According to the doubling farmers' income (DFI) roadmap, an average farmer's agri-based income was to double from Rs 58,246 in 2015-16 prices to Rs 1,16,165 (constant prices) by the 2022-23 agriculture year ending June 2023.

Better price realisation for farmers' produces and diversification towards high-value crops were among the seven sources identified in Niti Aayog's policy paper to achieve the goal of doubling farmers' income.

### AFC Experiences

AFC India Ltd (AFC) has been contributing significantly towards strengthening the agricultural supply chain, encouraging the development of farmer groups and facilitating direct market access to farmers under various projects awarded by its clients.

Additionally, AFC has been putting concerted efforts to diversify income sources of farmers by encouraging the adoption of agro-processing, promoting value addition, and creating avenues for agri-entrepreneurship to open new revenue streams hence making the goal of doubling income a realistic and achievable objective.

Experiences of AFC, as a third party agency engaged by clients, in working with projects aimed at improving farmers' income, are illustrated in the below given paragraphs

### Crop Diversification Programme under Mega Lift Irrigation Projects

Directorate of Agriculture & Food Production, Odisha has entrusted AFC India Ltd for implementing the above project covering 2,54,000 farmers, 105 Facilitating Agencies, 420 CBOs across 1,27,000 ha. in 105 clusters of 22 districts of Odisha. The project contributed in diversification from Paddy to non-paddy crops with focus on pulses, oil seeds and horticulture crops. Further, it contributes positively to soil health as also developing alternative livelihood sources through livestock and fishery rearing.

### Comprehensive Project on Rice Fellow Management (CPRFM)

The captioned project, a flagship initiative of Department of Agriculture and Farmer Empowerment, Government of Odisha with the goal of increasing cropping intensity



by targeting crop demonstration in 4,00,000 ha. during rabi 2023 season. The project focusses on restoring soil health, establishing community managed seed system, improving the livelihood of farmers through enhancement of income and nutritional security. AFC will be covering around 48,000 farmers across 32000 Ha in 3 districts - Gajapati, Angul and Sundergarh.

#### Himachal Pradesh Subtropical Horticulture, Irrigation, and Value Addition Readiness Project (HP-SHIVA)

The above prestigious project of Government of HP supported by ADB, contributed in development of Guava, Pomegranate, Sweet Orange, Litchi value chain and benefitted over 10,000 farmers spread across 7 districts. AFC also formed and registered 61 Cooperative Societies under the project for market facilitation.

#### Integrated Farming cum Postharvest Processing

In past, AFC had worked with Meghalaya State Skill Development Society and provided training on Integrated Farming cum Postharvest Processing with provision for market linkages to improve income of youth farmers in Khasi - Jaintia Region of Meghalaya.

Under this, Ginger value chain comprising of production, processing, packaging and marketing, was developed. Crop diversification through Oyster Mushroom and cultivation and marketing of vegetable crops were carried out, benefitting 2500 farmers.

#### Apiculture Project –Phase II

AFC as a technical partner to Meghalaya State Apiculture Mission in Implementation of Apiculture Project developed an entire Honey Value Chain by imparting hands-on training to 1500 beekeepers in bee management, processing, value addition and marketing of honey and bee wax.

#### Organic Farming Projects

AFC understands that organic farming has a potential to play a significant role in the ambitious goal of doubling farmers' incomes by providing higher profits, reduced input costs, high global and domestic demand. Since 2010, AFC has been providing its expertise in implementation of organic projects focusing on creating awareness, certification and improved access to markets. AFC is working in seven States, covering around 70,000 ha and 2.5 lakh farmers. AFC is one of the accredited agencies for implementation of Paramparagat Krishi Vikas Yojana (PKVY), Namami Gange Programme, MIDH-NHM and Bhartiya Prakritik Krishi Padhati (BPKP) schemes.

#### Chhattisgarh Gramin Aajeevika Samvardhan Samiti (CGSRLM- Bihan)

AFC is the technical partner to the above project for implementation of World Bank funded Organic Farming and Certification. The project is implemented with the involvement of more than 10,000 Mahila Kisans covering 10,000 ha in 450 villages spread over in 15 districts.

#### Watershed and Wadi Development Projects

Watershed development projects, has been proved to be one of the effective tools in ameliorating the economic condition of farmers especially living in rainfed areas. Similarly, Wadi, with multi species orchard plantation, helps improving living condition of tribal populace. NABARD had awarded WADI project benefitting 967 tribal families in Kalahandi district. The orchard development programme coupled with soil/water conservation and inter-cropping helped tribal farmers to augment their income.

#### Climate Resilient Agriculture

Climate-proofing of agriculture is crucial for the sustainable development of the sector and is directly linked to the goal of doubling farmers' incomes in India. Climate Proofing of Watershed Projects in Kalahandi district supported by NABARD, training for adoption of climate resilient cropping practices through organic farming, augmentation of irrigation sources through farm ponds and irrigation through solar pump sets, are few instances of projects undertaken by AFC towards building climate resilience amongst farming community.

#### Summary and Conclusion

On an average farmer's agri-based income was to double by June 2023, as per the road map for doubling of farmer's income. Better price realisation for farmers' produces and diversification towards high-value crops were the major interventions identified by Niti Aayog.

AFC India Limited (AFC), a Deemed Government Organization established in 1968, as a third party agency engaged by State Governments, NABARD, Ministries and external funding agencies, AFC has witnessed a definite trend in increasing of farmer's income under various projects.

Crop Diversification Programme under Mega Lift Irrigation Projects in Odisha, Comprehensive Project on Rice Fellow Management in Odisha, HP-SHIVA in Himachal Pradesh, Integrated Farming cum Postharvest Processing in Meghalaya, Apiculture Project -Phase II in Meghalaya, Organic Farming Projects in seven States, CGSRLM- Bihan in Chattisgarh, Watershed and Wadi Development Projects in Odisha, Climate Resilient Agriculture project in Odisha are few projects, implementation of which led to increased income to the farmer members covered under the project.

  
 SEEDS OF SUCCESS  
**SOMANI SEEDZ™**

HYBRID KRANTI



HYBRID BITTER GOURD - SKS 2543



HYBRID MAHIMA



HYBRID BITTER GOURD - SKS 2425



Save Soil मिट्टी बचाओ

Farmers First Choice

---

Produced, Packed & Marketed by :

SOMANI KANAK SEEDZ PVT LTD

Registered Office : C-91/7, 2nd Floor, Wazirpur Industrial Area, New Delhi - 110052.  
 Processing Plant : Plot No. 1663, HSIIDC, RAI - 131 029 (HR), Consumer Care No. : +91 98109 84150.  
 website : [www.somaniseedz.com](http://www.somaniseedz.com) email : [contact@somaniseedz.com](mailto:contact@somaniseedz.com)



# Supporting Women Farmers

## Why & How

“The e commerce option has made it convenient and simple to support and buy from women farmers, to engage for sampling and even B2B transactions on ONDC

### About The Author

Dr Maninder Kaur Dwivedi

Women and men together make families and communities. There is very little, other than biologically ordained functions, that cannot be done with equal efficiency by both the sexes. Yet when it comes to agriculture, there is invariably the practice that women do the tasks with more drudgery or less recognition of the cost of labour.

In addition, childcare and care of domestic animals is commonly in the feminine domain as is cooking or processing of food. When we buy food items from stores that are commercially prepared and packaged, there is little differentiation that is possible to support women lead enterprises. Discussions and seminars around women empowerment are going to be just words till we put our money where the mouth is, that is to buy directly from women farmers and processing units run by women.

#### Supporting Women Farmers

Let us look at the rationale of supporting the women farmers directly. Firstly, its economic recognition of their labour, formalizing the same and enabling local livelihoods. The example of Jabalpur based Lijjat papad is time tested, where urban women are given standardized raw material and the papad they turn in goes through strict quality control. This has effectively recognized their skills and provided gainful employment. Women Farmer Producer Companies (FPOs) or women Farmer Interest groups (FIGs) within mixed FPOs offer many such examples. These are now easy to access to sample and source their products due to digital/ online options of trade.

Secondly, women farmers across the ages have the traditional knowledge of food processing, a large part of which is still in the realm of cultural transmission only. Zarbalfed farmer producer company from Pulwama in J & K has unique products like apple pickle, apple chutney and Kashmiri masala tikki, that can give even the best of chefs a run for their money. Each of these is processed and made exclusively by women FIG members. The apples that are smaller in size do not go in direct sale and are processed into dried apple chips and then pickled. The masala tikki is a laborious process of grinding and roasting spices and drying as a tikki that is a traditional ready to use masala for meats and rajma, without any preservative or chemical. The products are available on buyer apps on the Open Network for Digital Commerce (ONDC) or link <https://www.mystore.in/en/seller/zarbalfed-farmer-producer-company-ltd> maybe used to view the products.

Thirdly, products from totally women FPOs would be clean, meticulously packed and reasonably priced. This is perhaps because they under charge for own wage. Bhairabi Women

Agro Producer Company Limited (<https://www.mystore.in/en/seller/bhairabi-women-agro-producer-company-limited>) is such a case.

They offer a variety of rice, including sugar free rice and dal that has been roasted and milled by traditional processes. The caffeine-free Ragi tea also involves slow dry roasting to preserve the flavour. Rice variety cultivars of Laxmi Bhog rice, black rice and indigenous lines have been maintained season to season to preserve the genetic purity. So, sourcing from such women farmers benefits the consumer due to superior quality of the staples, while putting the money directly into hands of the women farmers, without any intermediary.

#### The Expertise Of Women Farmers

Fourthly, if someone is looking to buy any of the ancient grains like millets, it is best to go the tribal women farmers who know not just how to grow but also the time-tested processing methods that unlock the nutrients in these grains. Bastara Agro Producer Company Limited ([https://www.mystore.in/en/seller/bastara-agro-producer-company-limited\\_28q4imuz](https://www.mystore.in/en/seller/bastara-agro-producer-company-limited_28q4imuz)) is FPO exclusively of women farmers. While most farmers abandoned millets as they were difficult to process; the de-husking of kodo for instance was back breaking work; these women farmers continued cultivating and making food with millets. They offer a range of flours and millets, processed just before shipping to give maximum shelf life to the customer.

Fifthly, ready to eat foods reliably free of chemical preservatives and most suitable for children are best purchased from women FPOs or FIGs. Guilt free snack cravings (<https://www.mystore.in/en/seller/bhuj-mahila-farmer-producer-company-limited>) or natural nutrition supplements or health mixes (<https://www.mystore.in/en/product/millet-health-mix>) are the forte of women farmers. The women FIG innovation also leads to development of innovative products like millet cookies baked with honey instead of sugar and fruit jam made with honey (<https://www.mystore.in/en/seller/aryahi-fed-farmers-producer-co-ltd>)- all products without doubt the better option for children and older people, at the same cost as industry made ones.

The e commerce option has made it convenient and simple to support and buy from women farmers, to engage for sampling and even B2B transactions on ONDC. If one buys staples, ready to eat and beverages, from a women farmer collective, there is such a positive response from the women's groups that one can month on month witness new product development based on feedback shared with the women collectives. So this Women's day, let us not pledge to do anything but order online from at least women FPOs food products used at home and offices.



# Leading From The Front

While praises are often showered upon those who widely publicize their commitment to a belief, the true engineer of change works quietly and firmly towards maturity of the belief and its realization. Not giving any concessions when it comes to work while offering an equitable space, where nothing can stop one from performing irrespective of any gender.

This is what defines Prof. (Dr.) Balvinder Shukla, Vice Chancellor, Amity University. Dr Shukla has done her Ph.D. from Queen's University of Belfast, UK, M.Tech. in Chemical Engineering from Indian Institute of Technology, Kharagpur.

## Bringing About Meaningful Changes

With a total experience over 35 years in Research, Academics and Industry, Dr Shukla's commitment to bringing about meaningful change in the lives of women is driven by the belief of harnessing their inner strength. She believes that there is nothing called gender inequality if you believe so strongly from inside. The society makes you believe so, but it is the internal belief and strength that matters. Despite being a strong proponent of Women Empowerment, Dr Shukla doesn't quote examples of women leaders, reformers, scientists or sportspersons, she talks about all humans who have risen above all odds and adversities to become what they are. She believes that all those should be our role models, as they have overcome their challenges in their own way. If we are to be treated equally, we must learn from all genders.

## Activities And Initiatives To Empower Women

Amity University under the leadership of Dr Shukla undertakes several activities and initiatives throughout the year that mentally empower women and encourages both men and women to develop and be part of an environment which is conducive for all genders. Dr Shukla believes that since The Higher Education community consists of people from the most educated strata, where both teachers and the students are already enlightened and thus empowered. She encourages them to go beyond the boundaries of the university and work towards empowerment of women who really need their help and guidance.

Dr Shukla says that we are lucky to be in a country where women are getting equal opportunities to excel and are also offered special help through various government schemes. Our country has several women role models coming from almost every part of the nation and every religion. There is a need to rise above the basic and work for empowerment of women globally.

## Inclusive Environment

At Amity, Dr Shukla provides an inclusive environment for all, with institutes such as Amity Indian Military College for Women, conducting gender equity workshops, involving students to engage in CSR activities through which several initiatives have been taken for women empowerment in villages such as providing legal aid, workshops on entrepreneurial skills, self-defence, and digital literacy for women, women health and other issues, inviting visionary women achievers from all spheres to share their journey to success and, establishment of women help desk.

Amity university provides creche facility to employees enabling women to continue working with a tension free mind while having their children looked after within the campus. Aspiring women with no support at home need not take a break in their career. Several women have climbed the ladder of success under her leadership and guidance.



**Dr. Shukla empowers other women by exemplifying how traditionally 'feminine' strengths like empathy and emotional intelligence can transform leadership**



Amity university has had several women faculty as heads of institutes and Deputy Deans and Deans. Dr Shukla encourages women to participate in national and international events for their professional development and to keep pushing their boundaries. As a result, women at Amity have received several awards at international and the national level.

## Transforming Leadership By Personal Example

At personal level, Dr Shukla is also known to finance the education of daughters of community helpers and domestic staff, some of whom are now doing very well in their life.

In recognition of her contribution and views on women empowerment Dr Shukla has also been bestowed with Women ABLER Award 2018 by TiE, New Delhi.

As an administrator, Dr. Shukla sets high standards and holds her team accountable, ensuring operations run smoothly and effectively. Yet behind her tough, results-oriented approach lies genuine compassion. She prioritizes understanding individual needs and empowering others to excel. For Dr. Shukla, empathy and rigor go hand-in-hand.

She believes that strength emerges from hardship, viewing challenges as opportunities to build mental resilience and self-reliance. Dr. Shukla's balanced leadership approach - tough when required yet filled with care for both tasks and people - has enabled women working with her to thrive in pursuit of excellence. Her example provides an inspiring model of how drive and heart can transform teams and individuals alike.

Dr. Shukla empowers other women by exemplifying how traditionally 'feminine' strengths like empathy and emotional intelligence can transform leadership. Strengths like emotional acumen and mentorship come naturally to her empowering style, inspiring other women to confidently lead.

## ABOUT THE AUTHOR

Prof. (Dr.) Balvinder Shukla, Vice Chancellor,  
Amity University



# Marching Ahead

Improving The Quality And Productivity of Seeds and Agriculture



## About The Author

Dr Usha Zehr Barwale  
is Director and Chief  
Technology Officer,  
MAHYCO



We can only unlock the full potential of women entrepreneurs in agriculture by fostering a more inclusive, focused approach and sustainability at the core

**M**y journey in agriculture started at an early age as my father was in the seed business. Growing up I was surrounded with various aspects of agriculture, farm visits, dairy, harvesting seeds and helping as and when needed even as a child.

When I entered college, I was a microbiology student which set a good foundation for me in science and innovation.

I have seen first-hand how quality seeds changed farmers lives and livelihoods and with innovation believed that new solutions could further enhance this.

Bringing new technologies and tools for improving the quality and productivity of seeds and agriculture for small-holder farmers in Asia and Africa had been my journey till five years back and then I shifted my focus to identifying solutions for sustainable agriculture via biological treatments, carbon platform, and resilience in ag overall.

### Resilience And Commitment

I have been party to and witnessed many R&D breakthroughs in the industry and continue to believe that smallholder farmers in India will continue to feed our growing population and do so in a more sustainable manner.

I have been lucky enough to have access to crucial resources - be it formal education, training opportunities or industry trends & technologies. However, deep-rooted gender stereotypes were always lurking along the way.



I strongly believe that roles are not based on gender but on ability & talent and that's what I endeavoured for. With a family that supported at every turn, I know that with resilience and commitment, we can be a leader in our chosen domains.

"I guess juggling between multiple roles - right from a leader to a team member, from caregiver to a homemaker – isn't it?"

On a serious note, as a woman striking a balance between family responsibilities and the demands of scientist and entrepreneurship – I consider it as one of my biggest achievements.

I have seen many instances where women are pushed to leave behind their dreams to fulfil their household responsibilities. Since childhood, I was told that I can do anything if I put my mind to it and that has been something I wish to share with everyone.

### Inclusive, Focused Approach

Even on the professional front, as a director of the organization, the role changes and a lot more balancing is needed to address opportunities for women, productivity and creating a nurturing and safe environment for work.

As I always say, "To see benefits delivered to the farmers brings me the most joy"

I was associated with MAHYCO as Director and Chief Technology Officer for many years where I was able to make best use of cutting-edge technology and intensive research activities to produce, process and market high-quality hybrid and open-pollinated seeds.

My association with multiple renowned organizations, opened lot of doors for me to learn and grow.

As I look at my current role, I believe that we must leave behind an agriculture ecosystem that is resilient and promotes sustainable farming not only for the farming community but more broadly to all humanity.

We can only unlock the full potential of women entrepreneurs in agriculture by fostering a more inclusive, focused approach and sustainability at the core.



# Leading From The Front



**As Secretary of Animal Husbandry, Dairy and Fisheries, Dr Vijaya Lakshmi has been widely recognized for her sterling contribution in enabling high level of growth in the dairy sector, animal health and disease control and changing the scenario of the sector in Bihar**



**About The Author**  
Dr N. Vijaya Lakshmi. IAS.  
Principal secretary, Animal  
and Fisheries Resources  
Department, Government of  
Bihar

**D**r N. Vijaya Lakshmi belongs to the Indian Administrative Service of 1995 batch of the Bihar Cadre and presently posted as Principal Secretary, Animal husbandry, Dairy and Fisheries, Govt of Bihar.

She is an MSc in Zoology, MA in Anthropology and Ph.D. in Management from IIT Delhi. She also had an advanced management degree in public Policy from Indian school of Business, Hyderabad.

#### Significant Contributions To Public Policy And Governance

She has completed 28 years of service and had work experience in different aspects of public policy and governance in India.

She has worked extensively for promotion of Agriculture, Horticulture, Animal husbandry, Dairy, Fisheries, empowerment of women and other marginalized sections of the society, human resources development, creating livelihood opportunities for millions of people through Women Self-help groups, Child nutrition and child rights and experience in development administration starting from District level to State level to national level.

Experience in Heavy Industry like Steel sector for 4 years. Expertise in policy, planning, designing and implementing large scale programmes for public good in various sectors has been her forte since all these years.

#### Rural Development, Women's Empowerment

Out of 28 years she had nine years of direct experience in Agriculture and allied sectors including Horticulture, Animal husbandry, Dairy, Fisheries, Rural development and Livelihoods creation.

At the district level as the district magistrate and Deputy Development commissioner, she had almost 6 years of experience in rural development and creating livelihoods.

As Secretary Agriculture and Horticulture achieved highest production of rice, wheat and potato for the state of Bihar during 2011-13 and had been recognized with Krishi Karman awards successively in 2011-12 and 2012-13 from Ministry of Agriculture, Government of India.

As Secretary of Animal husbandry, Dairy and Fisheries

recognized for best performance in animal health and disease control and changing the scenario of the sector in the state.

#### Secretary Agriculture and Secretary Animal Husbandry

Her tenure as Secretary Agriculture and Secretary Animal Husbandry are the most fulfilling and satisfactory as in a limited period of time one can change the fortunes of farmers and improve nutritional security of the communities and alleviate poverty.

During 2016-17 to 2018-19, the most productive years under her leadership, the contribution of Animal husbandry, Dairy and Fisheries sector in Bihar towards State GDP has been Rs1,50,000 Crores (21430 million\$ roughly). She worked as Secretary, Animal and Fisheries Resources Department from 2016 to 2020 and again from 2023 June onwards heading the Department.

It took grit and determination to turn around the department, which was hitherto neglected for years due to fodder scam. The employee apathy is the highest and motivation is the lowest in this department.

From that kind of a scenario to getting recognized at the national level through awards was a big achievement in a short span of two to three years.

#### Remarkable Progress

By 2018 the department was turned around and has displayed remarkable progress during 2016-17 to 2018-2019 as the cumulative data of these three years growth reflects that the total egg production has grown with a rate of 65%, meat production with 19.63%, fish production with 18.47% and milk production with 17.43%.

Vaccination in livestock increased at the rate of 107% from a mere 26.24 lakh in 2014-15 to 555.66 lakh in 2018-19.

#### 'All Women' Dairy Cooperatives

She was instrumental in facilitating "all women" dairy cooperatives with a membership of 250000 women for their empowerment in addition to the regular cooperatives in Dairy sector.

Trained and built capacities of thousands of farmers in Agriculture especially integrated models of Agriculture. She had designed special programs for women farmers belonging to vulnerable communities.

Introduced new technology-oriented schemes like bio flock and wetland development programmes to bring huge area under aquaculture.

As Joint secretary, Marketing, Ministry of Agriculture, she spearheaded the FPO (Farmer producer Organization) policy and implementation.

She was also honoured with Digital India Award for eNAM (Electronic National Agriculture Market) by the Hon'ble president of India in 2022.

Some of the important awards and accolades she has received in the areas of Agriculture and allied sectors are as follows:

#### Awards and Accolades

1. In 2010-11 Krishi Karman Award for Best State in Rice for highest Rice production during 2011-12 by M/O Agriculture, GOI, presented by the President of India

2. In January 2013 Krishi Karman Award for Best State in Wheat for highest Wheat production during 2012-13 by M/O Agriculture, GOI presented by the President of India

3. Appointed as the Chairperson of the subgroup on women in Agriculture by the Planning Commission, Government of India in 2012.

4. An award and appreciation certificate by M/O Agriculture for remarkable improvement in Horticulture programmes and also for world record in Potato production as Secretary Agriculture and Mission Director Horticulture in 2014

5. Selected in the "100 Women achievers of India" contest organised by Ministry of Women and Child Development and Face book based on public nominations and public voting in 2016 January and honoured by his Excellency, The President of India.

6. 2016 International Innovations Awards category of Citizen Focused Innovation for "Gramvarta: A Women's Group led Community Empowerment Model for Improved Nutrition, Health, Water, sanitation and Hygiene Outcomes in Bihar", organized by Commonwealth Association for Public Administration and Management. Got a Certificate of Distinction.

7. Global Agricultural Leadership Award, 2018 by Indian Council of Food and Agriculture, New Delhi for sustained high growth and outstanding performance in dairy and livestock sector.

8. Awarded best Cooperative award for COMFED by national cooperative development corporation (NCDC), New Delhi and the Ministry of Agriculture, Government of India in 2018.

9. Awarded for efficient management of skill development programmes for women beneficiaries by Bihar Skill Development Mission.

10. SKOCH Governance Award for improving the livestock sector in 2019. It is the highest civilian award given by a nongovernmental Organization in the area of governance.

11. Best State Dairy Federation award 2020 for State Milk Federation, COMFED for providing stellar leadership in bringing about holistic development in Dairy Sector as its chairperson for showing best performance out of all State Dairy Federations in the country. Awarded by ICFA on 10.1.2020 by Secretary Animal Husbandry Department, Govt of India.

12. Digital India award for e NAM by Hon'ble President of India in 2022.

#### Publications

She also had publications in some national and international journals, written in newspapers on various development issues and designed and edited several info packs and manuals for public use.



# Nitte Jackfruit Processing Cluster

## Advancing Women's Economic Independence

### Promotion Of Agro-Rural Clusters

Dr. S. Glory Swarupa has been instrumental in promotion of several Agro-Rural clusters across the country covering handlooms, handicrafts, natural fibres, toys, honey, coconut, millets, jackfruit, banana to name a few. To align with National Priorities and UN Sustainable Development Goals, she is earnestly working on the concept - Doubling of Women Entrepreneurs and making efforts to establish Centers of Excellence in Clean Technologies and Future/Smart Technologies. Being first Woman Director General, she is effectively managing a self-financed National Institution which is an apt illustration in MSME sector.



### ABOUT THE AUTHOR

Dr. S. Glory Swarupa is Director General, National Institute for Micro, Small & Medium Enterprises (ni-msme) at Telangana, an initiative of Ministry of MSME, GOI

The Nitte Jackfruit Processing Cluster, the first ever cluster for jack fruit represents a significant step forward in the agro-industrial sector and women empowerment with the assistance from Ministry of Micro, Small & Medium Enterprises (MoMSME), Govt. of India under Scheme of Fund for Regeneration of Traditional Industries (SFURTHI). This initiative seeks to capitalize on the largely untapped potential of jackfruit in Karnataka, a fruit known for its extensive health benefits but historically neglected due to insufficient processing facilities and low consumer awareness. The Nitte Jackfruit Processing Cluster is a transformative initiative to harness the untapped potential jackfruit, employment generation, economic development of the community and women empowerment. Launched in January 2024, the cluster processes 6000 Tonnes per Day (TPD), utilizing advanced technologies to preserve and promote jackfruit and its by-products.

### Objective

The Nitte Jackfruit Processing Cluster has a mission to strengthen the local farming sector. It champions jackfruit cultivation and processing, aiming to augment the earnings and quality of life for local farmers and rural women. The initiative opens new market opportunities, creates additional sources of income, and fosters entrepreneurship in rural areas. Furthermore, the cluster's strategy to develop value-added jackfruit commodities serves two purposes: it seeks to raise the economic status of those in its supply chain while also addressing community nutritional needs and contributing to food security. These concerted efforts are geared towards promoting economic growth alongside the health and well-being of the local populace through improved nutrition.

### Collaborative Efforts

At its core, the Nitte Jackfruit Processing Cluster stands as testament for successful partnership. The National Institute for Micro, Small & Medium Enterprises (ni-msme), Hyderabad and AIC Nitte Incubation Centre have come together to spearhead this venture, complementing each other's expertise in business incubation and MSME development. The strategic support from SIRI Gramodyoga Samithi further enriches this endeavour with its focus on rural empowerment and sustainable development. Key operational leadership is provided by the Nitte Farmers Producer Company, which establishes a direct link with the local farming community, ensuring that their needs and insights are at the forefront of cluster activities. This collaborative framework has ensured the cutting-edge research and technological innovation to effective market linkages that ensure the success and sustainability of the initiative.

### Challenges in Procurement of Customised Machinery

Despite agriculture being a primary occupation in India, technological advancements in the sector remain limited. In the conception phase of cluster, a team of experts from AIC Nitte and ni-msme identified cutting-edge processing technologies, along with the need for modern machinery and equipment tailored to the specifics of jackfruit processing. However, the procurement process encountered significant obstacles. Despite three separate tenders for the required machinery, there was an alarming lack of responses from vendors. This absence of engagement highlighted a concerning gap in the market's ability to meet specialized agricultural technology needs. It was only upon the issuance of a fourth tender, few suppliers participated finally. Yet, this step forward brought to light another challenge: the complexity of providing customized machinery and equipment that would meet the unique requirements of jackfruit processing. The difficulty in securing such specialized technology underlines a critical barrier that must be overcome to ensure the success and efficiency of the jackfruit cluster. Initial technology sourcing faced limited vendor

response, but persistent efforts eventually secured specialized machinery for processing needs. The key pieces of equipment installed at Common Facility Center (CFC) are:

1. Blast Freezer
2. Vacuum Fryer
3. Retort
4. Boiler
5. 2 Stage Pulping Machine
6. Air Dehydrator
7. Pulp Packing Machine
8. Multiheaded Packing Machine
9. Halwa Making Machine
10. Twin Chamber Vacuum Sealing Machine

### Crafting Success through Women

The Nitte jackfruit cluster will empower rural women through following interventions

**Self-Help Groups:** Establishing and nurturing Self-Help Groups to enable women to collectively process, market jackfruit products, fostering teamwork and self-reliance.

**Innovation & Incubation:** Creating platforms for women, providing resources and mentorship to turn innovate ideas into marketable items.

**Workforce Integration:** Offering flexible work schedules and on-site childcare to accommodate women workers, thereby integrating more women into the workforce.

**Financial Literacy Workshops:** Conducting workshops on financial literacy and management to equip women with the knowledge to effectively manage invest and earnings.

**Environmental Stewardship:** Engaging women in sustainable jackfruit farming practices that protect the environment while promoting eco-friendly processing methods.

**Quality Certification Training:** Capacity building of women on quality standards and certification process for export potential of their jackfruit products.

### Way Forward

The Nitte Jackfruit Processing Cluster represents a pioneering initiative that has fundamentally transformed the utilization of jackfruit in the state of Karnataka. By fostering strategic partnerships, providing crucial financial backing, and employing cutting-edge processing techniques, this project has yielded remarkable benefits for farmers, consumers, and agricultural industry. With the emergence of additional processing clusters and a growing awareness of its potential, Karnataka is well-positioned to harness the complete value of jackfruit, thereby fostering economic progress, women empowerment and sustainable development in the region.





# Journey, Challenges, Achievements

“ Skill development is the tool with which our youth and society can be empowered, making our nation prosperous and strong

I am Dr. Mamta Tiwari, Former Director, Human Resource Development & Prof. Extension & Communication Management from Agriculture University, Kota, Rajasthan. With 32 years of professional experience, I have 3 years experience of Director, Prioritization Monitoring & Evaluation, 4 years Associate Director Extension, Administrative experience of Senior Scientist & Head Krishi Vigyan Kendra, Kota in the field of extension and transfer of agricultural technology along with 2 years Teaching experience of Government Girls College, Sri Ganganagar, Rajasthan.

### Innovation

I have specialization in the field of Food Processing & Value Addition, women empowerment (Socially and Economically), self-employment through vocational trainings and self-sustainability through education and livelihood. I am a Successful motivator of potential people.

### During my service I developed these technologies:

- Fortified Soya Sattu NUTRAMEAL
- Vegetable, Spices & Herbal Capsules
- Nutrient rich Beetroot & Drumstick Products
- Immunity Booster to fight against COVID-19
- Combo of Health Promoters (Nutri Capsule)

These Combo packs (Nutri Capsule) are Anti Acne/Pimple, Glowing Skin, Anti Diabetes, Anti Arthritis, Anti Asthmatic, Anti Obesity (Weight Loss), Anaemia Inhibitor (Iron Plus), Digestion, Active Lungs, Active Liver, Memory Plus, Immunity Booster, Osteo promoter, Hair Therapy, Eye Care and Mother Care. It was a step under National Nutrition Mission.

Ministry of Food Processing Industries (MoFPI) uploaded success story on Twitter in PMFME Scheme under Azadi ka Amrit Mahotsav on 8.11.2021.

### ABOUT THE AUTHOR

Dr. Mamta Tiwari is former Director, Human Resource Development & Prof. Extension & Communication Management from Agriculture University, Kota, Rajasthan





# We Create Our Own Destiny

**R**ight from the beginning of my career, I have worked with intradisciplinary teams. As a chemist, I worked with plant and tissue culture scientists to help them in the identification of elite lines i.e. Low erucic acid and low glucosinolate Brassica. We together developed India's first double low Brassica variety TERI UTTAM Jawahar.

Later on, with entomologists I used my chemistry knowledge for developing biopesticides for the control of lepidopteran pests. Together we developed Biopesticide which got registered and the technology was transferred to 3 Indian and 1 US company.

During my visit to Germany Prof. Proksch's lab in 2004, I got fascinated with endophytes and started working with microbiologists to use endophytes and their metabolites as biocontrol agents. Here I developed a few microbial metabolites-based biopesticides.

## My Work With Farmers

I work with farmers and work with them to educate all the new technological advances, particularly in the field of agrochemicals. and have designed and demonstrated Integrated Pest Management (IPM) modules that help with managing pests and diseases with minimal use of chemical pesticides.

I remained very fortunate that 90% of my projects, were large network projects having multiple partners representing multiple organizations/countries. I have also completed more than 50 projects so far.

My final network project was a preparation of pesticidal molecules from plants supported by the Department of Biotechnology Govt. of India. We used to have six monthly review meetings in one of the network partner institutions. Then I realized the importance of outstation meetings as they lead to professional or personal bonding not only with your partner but also with the entire team which always results in generating greater output.

Collaboration has helped me in moving into a new research dimension. My collaboration inspires my journey with endophytes with renowned German phytochemist Prof. Peter. Together we submitted the project which was immensely appreciated.

## My Role Model

Late Dr. Prem Dureja, Former Principal Scientist, in Indian Agriculture Research Institute New Delhi, was my role model. Despite being a lady she used to work dedicatedly and always worked on a bench with such a humble personality with high credentials international exposures, and publications, working with ease with GC-MS and HPLC simulation only. I learned dedication, hard work, simplicity, and humbleness from my mentor.

## The Best Advice That I Have Received

With good behavior, hard work, a positive attitude, and god's blessings you can win the world. No power in the world that can stop you if you have the above factors with you. This advice I receive from Dr. Ashok Chauhan sir Honorable Founder President of Amity.

## My Advice To My Younger Self

"Hard work and honesty pay in the long run". I like it because one should not get distracted if things do not fall in line despite one's hard work and sincerity. Eventually, you will win.

## How To Bridge The Gender Gap?

By educating the parents and society.

## How To Motivate And/Or Empower Today's Young Women To Take Up A Career In Chemical Sciences Research?

- By giving them exposure to chemistry labs equipped with the necessary facilities to carry out research.
- Creating a chapter on school foods and successful women researchers.
- Open local chapters of women in chemical science at the school and college levels.

## One Word To Describe Me

Agchempreneur.

## One Phrase, Quote That I Live By

You are the master of your own destiny.

## ABOUT THE AUTHOR

Dr. Nutan Kaushik is Director General, Amity Food & Agriculture Foundation.

With a Ph.D. in Agricultural Chemicals from Indian Agricultural Research Institute, New Delhi (1991), Dr. Nutan Kaushik is a professional with extensive experience of over 30 years in R&D and over 20 years in PG teaching in the field of biotechnology, plant protection, natural products, analytical chemistry and agriculture policy.

“Hard work and honesty pay in the long run”







# Empowering Agriculture

## Insights from Amber Crop Science Private Limited

For the past 15 years, Amber Crop Science Private Limited has been actively engaged in the agricultural sector as a leading manufacturer of agricultural crop protection solutions. The company manufactures and supplies pesticides, fungicides, herbicides, PGR, and bio-fertilizers for nearly all crops. Keeping these points in mind, the agricultural awareness team had a special conversation with Sanjay Gupta, the Managing Director of Amber Crop Science Private Limited.

In this conversation, Gupta mentioned that the company started on a small scale initially. However, gradually the company and its products expanded, and today the company manufactures various types of products. Additionally, he stated that their company primarily focuses on crop protection and manufactures products related to it. The aim of their company is not only to ensure crop protection but also to make it beneficial for farmers so that they can earn better profits from it.

### Providing Farmers with Product Information

He mentioned that many times due to lack of information, farmers' crops get damaged, and they cannot benefit from recommended products. Keeping this in mind, our company's employees provide complete information to farmers about the products when selling them. While every company sells products, our company provides farmers with complete information about the product, such as which product is for which crop, when to use the product, in what quantity, and how.

### Products for Almost All Crops

He mentioned that our company manufactures products for all crops, and our products are of high quality, which farmers like very much. I would like to highlight

that currently farmers need the most information about how to strengthen their crops naturally at the initial stage. For this, we have some products that provide strength to the crops. Sometimes, crops are damaged by light wind and rain. Because they are not strong. Despite keeping this in mind, our company has prepared some products that strengthen the crops. Farmers can use them in their crops. This will also improve production.

### Using Natural Products for Farmers

He mentioned that if farmers use natural products from the beginning, crop losses will decrease, and productivity will improve. Also, it is essential for farmers to understand the soil. There are many nutrients found in the soil. If there is a deficiency of these nutrients in the soil, it affects crop production. Keeping the deficiency of these nutrients in mind, our company has presented many products. In addition, our company also examines the soil. For this, our company has launched a campaign. Under this, we get a soil health card made for farmers at our level so that they can be provided with correct information by testing their soil. Because until it is known what is lacking in the soil, its solution cannot be found. And neither can production capacity be increased.

### Our Company Works for Farmers

He mentioned that our company does not work only to sell a product. Instead, our company works for farmers. Our company's thinking is that all farmers should be happy. When the farmer is happy, then we will be happy. Our goal is to solve the problems faced by farmers. He mentioned that our company is connected with about 40 thousand farmers, while our company's dealer network is between 800 and 1000.

### Women's Contribution to Agriculture is Important

When asked about the recognition and contribution of women in the agricultural sector, he said that anyone can make their mark in the agriculture sector. Today, women are ahead in every

field. However, when it comes to farming, the contribution of women becomes significant. Because, in farming, the participation of women is more than men. While the trend of women in the agricultural sector has increased rapidly in recent years. Now educated women are also doing farming and earning good profits from it.

### Diversify Business Along with Agriculture

He also gave a special advice to farmers. He said that along with farming, farmers should also do animal husbandry and fish farming. Because farming is mainly done in open spaces. Due to changes in weather and natural disasters, farmers' crops get destroyed. However, if farmers do animal husbandry, fish farming, or poultry farming along with farming, they can manage their economic situation in such circumstances. They can also avoid big losses.

### Become Agricultural Entrepreneurs

He said that farmers will have to work like agricultural entrepreneurs and pay attention to new things. He also said that educated people are needed for farming. People run after jobs, but they should also pay attention to farming.

**Mr. Sanjay Gupta**  
Managing Director  
Amber Crop Science Private Ltd.





**This remarkable story of a woman from a small village speaks volumes about the inner strength and innate leadership qualities ordinary women possess. The initiative of a lone woman, with just basic education and hardly any organized, external support, has catalyzed a movement for better farm practices in her village community.**

**The community continues to benefit through her transformational leadership as she leads by example and upholds the value of sustainable development. Her efforts have increased awareness towards detoxifying the soil. Her compassion and practicality are praiseworthy as she walks ahead, showing others the way to personal health and a toxin-free environment.**

#### ABOUT THE AUTHOR

Mrs Geetha Ravichandran is former Principal Chief Commissioner of Income Tax, Mumbai. Before this role, she held the charge of Principal Chief Commissioner of Income Tax for Tamil Nadu and Puducherry Region. She has served in various parts of the country including Chennai, Mumbai, Nagpur and Bangalore. During her distinguished career of 36 years, she held key assignments in the Department including Assessment, Search Assessment, Tribunal Representation, TDS, Investigation, Central Charge, and International Taxation. Ms Ravichandran is also an author and columnist. She has published two books of poetry

On August 13, 2023, a festival (Thiruvizha) of grains was held in Mattur, a village in the Krishnagiri District of Tamil Nadu. Around five thousand farmers from all over the state participated in this mela. On display were natural and organic vegetables, seeds, and 223 varieties of traditional rice. This was organized collectively by the Mattur Organic Farmers Association and the Traditional Organic Women Farmer Producer Company Limited. The mela was the brainchild of Smt. Girija, a farmer holding about 90 cents of land. It was the outcome of the passion and commitment of a woman who believes that we owe it to the soil to keep it free of toxins. It is her conviction that adopting the time-tested chemical-free practices of cultivation, as was done by her father and grandfather, has enabled her to show the way to her fellow farmers.

#### Journey As Organic Farmer

Girija's journey as an organic farmer started in 2017. Initially, the crops grown were for the family's consumption. During the Covid lockdown, she started selling vegetables to other villagers and sought their feedback on how these vegetables, grown without chemicals, tasted. The response was largely positive. Girija says she has spent many hours looking up videos on organic farming, which was practiced by farmers in neighbouring districts.

She then began to get in touch with like-minded farmers, speaking to them while standing 10 meters away from their doorstep to maintain social distancing. A group of 46 farmers came together to cultivate, among other crops, ancient varieties of rice without using chemical fertilisers and pesticides.

#### The Use Of Natural Products

According to Girija, natural products like neem oil and panchagavyam are used to cultivate crops. Girija is the only woman in the group and is also the head of the collective. The group communicates through WhatsApp messages. Exchange and sale

of seeds take place without an intermediary, and no payment of commission is involved. Similarly, the farmers take their produce to the bus stand market and sell them directly to customers. These farmers contributed Rs 2000 each for conducting the festival of grains held at Mattur. Girija says that the success of this Mela can be measured by the fact that 800kg of natural organic seeds were sold between August and December 2023.

#### Mission – To Create Awareness

Girija's mission is to create awareness among farmers to adopt soil-friendly practices and ensure that the farm produce contributes to the health of the consumers. Having been brought up to believe that food itself is medicine, the incidence of disease among those who consume crops sprayed with chemicals was a matter of grave concern to her.

Girija has only studied up to class 9. She has raised 3 children as a single mother. In 2022, she started a company, Traditional Organic Women Farmer Producer Company Limited. This is an exclusive group for women farmers.

The women, including marginal landholders, follow natural and organic practices in cultivating their land. Women who have small holdings grow vegetables. Those with no landholding are also part of the group and make chemical-free soaps, papad, and pickles.

At present, there are around 150 members. The practices followed by members are verified before they are admitted into the group. It is Girija's ambition to expand the group to 1000 members from all over Krishnagiri district. The group sustains itself by the sale of the products and does not receive any financial aid from governmental or non-governmental agencies.

#### Passion To Achieve High

I have witnessed the enthusiasm with which Girija talks about the ancient varieties of rice at a stall where they were on display. When describing their benefits and the ways they can be used, she beams with pride, like a mother introducing her gifted children! Karuppu Kavanai Arisi, a variety of black rice, strengthens the bones and can be used to make dosa batter. Mappilai Samba Arisi, another traditional rice variety, increases stamina and is used on special occasions, especially when a son-in-law comes visiting! She adds that she has not visited a doctor for five years, thanks to the natural, organic food she consumes.

I asked Girija how financially viable the process of organic farming is. She simply says that it gives her enough to get by, about the same as she would get if employed in a shop or showroom. Girija's work has been recognized by local NGOs and the media. But the biggest incentive, according to her, is the betterment of the health of the community. She also says that when the soil is free of chemicals, we can leave behind a better planet for future generations.



# Dr. Neelam Patel

## A Visionary Leader in Agricultural Innovation

**D**r. Neelam Patel stands as a beacon in the domain of agriculture and allied sectors, with an illustrious career spanning several decades. Armed with a Ph.D. in Agricultural Engineering, specializing in Soil and Water Conservation Engineering from IARI, New Delhi, and a Masters from IIT, Kharagpur, she has consistently demonstrated exceptional dedication and expertise. She is equipped with comprehensive knowledge in key areas, including agricultural water management, rainfed and irrigated crop production systems, human resources management, research management, as well as cooperatives and finance.

### Awards And Accolades

Her journey commenced with outstanding academic achievements, crowned by the prestigious FAI Golden Jubilee Award in 2007 for groundbreaking doctoral research in fertilizer usage through micro-irrigation. Dr. Patel's commitment to excellence continued as she qualified for the ARS examination in 1996, showcasing her prowess in Soil and Water Conservation Engineering.

With over 22 years at ICAR-IARI, Dr. Patel progressively climbed the ranks from Scientist to Principal Scientist, leaving an indelible mark on Soil and Water Conservation Engineering. She further spearheaded the Centre for Protection Cultivation Technology (CPCT), for her contributions to water harvesting and reuse in protected structures. Dr. Patel's role as in-charge of the Centre marked a turning point, as revenue generation nearly doubled under her leadership.

She's a decadal senior esteemed member of various National Committees such as FAD 17 (Bureau of Indian Standards). In this role, she played a crucial part in formulating diverse standards for irrigation and drainage. She collaborates closely with industry, State Governments, and trained officials in Punjab, Uttar Pradesh, and Haryana, actively contributing to the implementation of micro-irrigation practices and the National Horticulture Mission in these regions.

She has been pivotal in the development of 5 Decision Support Systems (DSS) and computer software applications.

She has contributed significantly to academic literature with over 110 published research papers. Her expertise is evident in the authorship of 5 books, 10 technical bulletins, and 2 documentary films. Dr. Neelam Patel has made significant contributions to precision farming technologies, emphasizing efficiency with initiatives like "per drop more crop" and automation.

### Leading The Policy Initiatives

With her career transition as Senior Adviser (Agriculture & Allied Sectors) at NITI Aayog in 2020, Dr. Patel now assumes the charge of driver of policy in India. Her extensive experience is reflected as she leads various policy initiatives, from design, monitoring, evaluation and formulation.

She had been pivotal in promoting natural farming. Exclusive bilingual websites were launched by NITI Aayog such as- introducing telemedicine for livestock health, and developing strategies for wasteland greening with agroforestry, suitability mapping, and evaluating ecosystem services for natural farming. She also played a key role in drafting the bamboo development mission document, formulating strategies for millets mainstreaming, and contributing to achieving self-sufficiency in oil seeds. Dr. Patel's another significant contribution is the anchoring role she has played in the development of course curricula on natural farming, seaweed farming and entrepreneurship. She has given a big push to the seaweed value chain by anchoring policy on the same.

Dr. Neelam Patel's engagements include working with the Ministry of Agriculture & Farmers' Welfare, the Department of Agriculture Research & Education (DARE), the Ministry of Fisheries & Animal Husbandry, the Ministry of Cooperation, and the Ministry of Food Processing Industries up to 2021.

As a trailblazer in precision farming, a catalyst for policy evolution, and a driving force behind sustainable agricultural practices, Dr. Neelam Patel's journey is a testament to her unwavering commitment to transforming the agricultural landscape. Her role as a key influencer and leader in the sector makes her a fitting tribute on International Women's Day, celebrating influential women in agriculture.

### ABOUT THE AUTHOR

**Dr Neelam Patel** is Senior Adviser (Agriculture & Allied Sectors), NITI Aayog, Government Of India

**As a trailblazer in precision farming, a catalyst for policy evolution, and a driving force behind sustainable agricultural practices, Dr. Neelam Patel's journey is a testament to her unwavering commitment to transforming the agricultural landscape**



# Empowerment of Rural Women

**W**omen play a crucial role in rural development and in many ways, they also contribute to a sustainable future. They are often engaged in agriculture, cooperatives and small-scale enterprises which are environmentally friendly.

Unfortunately, many women feel forced to leave the countryside to find work or education in the cities. This is fatal to rural areas since many of the young girls never come back. The result is abandoned villages with an aging population.

Rural women often become the unofficial centre of the societies. Their companies create employment for less fortunate women, breaking down barriers and creating pathways for other women to thrive. They take care of both children and elderly and are bearer of culture and traditions.

The empowerment of rural women deserves efforts from various stakeholders. As these women contribute to the empowerment not only of themselves but their fellow community, the impact is felt in the transformation in the entire rural landscapes.

#### ABOUT THE AUTHOR

**Ms Lena Johansson** is President of the International Federation of Agricultural Journalists. She retired recently from her position as Political Editor in Chief for the agricultural magazine Land Lantbruk

“ Rural women contribute to the empowerment not only of themselves but their fellow community. The impact is felt in the transformation in the entire rural landscapes







As India grapples with the imminent threat of a water crisis, collaborative initiatives could emerge as beacons of hope, offering tangible solutions through disruptive technology and dedicated social entrepreneurs

**ABOUT THE AUTHOR**

Ms Aman Pannu is President, DCM Shriram Foundation

# The Challenge

## AgriWater (Water in Agriculture)

### without the Gender lens

Women have been a critical part of the farm for centuries. But now, as women in agriculture, we have a unique opportunity to be the change we want to see in our industry. We must build on the incredible legacy of stewardship, technology and innovation and help one another succeed now and move into the future.

Let's see the work undertaken by the foundation.

**AgWater and The Foundation**

Consuming 85% of the country's water, agriculture stands at a crucial juncture. Unfavorable irrigation practices, low water use efficiency due to poor practices and declining water tables are pushing this vital sector towards the precipice. As part of the foundation's vision, we are working as a catalyst to connect ecosystem partners to find sustainable water use solutions that enable partnerships and create a scalable model.

**Tackling Unsustainable Water Management Practices**

The stark reality is that unsustainable water management practices leave agriculture, which consumes a staggering 78% of India's freshwater, deeply vulnerable. With groundwater tables dropping rapidly, projections indicate that just half of the required water will be available by 2030.

Recognizing the dire state of India's water resources and its impact on agriculture, the DCM Shriram Foundation, alongside the Nudge Institute and the Office of the Principal Scientific Adviser to the Government of India, launched the DCM Shriram AgWater Challenge. This grand initiative aims to catalyze innovative solutions to tackle the country's agri-water crisis. The AgWater Challenge specifically targets smallholder farmers, the lifeblood of Indian agriculture, who cultivate water-intensive crops such as rice, wheat, sugarcane, and cotton.

**The Objectives**

This initiative calls upon AgTech innovators and social entrepreneurs to develop and scale solutions aimed at:

- **Boosting Water Efficiency:** Reducing water consumption for key water-intensive crops such as rice, wheat, sugarcane and cotton.

- **Empowering Farmers:** Enhancing profitability of farmers by at least 40-50%, thereby helping foster sustainable livelihoods.
- **Ensuring Affordability:** Offering cost-effective solutions (under 20% of cultivation costs) or flexible financing options.

**The Role of Initiatives like 'Jeetega Kisaan'**

Aligned with Sustainable Development Goal 2 (Zero Hunger), the DCM Shriram Foundation's 'Jeetega Kisaan' program is a major initiative aimed at improving the livelihoods of small and marginal farmers. This program focuses on enhancing farmer income by providing training on improved farming practices and facilitating better market access.

Since its inception in 2017, the programme has operated via partnerships with various organizations to leverage their expertise. Core objectives include promoting good agricultural practices and implementing water management measures to enhance both demand and supply sides. The outcomes of these efforts have been promising, with improved agronomic practices leading to increased water availability and higher crop yields.

Expanding its reach, the program has replicated its success in other regions and also launched a Sustainable Paddy/Wheat Programme in Sonbhadra District, Uttar Pradesh. Through the focus on sustainability and socio-economic growth, 'Jeetega Kisaan' continues to make meaningful contributions to rural communities, fostering resilience and prosperity among farming households.

As India faces the looming spectre of a water crisis exacerbated by outdated practices, it is imperative to heed the call for transformative change. To secure water security and prosperity for a million farmers, creating a revolutionary ripple effect across the nation. As India grapples with the imminent threat of a water crisis, collaborative initiatives could emerge as beacons of hope, offering tangible solutions through disruptive technology and dedicated social entrepreneurs.





“ In 2007, SEWA collaborated with NCDEX to study the effectivity of disseminating spot and future prices for commodities in crops like cotton, castor and gaur to over 108 villages

### ABOUT THE AUTHORS

Reemaben Nanavaty, Director, SEWA

Heenaben Dave, Director, RUDI

Snehaben Suthar, Local Coordinator, Arvalli District

Sushilaben Pujara, Local Coordinator, Agriculture Campaign

# SEWA Leveraging Technology To Help Farmers

At SEWA, we strongly believe that advanced technology if tactfully applied can, not only help in improving the productivity and thus the profitability and viability of agriculture for the small holder farmers, but also generate smarter and decent employment opportunities in the rural areas. Additionally, converting villages to smart villages by deploying advanced technologies in various areas in a rural setting would have several allied benefits like but not limited to:

- Accessibility to information related to rural trades through mobile phones/radios would ensure the workers could access it at any time without compromising their daily livelihood activities.
- Creation of smart tech-savvy employment opportunities in village would lead to curbing of out-migration of rural youth in search of modern tech-savvy jobs
- Converting traditional rural jobs to smart decent jobs would imbibe a sense of dignity in rural youth towards their traditional trades.

- Preserve traditions and culture
- Reduce / mitigate risks related to climate and market shocks, thus making agriculture sustainable and viable
- Increase agricultural productivity and thus ensure food security.
- Reduce input cost and increase output thus leading to increase in overall profitability of rural trades thereby ensuring a better lifestyle and nutrition security for rural workers, etc.

SEWA realized that in order to safeguard the farmers against climate shocks and market shocks, there is a need to have an integrated farm planning and management package that includes technological interventions at multiple stages like but not limited to:

- Providing access to technical trainings and agri-advisory inputs
- Establishing tools and Equipment library
- Spot and future-prices

- Offering Customized Rainfall Insurance Product
- Affordable access to farm-top renewable energy
- Access to finance and credit, market support etc.
- Incorporating digitization
- Generating smart secondary source of employment to supplement traditional livelihoods

SEWA in collaboration with agricultural experts and agricultural institutes designed a voice based agro-advisory system in year 2016. Since most of SEWA's members were illiterate / semiliterate, providing SMS-based agro-advisory was not feasible and hence SEWA designed this customized agro-advisory system wherein information regarding weather forecasts, the correct time to put fertilizers and pesticides on the crops, the prices of these products and various other information required by the farmers to make a sound judgment, was provided daily in pre-recorded voice. The pilot of the service was rolled out with 200 registered small farmers in Bayad district of Gujarat.

### Key Benefits Of The Project

- Daily weather forecast information helped farmers take informed decisions about application of fertilizer / pesticides – thus reducing wastage and hence saving in cost of fertilizer / pesticide as well as labor.
- Information about viral pest infestation in the area alerted the small farmers of possible pest infestation / attack on their fields, thus providing them with lead time to respond to the pest attack and save their crop.
- Information about market prices helped farmers decide when to sell their harvest and in which market – thus fetching optimum price for their produce. It also reduced exploitation of small farmers at the hands of middle-man and traders

Based on the success of the scheme, SEWA expanded the agro-advisory services to 3 districts in Gujarat and provided agro-advisory to over 4500 registered small farmers. The topics covered were also increased to include information about Govt schemes and subsidies, health information, important announcement etc.

### Khedut Mitra App

With the passage of time, the level of education of the rural youth has improved. Access to smart phones has also become affordable and common in the rural areas, with every household having at least one smart-phone. Therefore, to facilitate better access to information for its members, SEWA has also started linking its farmer members having access to smart-phone to Govt's "Khedut Mitra App" which provides complete information from land preparation to harvesting phase, covering areas like land preparation, seed selection, seed rates, fertigation schedule, weed control, pest and disease control, market rates of selected Market Yard along with that Agriculture News, Weather etc.

Today, SEWA has successfully linked over 60% of its small farmer members in 14 districts of Gujarat to the Govt's "Khedut Mitra App".

Understanding the challenges faced by poor and marginal farmers in terms of access to modern tools and equipment, SEWA has implemented an environment – friendly initiative through the practical approach of pooling of agricultural equipment – The Agriculture Tools and Equipment Library.

This library is centrally located and run by the village level farmer development group. Library is equipped with modern agricultural tools and equipment as per the members needs. Members can borrow these tools by paying a nominal service charge to the library – which is much lower than the rent they paid to the big farmers.





**To study the feasibility of reducing the vulnerability of small holder farmers and agriculture workers through insurance, SEWA initiated a pilot initiative offering “Rainfall Insurance” to its 1500 members across 33 villages in three districts of Gujarat**



**Positive Impacts**

- Members can borrow costly and/or infrequently used tools whenever they are needed in their field by paying only a nominal rent rather than spending money on buying them.
- The library is owned and managed completely by the members themselves through their own collectives / cooperatives – thus creating joint asset in the name of the women.
- The library is managed by the villagers’ groups themselves and the rent for the same is also set by them in such a way that it covers the cost of repairs and maintenance of the tools and equipment library. This ensures sustainability of the tools and equipment library. The surplus income from the library is used to invest in more and better tools and equipment.
- It also creates an additional employment opportunity for maintaining and operating of these tools and equipment
- The easy access and affordability of modern tools & equipment has helped improve the agricultural yield
- Access to modern mechanized agricultural tools and equipment has led to awareness about the benefits of mechanized farming.
- The rural youth has a natural affinity to modern tech-savvy jobs. Affordable access to mechanization in agriculture has

helped re-ignite their waning interest in agriculture and has led to curbing of out-migration.

A study on SEWA’s Tools and Equipment library has revealed that ready availability of tools and equipment through the library has increased the income of farmers by 30%. For example, seed-sowing machines permit more efficient use of inputs (such as seeds / fertilizers) thus reducing the overall input cost. Additionally, the direct cost of renting tools and equipment has come down by 20%. Members of SEWA have invested the additional income in better nutrition, children’s education, reducing debts, asset creation and other activities.

**Spot and Future Prices**

One of important challenges faced by the small farmers in India is the lack of access to direct market and awareness about the current market trends and demand-supply in the market, especially in case of commodities. Since the market yards for commodities are mostly located in larger towns, small farmers have to either endure hefty transportation charges to transport their harvest to the market yard or sell their produce to the middleman visiting their villages. Due to lack of knowledge about the spot prices, these small farmers are therefore forced to sell off their produce at whatever price is offered by the traders or the middleman – thus getting exploited.

Additionally, due to lack of knowledge and awareness about future market trends and demand-supply, the small-farmers

choose the crops for season, based on previous years market demands and hence many-a-times end up with crops that are not in demand at the time of harvest and hence not getting significant price advantage. This also adversely affects the small farmers financial situation. The small farmers usually do not have surplus cash and hence have to rely on cash advances from traders and loans for cultivation. In case of low commodity prices at the time of harvest, the small farmers are not able to pay-back the loans and hence get trapped in the vicious circle of debt and poverty.

**SEWA Collaboration With NCDEX**

Realizing these challenges faced by its members, in 2007, SEWA collaborated with NCDEX to study the effectivity of disseminating spot and future prices for commodities in crops like cotton, castor and gaur to over 108 villages. Since the concept of spot and future prices was completely new for the small farmers, SEWA and NCDEX conducted several awareness creation and training sessions for about 200 grass-root leaders from these villages. These leaders were trained on the importance of spot and future prices and how to use futures prices to guide their price expectations and make more efficient sowing decisions.

Two grass-root women were trained and appointed as price-poster in each village. Futures Prices obtained from NCDEX were sent out to Price-posters weekly through SMS. They in turn would post these prices on boards displayed in each village, often on the side of walls by frequented spots: milk cooperatives etc.

Multiple survey conducted over the decade to analyze the impact of these initiatives indicate that in the initial years, the farmers were very skeptical about the validity of the spot and future prices and hence deferred from using it. However, with passage of time, their confidence on this information has increased and they have started using it profitably.

Over 50% farmer-members in study-villages used the Futures information to decide which crop to grow in their fields. Also, 35% of farmers used the future price information to decide which crop to sow. Since gaur is a robust crop requiring hardly any care or irrigation and since it is used for cattle-feed, there was no impact of spot and futures prices on decision regarding its cultivation.

**Customized Rainfall Insurance**

Farmers face floods, drought, pests, disease, and a plethora of other natural disasters. Especially in case of small and marginal farmers, these risks are magnified. Therefore, the government of India started offering widespread crop insurance in 1985 with the comprehensive crop insurance scheme which was then replaced by the National Agriculture Insurance Scheme. However, the scheme has run at huge losses while not delivering an effective product.

**SEWA Rainfall Insurance**

SEWA organized a workshop on Disaster Mitigation involving farmers from around Gujarat. The main topic of discussion was on crop insurance programs. The workshop found interesting results; farmers were suffering crop losses due to abnormally high levels of rainfall. This elevated the importance of finding a way to mitigate rainfall risk and promoted rainfall insurance at SEWA.

An irregular distribution of rainfall not only affects crops directly but also affects agriculture directly as well as indirectly. Without insurance, a failed monsoon may force a household to sell productive assets, forgo medical care, or reduce food consumption. Moreover, anticipating this probable risk, many small and marginal farmers defer from planting high-yield crops which produce more but are more vulnerable to rain shortfalls.

To study the feasibility of reducing the vulnerability of small holder farmers and agriculture workers through insurance, SEWA initiated a pilot initiative offering “Rainfall Insurance” to its 1500 members across 33 villages in 3 districts (Anand, Patan and Ahmedabad) of Gujarat. SEWA collaborated with ICICI Lombard in 2006 to offer rainfall insurance, which offered protection not only against rainfall deficit but also excess rainfall to small and marginal farmers. For a premium of INR 144 to INR 259 per acre, the policy provided a cover of INR 1500 per acre.

Looking at the popularity of the pilot and the members uptake, the area of study was expanded to cover 60 villages across the 3 districts in 2007. Till date over 3000 small and marginal farmers and agricultural workers have been regularly purchasing rainfall insurance.



# Beacon of Hope and Inspiration for

## Tribal Communities

### My Zero-Waste Life

My sustainable living over half an acre of sustainable, pure, organic cow centred biodiversity farm provides all the sustainable food includes grains, vegetables, fruits, spices, medicinal plants and herbs.

We have a purposely designed solar kitchen for 50 persons directly cooking with sun. It is run by auto track solar dish without any batteries or PV.

My husband Jimmy McGilligan installed 2 kw Solar-Wind power for my personal use. We share 19 street-lights with tribal poor landless neighbours for the last 13 years.

Having uninterrupted regular power supply, I manage with my own energy.

PM Modi called me and appreciated me for giving up LPG Subsidy for his Ujjawala program. I was the first one to do so. I use one gas cylinder for years and 5 months for monsoon / nights etc.

I am a mentor of start ups Raheja Food and Swaaha, Co founder of Javik Setu that I initiated in 2014 and now it's a successful platform. Organic farmers sell their products directly to consumers and they get good price.

I am a Brand Ambassador of Indore, the cleanest city. I don't need to use any trash bin in my life and do not generate waste anywhere. I carry a steel bottle /steel glass in a thaila and do not use any single use plastic.

On each birthday I plant trees equal to my age and ensure these are growing. Many youths have started following this. I am zerowaste, no AC, no washing machine, no use of fridge, no ironing of clothes.

**D**r. Janak Palta McGilligan is a Padma Shri awardee who is an inspiration globally. She has dedicated her whole life to educating tribal girls and women.

Dr Palta McGilligan is a prominent social worker and social scientist committed to sustainable development. She is the Founder-Director of Jimmy McGilligan Centre for Sustainable Development in village Sanawadiya, Indore, and has been running it for three decades.

Dr Palta left her home, job and family in Chandigarh and moved to Indore, as a Baha'i pioneer in 1985 in response to the call from National Spiritual Assembly of Baha'is of India to establish Barli Development Institute for Rural Women (<http://www.barli.org>).

She served as a director of the Institute for three decades for empowerment of 6000 tribal and rural young women from about 500 socially and economically deprived villages of India to become social change agents for sustainable community development.

She was able to do this work along with her dedicated husband Jimmy McGilligan who also left his home country, family and business as a UK Baha'i pioneer. Unfortunately, he passed away following a fatal road accident but his mission is being carried on by his wife Dr Janak Palta McGilligan as a Centre of Learning for Sustainable Development.

Dr Palta is also the former director of Barli Development Institute for Rural Women. The institute enables women to become agents of positive social change.

Under her guidance, more than 1,50,000 youths and over 6,000 rural and tribal women from over 1,000 villages have been trained in solar cooking and organic farming. Lovingly called 'Janak didi', she welcomes guests to give them tips on sustainable living. In 2015, she was also conferred with the Padma Shri for her work for society.

### Leading By Example

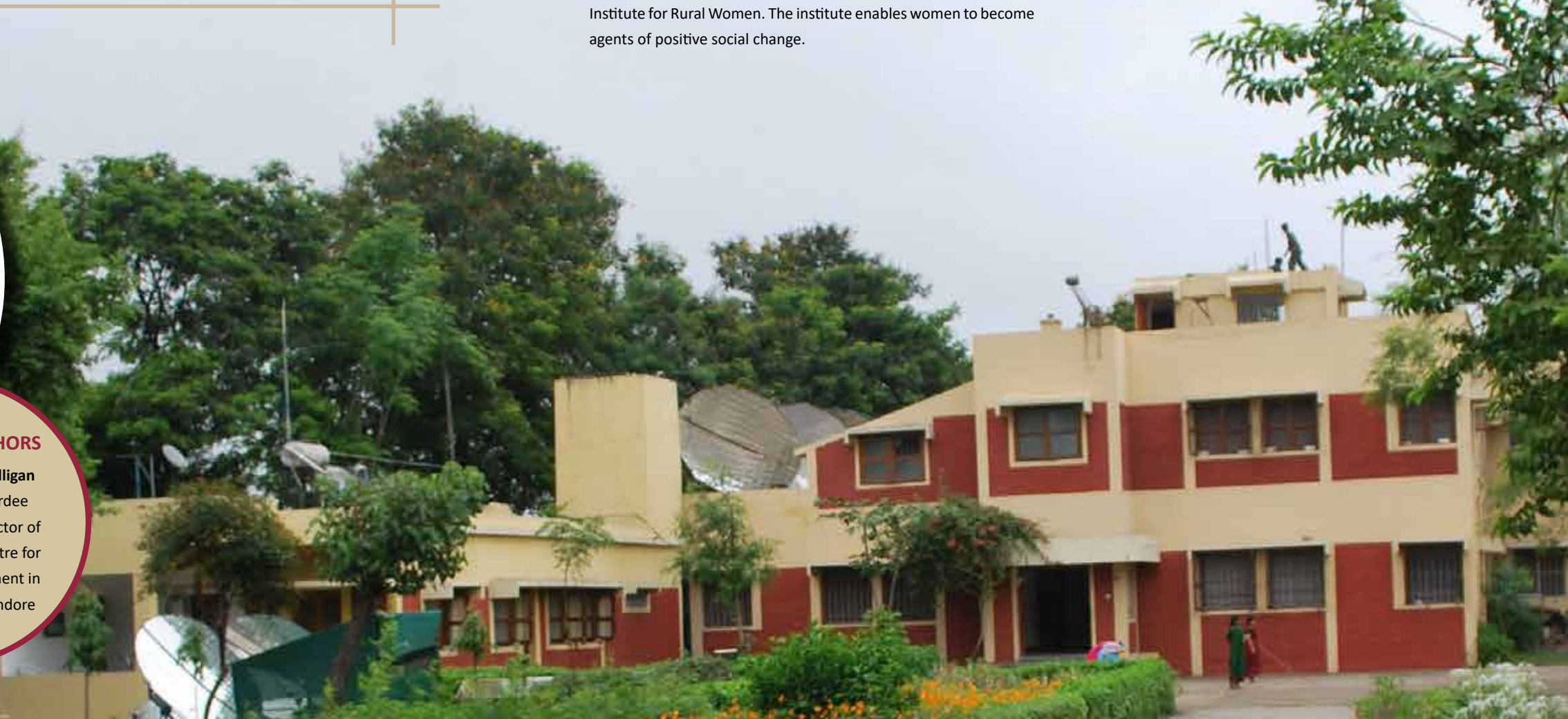
Dr Janak Palta has also spoken at the UN about her journey as an environmentalist. She represented India at the UN for a high-level forum on sustainable development goals. She was described as the 'Green Hero' by India's Energy and Resource Institute (TERI). She also serves as a member of Solar Cookers International.

The long-lasting partnership of Dr Janak McGilligan and Dr Jimmy McGilligan has provided a depth of solar cooking instruction for rural residents in India, beginning their work in 2008. Since that time, the two facilities, the Jimmy McGilligan Centre for Sustainable Development and the Barli Development Institute for Rural Women, have trained rural and tribal women from over 1,000 villages to be community workers and trainers for solar cooking.



### ABOUT THE AUTHORS

**Dr. Janak Palta McGilligan** is a Padma Shri awardee and the Founder-Director of Jimmy McGilligan Centre for Sustainable Development in village Sanawadiya, Indore







**Dr Palta advocates the importance of solar thermal stoves for achieving the Sustainable Development Goals at several national, international, and intergovernmental forums/meetings in the United Nations, G20 and India**

They have shown communities that solar cookers can prepare their traditional and community foods with no problem and have supervised the installation of many Scheffler Community Kitchens. Their projects have helped the self-esteem of the local women, and created opportunities for them to use solar cooking to establish businesses that continue to provide community revenue.

Dr Palta and her husband Dr Jimmy McGilligan played the key role in building the first solar-powered community kitchen and solar cooking in more than 1,000 local villages. They helped to save the environment and make cooking smoke-free. They promoted solar cooking at the national and international levels.

Dr Palta McGilligan has continued the mission that she had started with her husband for the socio-economic empowerment of rural women by providing training on solar thermal cookers, solar cooking and food processing as well as encouraging several start-ups.

Dr Palta advocates the importance of solar thermal stoves for achieving the Sustainable Development Goals at several national, international, and intergovernmental forums/meetings in the

United Nations, G20 and India. He organized the world's first WWW.solarfood2009.org conference in Indore in collaboration with ISES.

She even teaches college students of Indore district to make natural colours from flowers and vegetables for Holi from her home in Sanawadia village in the district.

**Training Provided To Tribal Girls**

In 1985, Dr Palta started a training centre for girls from tribal and rural areas named 'Barli Rural Women's Development Institute'. At her centre and the adjoining lands spread across six acres, over 6000 illiterate girls from 500 villages along with their education took training in health, social work, tailoring, printing, solar sustainable, organic farming and development of the society along with self-development.

Earlier, she used to undertake the work alone. Later Dr James McGilligan, also known as Jimmy McGilligan, came from the United Kingdom (UK) and started working with her. Dr Palta and Dr McMilligan got married and they built a house at Sanawadia village in the district. Dr McMilligan set up the Sustainable Development Center in the village.

Dr McMilligan was awarded the Most Excellent Honor of the British Empire by Queen Elizabeth, for the upliftment of the tribals of India.

Dr Palta and her husband made a solar energy plant and cultivating grains and vegetables for use at their centre. Many tribal families of the village are provided free solar energy at the centre.

Dr Janak Palta was awarded with the Padma Shri award in 2015 by the then President Pranab Mukherjee for her exemplary social welfare endeavours.

After the death of her husband, she alone kept training students and different sections of the society on various subjects throughout the year. Nearly two lakh people have got training from Jimmy McGilligan Sustainable Development Centre.

Taking note of her remarkable work, PM Shri Narendra Modi wrote a letter to Dr Palta, asking her to contribute for cleanliness. She was also made the ambassador of Indore's cleanliness campaign some years ago.





#### ABOUT THE AUTHOR

**Ms Pallavi Vyas** is the Founder and Managing Director of Shanta Farms. She is a visionary first-gen entrepreneur and leads with passion, championing agriculture and nutrition, and inspiring the shift to good health with moringa-based products

# Housewife to Successful Entrepreneur



**Our motive is to provide nutrition to society, and Moringa could be a game-changer for it**

This is Pallavi Vyas. I just wanted to share my story about how I became an entrepreneur from a simple housewife. I was born and brought up in a small town in Rajasthan. I was good in studies but got married early in my 20s due to family pressure. I always had the thought that a woman should be independent, but until then, I was simply a graduate. So, I continued my studies and got admission to a management college. That time was too tough for me as I was pregnant and blessed with a baby girl in the middle of semester exams. So, I took a break of six months and then completed my MBA.

That was the time when I was totally devoted to my family. Yes, there was always a regret that I was not using my capabilities to do something. These thoughts were interrupted when I again came to know that we were going to become parents to our second child. It was a baby boy. I was very happy that now my family was complete. We were six in our family. My priority was to fulfil their needs, provide them with the best, and maintain their health, that's it. Like any happy family. Then suddenly, when my little one was just one month old, we found out that my mother-in-law had breast cancer. That time was very crucial for the whole family as we were attached to each other. We gave her the best treatment, and it took an 8-month process. At that time, we were relieved that it could be cured. But after one year, cancer attacked her body once again, and within a period of ten days, she left us alone.

That was a horrible time for my family. My husband was in a deep depression, my father-in-law was also depressed, and I was with my seven-year-old daughter and one-year-old son. Everyone needed attention, and I was the only one who knew how to handle all the situations when my husband was always out of town. That time touched our whole family deeply. I cannot forget those days, and this made me believe that pesticides and chemicals, which we are exposed to directly or indirectly, are the reasons for such diseases. So, it's time to avoid them. As time passed, we shifted to our new house, and my husband started exporting some food items to the USA to one of his acquaintances. They owned an Indian store there and demanded organic items that were free from pesticides and chemicals. This strengthened my belief that we should use organic products."

Meanwhile, I started a flower boutique with my friend, but in that, my husband didn't support me, and it was quite a demanding job. As time passed, I was eagerly waiting for something good. After lots of research, we came to the conclusion that Indore has a shortage of pure and hygienic milk, and from dairy animals (cows), we can also get organic manure. This thought propelled us forward, especially as our honorable PM was also focusing on farming. I seized the opportunity to nurture this idea, as my husband, an advocate, was busy with his work but supported me in all aspects, being the most affected by the incident. Now came the toughest task. Being a middle-class family, we didn't even have a piece of land. Thus, our journey began with the search for land. Land available near Indore is too costly.

Finally, we acquired land 70 kilometers away from Indore with the help of bank collaterals, family, and friends. To ensure hygiene

in my project, I opted for milking in a parlor with full automation. Now, the time had come for livestock. This was also a very new field for me, as everyone in my family is in the service sector. I had always stayed away from the foul smell of cow dung and urine. However, once I decided to work for the betterment of society, I had to overcome my reservations. So, I started my own fully automated cow dairy farm. The fodder for the cows is grown on my own farm with organic manure. Cow comfort is a priority because a happy cow yields good quality milk. We deliver pure and pasteurized cow milk in glass bottles, as I believe plastic is dangerous for our health and our ecosystem. Therefore, we avoid it. Currently, our farm has 250 cows with purebred cows from eight different states of India.

#### Conserving Pure Breeds Of Cows

I am endeavoring to conserve pure breeds of cows so that our new generation can have better milk. Now comes the time for delivering and marketing it. This was also quite difficult as we had to compete with existing milk brands. Indoreans are foodies; they want tasty, thick milk that they can drink and use for making cream, and they want thick curd, all at an affordable price. So, we educated them about the benefits of pure cow milk, and we brought about a white revolution in the city of Indore. Now, within the span of one year, we are delivering to 1000 households every day.

#### Moringa As Cow Fodder

Currently, we are maintaining a sustainable and viable farm by employing crop-livestock techniques, where one's waste becomes another's use. We launched our organic brand and worked on utilizing Moringa as cow fodder. Now, we operate as Shanta Farms, offering a complete kitchen solution in a Farm-to-Fork model. Though it's a tough and challenging job, especially as a woman facing financial difficulties, there's an instinct within me that keeps saying, 'You are doing good work for a good cause, keep doing it.'

#### Morvita – Moringa Leaves With Chocolate Blend

There's a saying that motivation is always needed, and this has been true for me as well. I have received hundreds of awards and recognition under the name of Shanta Farms. Being a woman with a diverse background, I managed to achieve this because I was the one who transformed dairy into an industry. When Central Minister Girirajsingh awarded us the MSME award in 2018, he suggested that we grow moringa and assigned a project to Shanta Farm for enhancing cow productivity. We observed very good results in production and cow health, and this research was published in the Indian Dairy Industry book. Our motive is to provide nutrition to society, and Moringa could be a game-changer for it.

During the COVID pandemic, we visited underprivileged areas to distribute daily necessities under the umbrella of the Shanta Social Welfare Society and collaborated with the state food department, which supported us in our mission to eradicate malnutrition through our product Morvita (moringa leaves with chocolate blend). In December 2023, the Government of India granted a patent to Shanta Farms for Morvita. This is how we can provide pure nutrition to humans, conserve the environment, and offer herbal supplements for domestic and captive animals. This is my contribution to ONE HEALTH.



# Women in Agriculture

## STÉPHANIE FERREIRA GOBATO

- An agronomist who comes from a family of farmers in the Mid-Western Region of Brazil
- Graduated in agribusiness leadership training programs, active in representing the rural class
- Chairperson of the National Committee for Women in Agriculture of CNA - Confederation of Agriculture and Livestock of Brazil



**New horizons are opening up for women. The promotion of policies and processes to encourage and include women in rural areas represents a new chapter being written in the history of Brazilian agribusiness.**



Over the last 50 years, intensively and revolutionarily, Brazil has gone from being an importer to one of the biggest producer and exporter of food to the world. The agricultural sector plays an active role in Brazil's economic dynamics, accounting for more than 20% of the GDP (Gross Domestic Product), half of exports, and the country's positive trade balance. Even with weather uncertainties, logistical infrastructure problems, and the need for good financial management of the business, the scenario for agricultural production remains optimistic.

### The Role Of Women

Historically, women's participation in this sector was considered complementary, since working in the field was linked to physical effort. However, with the intensification of production in recent years, as a result of significant technological developments and the professionalization of rural activities in an increasingly digital scenario, work in the field started demand other qualities, such as a managerial vision that is innovative, humanized, versatile, and that values communication.

In this way, women have overcome differences, advanced positions, and found parallel spaces to work, also driven by their determining characteristic of constantly seeking qualifications and technical knowledge.

In 2017, the latest Brazilian Agricultural Census showed that among the 5 million rural properties in the country, around 1 million, or almost 20%, are managed exclusively by women.

This number is expected to grow in various rural activities, like crops, forestry products, horticulture, flower farming and aquaculture.

At the same time, according to the Census data, almost 30% of the labor market in activities associated with agribusiness is occupied by women, mainly in the agroindustry and agroservices segments.

This number goes hand in hand with the growing level of education among female workers, the greater degree of formalization of employment, and the good level of job satisfaction in agribusiness.

### Ensuring Higher Female Participation

UN Women, a program created in 2010 to unite, strengthen, and expand global efforts in defense of women's human rights and promote gender equality in all activities is a guarantee for effectively strengthening economies, boosting business, improving quality of life, and sustainable development. Therefore, the participation of women is necessary to achieve the prosperous future we are aiming for Brazilian agriculture.

Along these lines, there is also another challenge, which is to increase female participation in seats in agribusiness entities and associations. As well as encouraging women to occupy leadership and decision-making positions within the farmgates, they are also being called upon to act as an active voice in class representative positions.

### Brazilian Confederation of Agriculture and Livestock

Brazilian Confederation of Agriculture and Livestock (CNA) represents, organizes, and strengthens Brazilian rural producers, defends their rights and interests, and promotes the economic and social development of the sector by participating in discussions and decisions on national agricultural policy.

With this scenario in mind, the National Committee for Women in Agriculture from the CNA System was launched in 2023, one of the entity's 19 technical committees formed to discuss issues of the sector, with the goal to increase women's participation and develop female leaderships inside and outside the farmgate, encouraging, preparing, and valuing women's work in this sector, which is so significant for Brazil.

With this clear goal and a transversal approach, the Committee is made up of representatives appointed from each region of the country and acts along three lines: support for the formation of State groups aimed to broaden the national goal; leadership development, through training; and political and institutional articulation and representation, which seeks to guarantee an influential position for rural women on the political scene, on agendas related to the segment.

### Supporting Brazilian Entrepreneurs

Another initiative of the CNA System designed for women, in partnership with the Brazilian Trade and Investment Promotion Agency (Agência Brasileira de Promoção de Exportações e Investimentos) (Apex-Brasil), is the AgroBR Mulheres, which supports small and medium-sized Brazilian rural entrepreneurs who want to export their products through a monitored journey of technical knowledge to develop skills and competencies and generate business and through international rounds and missions, driven by the exchange of experiences and the formation of a support network.

It is important to highlight the internal and external challenges facing women's work, such as balancing a professional career with motherhood and caring for the family, as well as questions about the intellectual capacity of the gender and wage inequality, although within Brazilian agribusiness this indicator is lower than in the rest of the economy.

Over the last few years, various women's movements have been essential to the social and cultural transformation that we can see today, which has motivated, expanded, and highlighted the importance of women's participation in various segments.

Added to this are youth movements, which also result in family succession in the business and an increase in the indicators for staying in rural areas. New horizons are opening up for women and the promotion of policies and processes to encourage and include women in rural areas represents a new chapter being written in the history of Brazilian agribusiness.



# Brazilian Agriculture and The Gender Revolution

“Women are reshaping the landscapes and paving the way for a new generation of female agribusiness entrepreneurs”

## ABOUT THE AUTHOR

**Lígia Dutra** is the Government Relations Senior Director for Cargill in Brazil. She holds a Master's Degree in Law. Lígia was listed by Forbes magazine among the one hundred most powerful women in Brazilian Agribusiness.

In rural Brazil, a gender revolution is slowly unfolding. Women are increasingly making significant strides in the traditionally male-dominated agricultural sector.

From leading small family farms to managing large-scale agricultural enterprises and serving on the boards of agribusiness companies, women are breaking barriers, challenging stereotypes, and fostering innovation in this vital sector of the Brazilian economy.

Brazilian women have long played pivotal roles in agriculture, particularly in family farming.

They have been actively involved in various aspects of the production, including crop cultivation, livestock rearing, and agro-industry. Despite their essential contributions, they were often overlooked for business responsibilities, traditionally handled by men.

### Women Assert Their Presence And Capabilities

Historically, agriculture in Brazil has been viewed as predominantly male-dominated, with women often relegated to supporting roles. However, this narrative is rapidly evolving as women assert their presence and capabilities across various branches of agricultural production.

Although progress toward gender equality may not be as swift as desired, the empowering movement of numerous rural women is impossible to ignore. They are reshaping the landscapes and paving the way for a new generation of female agribusiness entrepreneurs.

This presents a unique opportunity for both companies and the government to take action, accelerating progress toward gender equality in the agricultural sector.

### Gender Dynamics In Agriculture

Official data on women in Brazilian agriculture dates back to 2017, making it somewhat outdated. However, it still provides valuable insights into the gender dynamics within the sector.

At that time, women comprised 30% of the agricultural workforce. They managed approximately 19% of the country's 5 million rural properties, covering 30 million hectares, just 8.5% of the total rural establishments in Brazil.

Regionally, the Northeast boasted the highest proportion of women managers at 57%, followed by the Southeast (14%), North (12%), South (11%), and Midwest, where only 6% of women held managerial roles. Interestingly, the region with the highest prosperity in Brazilian Agribusiness had the lowest percentage of women farm owners.

The data indicates that women predominantly constitute low-income and small landholders.

This reality is echoed throughout the developing world, where women form the majority of the impoverished populations in rural areas. Hence, supporting women to attain improved income from agriculture is essential to enhancing living conditions in rural communities.

### Adding Value To Production

One way to support small landholders in increasing their income from farming is by adding value to their production. Value-added agriculture involves promoting best practices to boost productivity and reduce production costs.

Additionally, integrating diverse crops and practices can help generate year-round income.

Another important strategy to support small landholders is fostering their organization through collective initiatives, such as

cooperatives and associations, unlocking the potential to increase revenues.

Therefore, public policies to support small landholder organizations can greatly impact their ability to add value to agricultural products. This can involve processes such as packaging and processing, as well as differentiation through services like branding, marketing, certification, and the development of business-to-consumer (B2C) commercialization channels.

Furthermore, value-added agriculture can help mitigate the risks associated with market fluctuations. Agricultural products are often subject to price volatility due to weather conditions, supply and demand dynamics, global trade policies, and other factors. However, farmers can create more stable revenue streams by diversifying into value-added products.

Additionally, value-added agriculture can open doors to new markets and opportunities. Processed and branded products have the potential to appeal to niche markets, specialty stores, and international buyers who are willing to pay a premium for quality and uniqueness. This can help small landholders expand their customer base and reach consumers willing to pay a premium for their products.

### The Role Of Cooperatives

In Brazil, the Canudos, Uauá, and Curaçá Family Farming Cooperative (COOPERCUC) stands as a prime example of value-added agriculture benefiting women's income and sustainable development in a disadvantaged community. Situated in Bahia State's semi-arid region within the Caatinga Biome, the cooperative originated when 24 women pooled efforts to process Umbu, a local fruit, for regional commercialization.

With financial support from the government and a religious organization, the group established its first processing unit in the community, paving the way for the cooperative's foundation in 2004. Comprising 44 members initially, the majority were women.

Today, Coopercuc's activities impact more than 1200 families across ten rural territories. The organization prioritizes partnerships with various national and international organizations to develop projects to diversify production within an integrated agro-ecological system. Projects range from cultivating passion fruit, manioc, Umbu fruit, poultry, dairy goats, to beekeeping. This initiative has led to increased profitability, food security and enhanced general living conditions for many regional rural communities. In addition to all this, the cooperative has also developed a collective brand, "Graveteiro". The products marketed under this brand are sold in various parts of the country and abroad.

This example demonstrates that beyond financial benefits, investing in women has positive implications for rural development and food security. By adding value to local agricultural products, small landholders can contribute to the economic vitality of rural communities, create jobs, and support other local businesses along the value chain.

As Brazil continues to grapple with environmental, social, and economic challenges, the role of women in agriculture becomes more critical than ever. Recognizing their untapped potential in agriculture and addressing the barriers they face is not only a matter of gender equality but also essential for sustainable development and food security. Only by investing in women's education, access to financial resources, technical assistance, land regularization, and participation in decision-making processes, Brazil can benefit from their full potential to drive innovation, resilience, and inclusive growth in the agricultural sector.



# Role of Women in

## Brazilian Agriculture

**Agrodelas: Meet the group of women in Brazilian agribusiness who created a pink seal capable of certifying products that are produced by women**

**A project by women in Brazilian agribusiness that seeks to add value to products produced with female participation through a certification seal, called the pink seal.**

**Contact: [agrodelas@outlook.com](mailto:agrodelas@outlook.com) / Instagram: [agrodelas\\_\\_](#)**

**Authors:  
Agrodelas**

**Co-authors:**

**Dandara Maria Peres and  
Graziele de Camargo**

**B**razil is the stage for large agricultural productions, being a country of vast territorial extension, and known for cultivating large corporate commodities. However, the country's agribusiness goes much further; at the forefront of rural businesses, we have its vast majority being of family farming, which is governed and executed by family labor, involving everyone. Women in Brazilian agribusiness represent 40% of rural labor, according to data from CEPEA (Center for Advanced Studies in Applied Economics); however, such data has only gained prominence recently, but women's participation in the country's agribusiness has been present since ancient times.

Women from previous generations, our mothers, grandmothers, and great-grandmothers, have always been involved in rural activities and at the forefront of their homes. But only now is this being talked about in Brazil; in other words, they have always worked but have never received due recognition for their accomplishments. These are women who raised families and were the right-hand women of their husbands and relatives, building wealth with every drop of their sweat.

### Giving Voice To Women In Agribusiness

To give voice to these women in agribusiness, in 2021, we created, through social networks, during the Covid-19 pandemic, a means to communicate the real beauty of female work done by Brazilian women.

Through this, we began to disseminate information to support, share knowledge with them, and cultivate a network of contacts through social networks.

After the pandemic, we also extended these exchanges of experiences through face-to-face meetings at agricultural fairs in the country, as well as through podcast recordings and live sessions.

However, beyond merely stating that we support the participation of women in agribusiness, we seek to value them. Therefore, in 2023, we created the certification seal for products produced by women, called the Pink Seal, which aims to add value to products grown by women, such as soybeans, corn, wheat, coffee, rice, milk, and other grains.

### The Pink Seal

The Pink Seal is applicable to any activity that a woman engages in, whether 100% on her own or in support of men. The project consists of tracking this participation, certifying it, and using this seal on products for end consumers or in the sale of commodities in the grain export process, for example.

Thus, certified women will receive a certain percentage more for their products.

### Major Milestones

Brazil has achieved several milestones regarding the profitability and sustainability of its production processes. No-till farming, which involves seeding without overturning the straw and actively maintaining organic matter, is one of them.



**We are more than just a social media channel; we are a beacon that shows the direction of success to many women who have not realized their role in society**

We also have carbon sink, the use of biological agents, green manure, biofertilizer use, research and development of chemicals with lower toxicity than those already existing, and increased profitability, which is the increase in production on the same cultivation area.

These practices will be some of the requirements for Pink Soy certification, for example.

In many activities such as poultry farming, pig farming, fish farming, dairy cattle farming, horticulture, floriculture, forestry, and fruit growing, women are present.

They have more attention to details, and therefore are more effective in these production processes. For example, in milk production, women are much more attentive to animal welfare, utilizing research to their advantage by implementing methods such as temperature control, humidity control, the use of padded beds, non-slip and rubberized floors, massages from birth, elimination of branding, and the use of music in ambient areas for rest, among other management techniques.

### Significance Of This Initiative

On a social level, women play an important role in the Brazilian economy. With their products certified, they will receive even more recognition for their work. In return, they will have more support in their homes and will feel much more connected to the giant Brazilian agribusiness without losing their essence as women, in a world where many difficulties still exist for these women in their daily lives, such as sexism, lack of support, lack of participation in the formal agricultural market, and prejudices. All these issues are somehow minimized with the rise of movements supporting women in agribusiness.

Agrodelas aims to make these women feel belonging and recognized for their efforts, showing the true love they have for agriculture, for the multiplication, and for the countless successful results in Brazil.

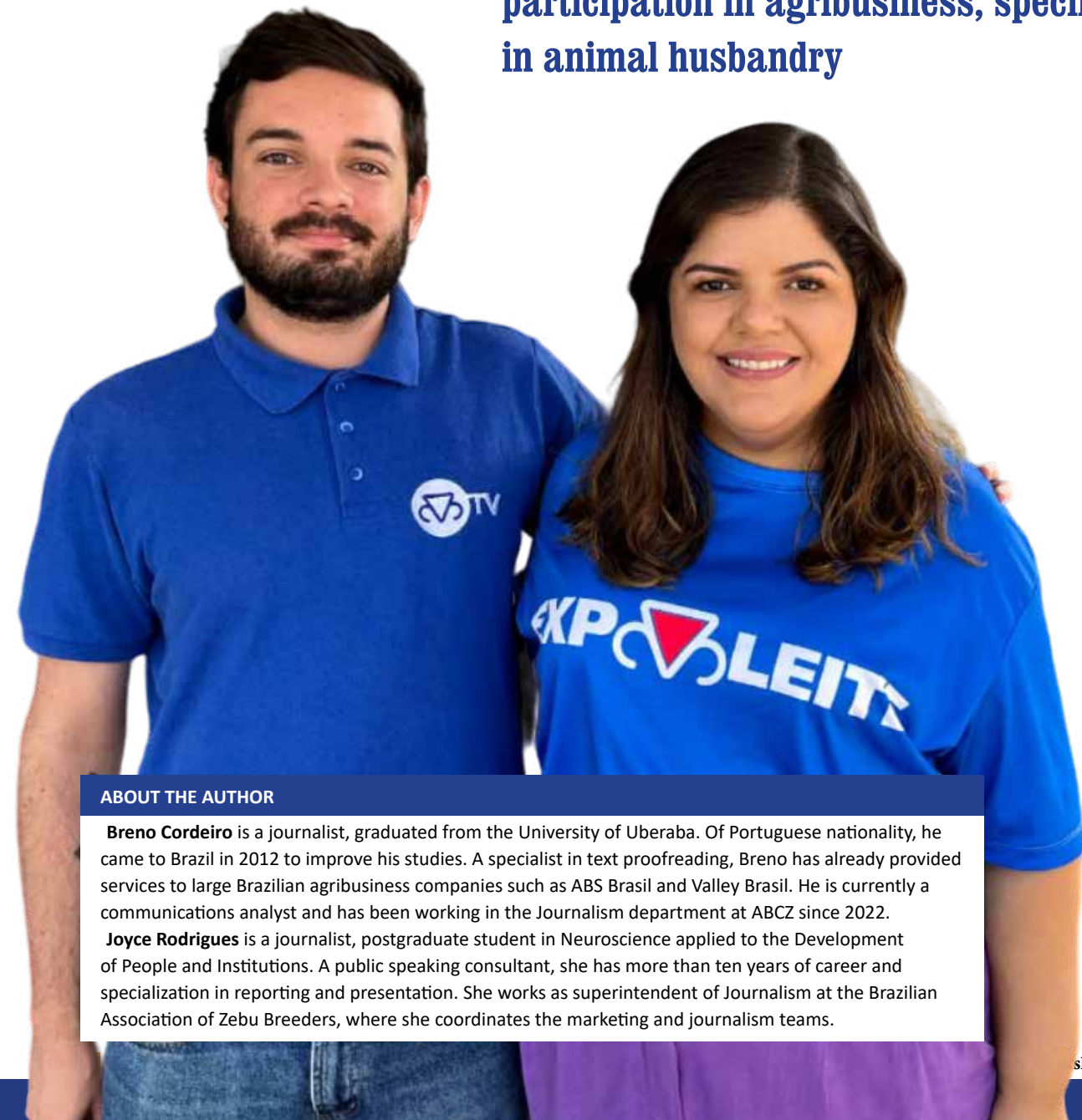
We are more than just a social media channel; we are a beacon that shows the direction of success to many women who have not realized their role in society. We want more than just a brand, a logo, or a seal; we want to show that it is possible and thus generate a resignation from complacency. We want women to take center stage. We want agriculture for everyone without forgetting about them.



# ABCZ for Women

## A specialized commission expands female protagonism in animal husbandry

“ABCZ for Women is a notable example of how these initiatives can boost female participation in agribusiness, specifically, in animal husbandry”



### ABOUT THE AUTHOR

**Breno Cordeiro** is a journalist, graduated from the University of Uberaba. Of Portuguese nationality, he came to Brazil in 2012 to improve his studies. A specialist in text proofreading, Breno has already provided services to large Brazilian agribusiness companies such as ABS Brasil and Valley Brasil. He is currently a communications analyst and has been working in the Journalism department at ABCZ since 2022.

**Joyce Rodrigues** is a journalist, postgraduate student in Neuroscience applied to the Development of People and Institutions. A public speaking consultant, she has more than ten years of career and specialization in reporting and presentation. She works as superintendent of Journalism at the Brazilian Association of Zebu Breeders, where she coordinates the marketing and journalism teams.

Created in 2018, a Brazilian initiative develops actions and events to expand female achievements among farmers and other professionals.

In Brazilian agribusiness, the presence and contribution of women have become increasingly prominent. Historically, women have always played essential roles in rural activities, however, in recent years, they have earned more visibility and recognition at all phases of the production chain.

### Inspiring Example

In this scenario, ABCZ for Women has emerged as an inspiring example of how women have strengthened their presence and influence in Brazilian animal husbandry. It is an organization with more than 1,200 Brazilian female farmers who are part of a universe that fosters initiatives and promotes training, networking, and empower women to become leaders in agribusiness.

ABCZ for Women is a notable example of how these initiatives can boost female participation in agribusiness, specifically, in animal husbandry.

Created by the Brazilian Zebu Breeders Association (ABCZ), the commission aims to promote the integration and appreciation of women who work in this sector.

“ABCZ for Women was born to highlight the leading role of female players in agribusiness. When I decided to create the commission, I was aware of emerging groups of action and understood that ABCZ needed to boost those movements. It was a time when several important sectors had women in their leadership, valuing the ability of managing rural businesses which were previously ruled primarily by men. Our purpose was to give a voice to Brazilian agribusiness groups made up by women”, highlights Lara Maria Vieira Marquez, founder of the project.

One of the main initiatives of ABCZ for Women, established in 2018, is ABCZ for Women Convention, held during ExpoGenética, the largest fair for zebu evaluated animals in the world, which takes place at Parque Fernando Costa, ABCZ's headquarters, in Uberaba (MG), and which offers courses, lectures, and workshops on themes that are relevant to women in agribusiness.

### Goal: To Empower Women

From technical issues related to animal husbandry to management and leadership skills, the goal is to empower women to increasingly occupy leading positions in the field.

In the 2023's edition, the 6th ABCZ for Women Convention packed Romulo Kardec de Camargos Convention Center. The event was attended by important personalities in agribusiness and public authorities.

In addition, ABCZ for Women promotes events and meetings which provide opportunities for networking and experience exchange. “These opportunities are fundamental to strengthen the ties among professionals in the field, besides inspiring and

motivating other women to join animal husbandry”, explains the current president of ABCZ for Women, Paula Paoliello Garcia Cid.

Another example of ABCZ for Women's initiatives is a program included in the annual agenda of ExpoZebu, the largest zebu livestock fair in the world, also held at Parque Fernando Costa. Last year, the committee has innovated, bringing as its main attraction the first edition of the Zebu for Women Meeting – a short course planned by women and designed for women, which has offered fundamental knowledge on morphology for zebu breeds and gyrolando (gyr and Holstein crossbreed).

The attendees also had the opportunity to share experiences in a conversation with a veterinarian and consultant on livestock handling and animal welfare, Adriane Zart. The topic discussed was the management technique developed by the specialist, which was named Hands Free Animal Handling.

### Success Story

A success story that exemplifies the positive impact of ABCZ for Women Commission is that of Camila Falcao, the leading farmer at Estancia Sylvania, a farm with more than 60 years of history in raising Pure Dairy Gyr cattle. The farm was the first Brazilian brand to produce A2A2 anti allergenic milk and, throughout its rich history, it has stood out as one of the main examples of the power of zebu genetics improvement applied to the production of quality milk and cheese.

In September last year, Estancia Sylvania has won two top prizes at the 6th Mondial du Fromage, a prestigious international cheese competition held in Tours, France. The competition brought together almost 1,500 cheeses from 35 countries. During her participation in the event, Camila has received medals for Valoro Sylvania and Santa Brigitte Sylvania cheeses. Furthermore, Estancia was the first farm in Brazil to receive the Zebu Milk Seal, created by ABCZ to certify the quality of dairy products made from Zebu milk.

Camila is a member of ABCZ for Women and has already been awarded ABCZ for Women Merit, which is given to female personalities who stand out in the agricultural sector within their business activities. The outcome demonstrates how Camila is a role model for women who want to learn new managerial and handling skills, establishing important connections, and building confidence to face market challenges.

### Positive Impact Of Such Initiatives

Nowadays, Camila and Estancia Sylvania are recognized within their segment. Her case demonstrates how ABCZ for Women can transform and boost the development of Brazilian livestock sector. Between April 11th and 14th, during the 3rd Brazil Cheese World Cup, promoted by SerTaoBras, in São Paulo (SP), Estancia Sylvania will welcome a technical mission as part of the event's program.

This success story is just one example of the positive impact of such initiatives, highlighting the transformative potential of female power in the sector, in the market, and in the world of zebu genetics progress.



# Women Influential Pillars of Brazilian Agribusiness



**Successful women achievers serve as inspiring role models for other women and youth, demonstrating that there are no limits to their achievements in the agricultural field**

#### About The Author

**Fabiana Villa Alves** is the special advisor to the Secretary of Green Economy, decarbonization and bioeconomy in the Ministry of Development, Industry, Commerce and Services. Fabiana was listed by Forbes magazine among the one hundred most powerful and influential women in Brazilian Agribusiness



In Brazil, agriculture is one of the driving forces of the country's economy, not only feeding the nation but also making significant contributions to the global food market. Behind this success, we find an essential and often underestimated element: women. They play a vital role in all stages of the agricultural production chain, from production to marketing, bringing with them a unique vision, unifying strength, and unwavering determination.

In Brazil, women are increasingly standing out as leaders and entrepreneurs in the sector. Projects and programs focused on the valorization and empowerment of women have gained prominence, fostering success stories and contributing to a more inclusive and sustainable agriculture.

#### 'Women of Agro' Movement

An inspiring example is the "Women of Agro" Movement in Roraima, which began in the last decade with the expansion of soybean cultivation in the state, located in the far north of the country. In this movement, women joined forces with farmers to strengthen their presence in the sector, seeking not only recognition and empowerment but also training, mutual support, and development opportunities.

Through initiatives such as training, workshops, and lectures, they gain technical and management knowledge that boosts their agricultural activities.

These goals reflect not only the local reality but also the challenges and aspirations of women throughout Brazil. In addition to regional efforts, there are institutional programs and projects aimed at promoting female participation and leadership in Brazilian agribusiness.

An example is the National Program for the Strengthening of Family Farming (Pronaf Mulher), which offers special financing conditions for rural women, recognizing their importance in property management, food security, and sustainable rural development. Cooperatives led by women are also becoming increasingly common in the country, such as in coffee production, bringing a different perspective, enriching the decision-making process, and driving innovation.

#### Women In Leadership Positions

Women constitute a significant portion of the agricultural workforce in many regions of the world, playing important roles in all stages of the production chain. Having them in leadership positions strengthens organizations and promotes economic empowerment, benefiting not only women but also their families and communities. Moreover, they serve as inspiring role models for other women and youth, demonstrating that there are no limits to their achievements in the agricultural field.

With their unique experiences, perspectives, and skills, studies have shown that more diverse leadership teams tend to make better and more balanced decisions. Women often bring a collaborative and empathetic approach to management, fostering a more inclusive and productive work environment.

However, there are still challenges to overcome, such as lack of access to resources and technologies, gender inequalities, and the difficulty of balancing work and family responsibilities.



# What Leadership Means To Me



## ABOUT THE AUTHOR

**Ms Sarita Bahl** is an alumnus of Tata Institute of Social Sciences and the Swedish Institute of Management Program. She is Country Group CSR Head - Bayer South Asia and is also the Director of Bayer Foundation India.

**Ms Bahl** has held multiple roles across diverse industries, public sector, trade associations, MNCs and the Not-for-profit sector. Her areas of interest include advocacy, stakeholder engagement, sustainability, and communications

### Four things inspire and excite me:

- Building & sustaining multiple & diverse stakeholder relationships
- Developing an integrated approach to communications
- Co-Creating a collaborative environment &
- Driving something new



**Our professional growth will stem from our personal growth and not the other way around**

**A**ll through my professional journey, I have worked in sectors/industries wherein I have got the opportunity to follow my passion and interest. I am a risk taker and am not averse to toppling the apple cart.

The Bayer offer in 2017 came when I was working as a communications consultant in a start-up. The fact that the immediate need at that moment was to build and drive the end-to-end integration story coupled with Bayer's inherent desire to change its stance from being reactive to now being seen as proactive was very exciting for me. Today, I lead the South Asia Corporate Social Responsibility (CSR) vertical for Bayer and am also the director of Bayer Foundation India (BFI).

Most of my career has been in organizations that follow processes and policies. So, I was quite hesitant when I got the opportunity to be part of a Start-Up in 2016. What a change that was from a corporate to a set up that had no compulsion changing its strategy and direction every second day! I loved the agility that the environment had and the pulsating energy it created – it kept me nimble all through. The CEO & I, we were both learners in this journey – him never having a communications strategy and I never ever worked in a start-up before. The learnings picked up shall always stay with me. Especially, when I look at big corporates and see their readiness levels now to be agile and flexible!

### Focus On Your Strengths

Over the course of my professional journey, I have learned several lessons on leadership. They all have **one** thing in common – focus on your strengths. Do you remember in school most of us took tuitions in subjects that we were not so good at? Today, when I look back, I say, how wrong was that! Why didn't I focus on my strengths instead? I was good in English. What if I had an extra hour of expert teaching – I would have perhaps been a journalist today!

I didn't set out to be a leader. I chose a career of doing what I enjoyed. At the same time, I took risks of getting into jobs, in sectors, of which I had absolutely no knowledge! When I joined Steel Authority of India Limited at their Bhilai Steel Plant as an Occupational Health Trainer, it was a first for SAIL too. No one had

an idea what the role meant. An outside consultant was hired to give contours to the whole OSHA (Occupational Safety & Health Administration) function. Along the way all of us learnt what occupational health meant. We grew together. We defined and then redefined what we wanted to achieve. It did not matter I was a greenhorn with just a year or two of work experience. I still became the leader in my vocation. My 11 years stint there gave me the opportunity to not only sharpen the role but set in place the whole process. I have since then learned that if you have to grow, never take a job that you are absolutely sure you can do! Take that risk of becoming a leader of your choices.

It is worth considering how our earlier jobs shape us the most. They sow the seed for more dreams. They give us a sense of direction. Every other job is built on the foundations of our first job and what we learnt from it.

### Create Positive Change

Leadership is also about creating a positive change. Now you don't have to be designated as a leader to do this! Being passionate about what you truly believe in, compassion and empathy, humility and courage to chart your own journey – this is what leadership is all about. Allow me to reiterate – leadership is not about a designation. As a student you can be a leader. As an individual contributor, you can be a leader. Leadership in this sense is gender agnostic and does not confine itself to any specific role. It is universal and omnipresent. We just need to tap it within ourselves.

Imagine if each one of us with our actions and deeds could create an enabling environment...imagine how the world would change. For me, leadership begins from self. You are a leader if you are someone who wants to change herself/himself. Leadership is also about communication. Being clear. Being consistent. Being honest. Open to listening. As a communicator, I have learnt along the way that it is also about trust and integrity.

Remember, that our professional growth will stem from our personal growth and not the other way around.



# Entrepreneurship and Innovation

## ABOUT THE AUTHOR

Ms Hitesh Choudhary is a progressive farmer from Chak Chhavi village, District Amroha in Uttar Pradesh

## Woman Farmer Emerges as Role Model

I am Hitesh Choudhary, a progressive farmer from Chak Chhavi village District Amroha Uttar Pradesh. I am doing natural farming and also encouraging the farmers of my area and nearby villages to do natural farming. As well as I am group leader of (FPO) Prakhand Bio Energy Kisan Producer Company Limited.

- My vision is to create a self-sustainable, community driven, economically viable and beneficial farming ecosystem in Amroha district.
- I completed various online and offline training courses to adopt Organic and Natural farming, value addition, from Patanjali Organic Research Institute and Agriculture Department (Amroha).

### Field Activity

Adopted Organic and Natural Farming, Integrated Farming System, Value Addition & Processing, Participation in Agriculture Programs, etc.

### Milestones of My Journey

- As a certified trainer from Patanjali Organic Research Institute Pvt Ltd in Haridwar under the Pradhan Mantri Kaushal Vikas Yojana, I am played a crucial role in

advancing natural farming in the region. I am trained 300 farmers in Organic and natural farming techniques and provided them with certificates as organic trainers. An additional 250 farmers have also benefited from her training programs. As well as, as a Yoga certified Instructor of Patanjali, trained more than 5000 persons for their wellness.

- I am group leader of (FPO) Prakhand Bio Energy Kisan Producer Company Limited. There are 302 farmers are associated her FPO, out of which about 38 are women and rest are male farmers. My FPO turnover is 15 Lakh/year.
- I created a Ojasvani self-help group to make SHG members self-dependent through producing sugarcane sapling by single bud and bud chip method and generated about 0.9 lakh income per annum. Sapling charges is paid by farmers as well as sugar industries of Amroha and nearby district for new sugarcane varieties. 30 women are involved in the activity.
- I am dedicated to promoting sustainable agriculture, empowering farmers, and enhancing rural livelihoods in Amroha and nearby districts. With a background in Lemon Grass farming, intercropping techniques, and a strong commitment to organic and natural farming, I have made significant contributions to the agricultural community in the region.

### Achievements

- Promotion of Kitchen/Nutrition Garden among the women farmers of Amroha district for nutritional security and better health. In Amroha district after motivating to women farmers 207 Kitchen/Nutrition Garden have been established. 311 minikits of (14 vegetables crops seed in each minikit) have been distributed free of cost among the women farmers.
- I have passion for sustainable farming, women empowerment, and the promotion of natural farming practices. I am driven by the desire to create a positive impact in the agricultural sector, and I welcome opportunities to collaborate and share my expertise with like-minded individuals and organizations.
- Creating awareness about Azolla farming and its advantage to farming and cattle feed. Motivated to farmer and made 207 tanks for Azolla cultivation. Farmers are using Azolla as Bio fertilizer and cattle feed and getting well. Producing Bio pesticides like Nimastra, Panchgavya, Beejamrat, Ghanjivamrat, Agniastra, Jeevamrit, at home and distributing to farmer free of cost. Also providing Training to Farmers about the pesticide preparation. Promotion of flower farming (Marigold and Rose) among different farmers and collected Marigold oil from farmers for marketing in related markets. Training and support to female farmers for Mushroom production. Promotion of Honey and Poultry production at Farmers Fields.

### Awards/Recognition Received

- I have won the award of Progressive farmer Award from Ag. Dept., Jaivik farmer Award, From Rajyapal & Commissioner. As well as she was nominated for Padam Shree award.
- Appreciation letter received under 'Kisan Samman Diwas' for progressive women farmer in Organic and Natural farming from Department of Agriculture, Amroha.
- Appreciation letter received under 'Bharat Amrit Mahotsav Program' for progressive women farmer in Organic and Natural farming from Department of Agriculture, Amroha.
- Appreciation letter received under 'Bharat Amrit Mahotsav Program' for producing sugarcane sapling by single bud and bud chip method from Department of Cane Development Department, Amroha.

### Impact of my work:

1. As a woman progressive farmer, the main impact of the above agriculture activates is to increase farmer's income specially women farmer. Introduced lemon grass cultivation, Kitchen Gardening, and natural inputs production technique to farmers resulting in increased farmer income leading to doubling the farmer income.
2. Support in marketing of farmer products like lemon grass, marigold oil etc.; to get fair price of their products. Kitchen/Nutrition garden provided green and fresh vegetables and fruits to farm family that's help them to overcome the mal nutrition specially in children and pregnant and lactating women.
3. Due to availability of Soil testing facility nearby farmer's village, get their Soil fertility status and use inputs accordingly resulting in more net income due to reduced cost of production and increased productivity.
4. Supporting female farmers in mushroom production and promoting honey and poultry production at their fields can have significant socio-economic and empowerment benefits.
5. Empowering female farmers in these activities not only improves their economic well-being but also contributes to gender equality, food security, and sustainable agriculture in their communities. It is essential to provide them with the necessary resources, knowledge, and support to succeed in these endeavours.

### Contribution to Society

- As a woman farmer entrepreneur, I connect with customers directly. This is our farmer to customer model.
- I am regarded as an able and efficient resource person for providing training and interactions to enlighten the farming community on Organic and Natural farming.
- I am working for making linkages between farmers and industries for Organic and Natural farming for the welfare of the farming community.
- The technological intervention by me in organic and Natural farming are well accredited by farmers across the district.
- I am seen as a role model, successful woman entrepreneur by the farming community and inspiring them to achieve high in agriculture.



I am driven by the desire to create a positive impact in the agricultural sector



# Go Woman! Go Strong!

## ABOUT THE AUTHOR

Ms Sangeeta Bojappa Moorthy is a naturalist who advocates new age farming. She is the Chief Farmeress of farmington.in at Bengaluru



**M**y birthplace Coorg has effectuated the Ikgai role in establishing myself as an Agriculturist. Famous quote from Melina. M has resounded my karmic destiny to 'we all end up where we started'.

My initial career footing as a corporate mover and shaker in IT, ITES and HR verticals was an enterprising marking of two decades. In the midst of 2010, in the transitional phase of a 'secured, enriched corporate life', I felt a lacuna. I felt a need for doing more, seeking meaningful philosophical purposeful roles in life. Going forward on this introspective realization, an awakening triggered my journey into farming by seeding pioneering entrepreneurial efforts for establishing soil-less farming cultivation (Hydroponics) technology at Bengaluru.

2010 was an era of the IT boom. My choice of an avatar - to be a farmer and taking a switch from my corporate career was smirked at and ridiculed by society, with the questionable doubts of a well-established career and life goals.

Entrepreneurial efforts of flagging soil-less cultivation (Hydroponics) was checkered with gender bias, unfavorable environment, burdensome challenging transaction in rural governmental institutions, male dominant retail business ecosystem, complex social systems, unfriendly business networks and racism. It was a whirlwind of trials and tribulations in my journey of establishing this new technology as well as establishing myself as a noteworthy farmpreneur.

In midst of odds, speculations and barriers, I have persisted more than a decade and am greatly energized to passionately follow the path of farming for the rest of my living years.

### During my entrepreneurial farming tenure-

- Established successfully, a first ever commercial hi-tech environment controlled green house for strawberries using soil-less technology in India at Bengaluru with my ex-business partners.
- Honored to have Showcased technology-led vertical growing system during our Prime Minister Shri Narendra Modi's visit at Delhi Unnati Kisan Mela.
- Established world class container-led vertical growing system for Bharat-Bio-Tech (covaxin manufacturers) as New Lavies company advisor.
- Established, mentored and trained at centres of excellence at Sikkim and also at Nepal, with government organizations.
- Established "centre of excellence at GKVK (UAS, Bengaluru) Agricultural university campus (Bagalkot division). This unit was inaugurated jointly with Israel consulate Ms. Dana Krush.
- Honoured to have participated for Digitization and Technology interventions in Farming discussion with Mr. Mark Rutte, Prime minister of Netherlands during his G20 Summit visit.
- Glad to have been chosen as an eminent speaker for G20 Summit on relevance of 'Sustainable agricultural practices in today's world.'

- Abiding by my principle of Jai Jawan Jai Kisan, conducted trainings at ASC Défense Training Centre at Bengaluru as an honorary service to our nation.

- I am also involved in various research and development activities including product development.

- Recipient of many awards for recognition of being woman farmpreneur, notable agriculturist, visionary and a flag bearer of futuristic farming technologies

### Achievements

- Execute and establish turn-key projects for agricultural business operations from growing to selling.

- Possess retail market, farming(agricultural) business, produce and product knowledge.

- Establish centre of excellence / knowledge centre to educate/train the existing farmers and the new age farmers of the futuristic emerging technologies

- Be Passionate about sustainability concepts, have initiated programs for skill sets upgrading to bridge the Academia -Industry gap and for powering the cause of women upliftment and closing the gender gaps in the rural space.

- Be an Influencer for millennial's perceptions that Agricultural/farming technology will be indeed an X Factor and certainly a favourable career choice for present and future.

- Be a Change-maker for our society by imparting education/trainings/seminars/conference on concepts like go green, grow local, eat what you grow, and making them realize the importance of growing for human/national, food / nutritional security in our ever-challenging times of ever-changing environment and unpredicted pandemic times of the future.

I am an ardent patriot and aspire to live up to my genetic potential by safeguarding our agricultural heritage with integrity and sovereignty.

JAI HIND



**My choice to be a farmer and taking a switch from my corporate career was smirked at and ridiculed by society**



# Organic She Wrote

Gujarat, known for its thriving agricultural sector, boasts numerous unsung heroes, and among them shines Nituben Patel, a beacon of determination and love for her homeland. Hailing from a modest farming family in the serene village of Atkot, nestled in Gujarat's Jasdan Taluka, Nituben Patel's early life was a testament to the challenges and hardships of rural existence.

Yet, instead of yielding to adversity, Nituben Patel charted her own course, venturing into entrepreneurship from a tender age. Her natural business acumen propelled her to early success, nurturing within her the confidence to reimagine farming not just as a traditional vocation but as a promising enterprise.

## Winning Over All Challenges

With a vision to elevate farming to a preferred profession, Nituben identified the various hurdles obstructing agricultural progress:

- 1. Lack of Awareness:** Many farmers remained unaware of government schemes and subsidies tailored to support them.
- 2. Technological Gaps:** A dearth of expertise in modern agricultural practices hindered advancement.
- 3. Market Challenges:** Farmers struggled to secure fair prices for their harvests in a timely manner.
- 4. Organizational Deficiencies:** The absence of cohesive farmer organizations impeded collective progress.
- 5. Environmental Concerns:** Widespread use of chemicals and fertilizers posed threats to soil health and human well-being.

## Transformative Journey

Undeterred by these challenges, Nituben Patel embarked on a transformative journey under the banner of Sajeevan. Rallying support from farmers, entrepreneurs, industrialists, and professionals, she emerged as a voluntary leader, igniting hope across Saurashtra.

Over two decades, Sajeevan achieved remarkable milestones:

- 1. Empowering Farmers:** Organizing 50,000 farmers, both men and women, into 25 Farmer's Producer Companies spanning Gujarat, Karnataka, Odisha, Jharkhand, and Maharashtra.
- 2. Ensuring Compliance:** Guiding these companies to adhere to legal and commercial standards, ensuring smooth operations.
- 3. Capacity Building:** Providing comprehensive training to members, board members, and professionals associated with these companies.
- 4. Investing in Infrastructure:** Strategically allocating resources to infrastructure, processing facilities, organic certification, and marketing initiatives for certified organic produce.

The ripple effect of Nituben Patel's efforts transcends geographical boundaries, with Dangs district in South Gujarat earning the prestigious "Organic" designation, a testament to Sajeevan's relentless endeavours.

## Global Glory

Today, Sajeevan commands respect not only within India but also in global markets like the USA, with over 250 SKUs gaining traction worldwide. Sajeevan envisions a future where every farmer, regardless of location, is empowered.

Embracing the spirit of a New Bharat, Sajeevan extends an open invitation to all stakeholders to join hands in ushering a paradigm shift in agricultural practices. Through organic certification, increased incomes, and the formation of Farmers Producer Companies, Sajeevan strives to catalyse a transformation that transcends borders and fosters a sustainable and prosperous future.

In Nituben Patel's remarkable journey, we find not merely an individual's story but a beacon of hope illuminating the path toward a brighter tomorrow for farmers and agricultural communities worldwide.



Embracing the spirit of a New Bharat, Sajeevan extends an open invitation to all stakeholders to join hands in ushering a paradigm shift in agricultural practices



## ABOUT THE AUTHOR

Ms Nituben Patel is a leading woman agri entrepreneur of the country. She is based in Gujarat





### ABOUT THE AUTHOR

Dr Indira Dhumne is Deputy General Manager MahindraHZPC. Currently she handles the minitubers production, corporate farming, quality and R&D at MahindraHZPC

# Greens and Me

I was born and brought up in a middle-class family in Mumbai. My father was a horticulturist, and I got a liking for plant fields right from childhood. I started my career in Gufic Biosciences and then moved to PepsiCo India. I have been working at Mahindra since 2002.

As a woman actively involved in the field of agricultural technology at Mahindra HZPC, my journey has been a testament to the transformative power of diversity in driving innovation and growth. Over the years, I have played a pivotal role in every stage of potato seed production, from tissue culture to seed production, trials, quality assurance, and the exploration of true potato seed. In this first-person account, I would like to reflect on my contributions and experiences that have contributed to the advancement of agricultural technology and the overall growth of Mahindra HZPC.

My foray into the world of agricultural technology began with a deep-rooted passion for sustainable farming practices and a desire to make a meaningful impact on global food security. Joining Mahindra HZPC provided me with the platform to channelize my enthusiasm into practical solutions. One of the first areas where I made a significant contribution was in the realm of tissue culture.

#### Tissue Culture

Tissue culture has revolutionized the propagation of high-quality potato seeds, ensuring disease-free planting material and enhanced yield. My role involved overseeing the implementation of cutting-edge tissue culture techniques. I focused on streamlining processes, optimizing resource utilization, and introducing innovative methods to improve the efficiency of seed production. This not only increased the overall output but also positioned Mahindra HZPC as a leader in adopting advanced technologies for sustainable agriculture.

#### Seed Production

Seed production became another domain where my contributions flourished. Managing the intricate process of seed production required a meticulous approach and constant adaptation to evolving agricultural practices. My emphasis on precision farming and the integration of technology in seed production led to improved crop yields and quality. By leveraging modern agricultural machinery, precision irrigation systems, and data analytics, we not only optimized resource utilization but also reduced environmental impact, marking a significant step towards sustainable agriculture.

Trials and experimentation are inherent to agricultural

progress, and my role extended to overseeing these vital phases. I actively engaged in collaborative research initiatives, working closely with agricultural scientists, researchers, and local farmers. This collaborative approach not only facilitated the exchange of knowledge but also fostered an environment of continuous learning and adaptation. Our trials focused on identifying potato varieties with enhanced resistance to pests and diseases, as well as improved adaptability to diverse climatic conditions.

#### Quality Assurance

Quality assurance emerged as a cornerstone of my responsibilities, ensuring that the seeds produced met the highest standards. I implemented stringent quality control measures and introduced innovative technologies for seed testing, including molecular diagnostics. This not only upheld the reputation of Mahindra HZPC for delivering superior quality seeds but also contributed to the overall improvement of potato farming practices globally.

#### True Potato Seed

One of the most exciting and forward-looking areas where I made a mark is in the exploration of true potato seed (TPS). TPS presents a revolutionary approach to potato propagation, offering advantages such as reduced transportation costs, easier storage, and broader adaptability. My involvement in TPS research involved collaborating with experts in plant breeding, genomics, and biotechnology. Together, we worked towards unlocking the full potential of TPS, exploring new genetic variations, and developing cultivars with improved traits.

As a woman navigating the realms of agricultural technology, my journey has been marked by overcoming stereotypes and breaking barriers. I have actively promoted gender inclusivity in the workplace, fostering an environment where diverse perspectives thrive. By mentoring and supporting aspiring women in the agricultural sector, I aim to contribute to a more inclusive and dynamic workforce.

In conclusion, my journey at Mahindra HZPC has been a fulfilling odyssey of exploration, innovation, and growth. From the intricate world of tissue culture to the expansive fields of seed production, trials, quality assurance, and the promising horizon of true potato seed, my contributions have been integral to Mahindra HZPC's standing as a leader in agricultural technology. As a woman in this field, I am proud to be a part of a transformative journey that is not only cultivating growth but also shaping the future of sustainable agriculture.

“ True Potato Seed (TPS) presents a revolutionary approach to potato propagation, offering advantages such as reduced transportation costs, easier storage, and broader adaptability



# FARM Science



**My greatest motivation is the long-term impact we create when our solutions are adopted by farmers**



**ABOUT THE AUTHOR**

Ms Komal Shah Bhukhanwala is Director R&D and IP, SML Limited. At SML, Ms Bhukhanwala has been overseeing the research, development, intellectual property and introduction of new crop solutions in crop protection, crop nutrition, biologicals and biostimulants, novel chemical entities, in India and internationally. Under her leadership, SML has developed a global patent portfolio of over 500 patent applications.

I have been a Director on the board of SML Limited for the last 10 years, and leading global R&D efforts. During the last 10 years, SML has grown from a crop protection -company focussing on advanced formulations, into a research-driven agri inputs company with its innovative solutions spanning crop protection, biologicals and crop nutrition.

When I enrolled as a young student in Chemical engineering, there were only 7 women in a class of 70. I finished my undergraduate degree in the United States and followed it up with a graduate degree in Biochemistry. Making the shift from engineering to sciences was not easy.

I returned to India due to personal and family reasons. India was about to embark on a new patent regime during this time. As I had independently taken up the Patent Bar exam in the United States and India, I joined a firm to start their Patent Practice which also involved working with global companies in the IT, Networking and Software space. I felt the need to set up my own firm which would assist Life Science companies for their IP needs. I had more success from global clients including large American Pharmaceutical and European Crop Sciences companies.

#### Challenging Experiences

The birth of my first child brought in new responsibilities and restricted my ability to travel and devote more time to work. It was challenging developing business alone and running the firm and attracting talent. From setting up the office, establishing the firm, to speaking at colleges, conferences, attracting young talent, experienced professionals and bringing clients on board and delivering quality work, was an unending job.

It was indeed a great learning experience and it opened doors into the world of high-end research and processes. SML(formerly known as Sulphur Mills Limited), was a client, and I had the opportunity to create the patent portfolio for the company. From patent prosecution to patent litigation, the volume kept increasing and I had started to shift more focus to the development of the product pipeline. This led to me joining the board of the company in 2013.

#### Juggling Family And Work Responsibilities

One of the challenging times was my second pregnancy, in 2013 when I was acutely ill. Post the arrival of my second child, things were even more challenging. I was grateful to have the support of my mother during this time who helped me with my children. I continued to work with many disruptions, due to the challenges of young infants, sleepless nights and poor health for long periods. Travel was constrained and at times it was impossible to see the light at the end of the tunnel.

#### Water Issues Faced By Farmers

Over the last few years, I focussed on traveling to see the challenges faced by farmers on the ground, whether it came

to water quality or the health of their soil. Meeting farmers in Ludhiana, who wanted organic solutions against urea, to farmers in Hapur, who were excessively applying phosphatic fertilizers to achieve yields, to farmers in Rajasthan growing cumin and battling diseases like wilt, it was clear that they needed radical yet safe solutions.

Farmers in Europe were concerned about the quality of their ground water, whereas identifying the gaps and understanding the farming practice in Brazil, with their intensive cultivation, was mentally invigorating yet challenging. With this knowledge base, we have customized our solutions and it was extremely gratifying to see our solutions working and addressing their needs.

#### R&D Roadmap

Simultaneously, attracting talent at the corporate level across all functions, building and expanding the R&D facilities, setting up global centres of excellence, visiting customers in India and abroad, and understanding established practices in agriculture, was a demanding job, not only physically, but mentally. R&D in agriculture comes with huge amounts of risk, in terms of time, money, and requires creativity, a vision for the future, connecting the research with the end needs of the farmer and the environment, addressing cost benefit and economic feasibility. Most of the research done in the industry to date, has been done without long term considerations of the impacts on the health of population and planet at large.

#### Developing Solutions For Farmers

Our solutions have been dramatically increasing farmer yields improving quality of their crops and reducing their needs on synthetic chemical solutions. Our solutions are holistic, and address climate change, soil and human health and global needs of food safety and security. We are introducing this year, first in the world, a bioformulation and high Nutrient Use efficiency crop nutrition formulations, which help farmers to grow sustainably and the best is yet to come.

It is still challenging to carve out and create a radical approach to solving the farmer's needs. There are age-old practices which continue to damage soil health, farm productivity and have devastating impacts on climate change. Challenging norms, altering mindsets, and showing that a new scientific approach can build more resilience, safety and sustainability in agriculture and food production, and bringing this to the market, is clearly the biggest challenge.

Personally the biggest challenge is knowing when to stop, and balancing personal needs and demands at work. My greatest motivation is the long-term impact we create when our solutions are adopted by farmers. Food is an essential part of human life and how we grow it matters most.



# The Rice Way to Growth

## ABOUT THE AUTHOR

Dr Swati Nayak is Scientist & South Asia Lead - Seed Systems & Product Management. Platform: Rice Breeding Innovation, International Rice Research Institute (IRRI)



**Dr. Nayak emphasizes the importance of conserving indigenous varieties for both scientific and cultural reasons**



Dr. Swati Nayak, a distinguished scientist working with CGIAR- International Rice Research Institute, has carved an illustrious path in the realm of agriculture, earning the prestigious Borlaug Field Award for her exceptional contributions to food and nutrition security. Currently based in Delhi, she received this prestigious accolade on October 24, 2023 during the Norman E. Borlaug International Dialogue in Des Moines, Iowa. This award, given in memory of Dr. Norman Borlaug, the chief architect of the Green Revolution and Nobel laureate, is bestowed upon outstanding scientists under the age of 40 who have made significant strides in addressing global challenges related to hunger eradication and food security. Nayak is the third Indian to receive the award.

Dr Nayak's academic journey has been marked by excellence and dedication. She completed her Ph.D. in Competitive Intelligence & Strategic Management for Agricultural Extension Management Strategy at Amity University from 2017 to 2022. Before that, she earned a Master's in Rural Management at the Institute of Rural Management Anand (2008-2010) and a Bachelor of Science in Agriculture at Acharya NG Ranga Agriculture University (2003-2007). Her academic prowess laid the foundation for a remarkable career committed to bridging the gap between scientific knowledge and its practical applications for the benefit of farmers.

Dr. Nayak, who joined the International Rice Research Institute (IRRI) in 2013, has emerged as a global leader in numerous flagship programs focused on rice and rice-based food systems over last one decade. As the South Asia lead for seed systems, at IRRI and global lead for demand driven seed system under CGIAR-SeedEqual initiative, her influence extends far beyond national borders as she fosters research and delivery around improved germplasm, quality seed access for climate resilience, nutrition and productivity gain. She has played a major role in organizing over 10,000 extensive on-farm tests for more than 500 rice varieties, collaborating with smallholder farmers in diverse ecosystems across Asia and Africa.

### Demand-Driven Rice Seed Systems

Dr Nayak was recognized for her innovative approach to engaging farmers in demand-driven rice seed systems. She is also known for her work in advancing climate-resilient and nutritious rice varieties that are high-yielding, bio-fortified, and healthier seed varieties. Her efforts have resulted in the dissemination of more than 20 critical path-breaking varieties that are not only climate-resilient, high-yielding, bio-fortified, and healthier, all achieved through innovative seed systems and scaling channels across multiple countries. She works closely with national breeding research network and extension stakeholders bringing these two critical pillars of agriculture sector together, to deliver genetic gain in farmer field.

Dr. Nayak also emphasizes the importance of conserving indigenous varieties for both scientific and cultural reasons. She advocates empowering farmers to produce superior-quality seeds and maintain their germplasm, acknowledging that while the yield may not always be competitive, strategic market positioning, and value chain development for these products can enable farmers to command better prices for these seeds.

### Heading A National Initiative For Women Farmers

Dr Nayak has made a substantial impact on empowering women in agriculture through her collaboration with the programmes like National Rural Livelihood Mission (NRLM) , Mahila Kisan Sashaktikarn Pariyojna (MKSP). A pivotal moment in Dr. Nayak's journey was her appointment to lead the first-ever dedicated initiative for women farmers, approved by the Indian cabinet.

Drawing upon her grassroots experience, she crafted a comprehensive blueprint for the program, collaborating with 10 Indian states to establish a national initiative from scratch. This ground-breaking effort has positively impacted four million women farmers to date, reflecting Dr. Nayak's commitment to ensuring equity and inclusivity in agriculture.

She had dedicated her efforts to smallholders including various communities and ethnic tribes living in remotest zones. As an early career professional working for integrated tribal development agency in Seethampeta, Andhra Pradesh, she carries significant grassroots experience and close understanding of rural poverty, livelihood context.

Dr Nayak underscores the collaborative effort of scientists and farmers in introducing high-yielding seeds that combat various risks, emphasizing the importance of resilient varieties as a form of insurance. Nayak stresses the need to ensure that these resilient varieties remain accessible to farmers, balancing the perspectives of both farmers and consumers. Nayak's influence transcends national boundaries, as evidenced by her instrumental role in accelerating the impact of existing policy innovations like "Seeds Without Borders." Leveraging this policy she and team have been instrumental in creating access and adoption path for many potential climate resilient, bio-fortified and high yielding varieties for farmers of member / neighbour countries bridging the geographic barrier for science. Her impactful work in seed system space, has created a powerful model depicting a highly successful interface of market and society.



# Empowering Women Through Sericulture



I have been able to empower women, both economically and socially to the best of my ability in furthering their interest in sericulture

**M**y journey began with a Post Graduate Diploma in Sericulture and a Masters in Sericulture from Sri Padmavati Mahila Vishwa Vidyalayam and Bangalore University and soon after I had cleared Group 1 services and was appointed as Assistant Director of Sericulture during the year 1990. Through with three promotions, presently I am working as Additional Director of Sericulture, Government of Andhra Pradesh.

I take care of the needs of all the stakeholders in the pre and post cocoon sectors of Sericulture, wherein 60 percent of these activities are performed by women since Sericulture industry is predominantly for the women, by the women and of the women.

#### Vanya Silk

I have the distinction of promoting Vanya silk in the tribal belt of Alluri Sitaramaraju district of Andhra Pradesh. I am highly privileged to be heading a department that is directly empowering women in large numbers. We regularly celebrate International Women's Day where we facilitate women farmers, reelers with Pattu Siri awards.

I have also worked as additional project Director in rural development department in drought prone districts like Anantapur, Andhra Pradesh for 12 years. During that period, I formed nearly 10,000 self-help groups comprising of poor, rural women. Working with women Self Help Groups i am on a proud pedestal to say that I have been able to empower women, both economically and socially to the best of my ability in furthering their interest in sericulture.

#### ABOUT THE AUTHOR

**Smt C. Aruna Kumari** is  
Additional Director of  
Sericulture, Government of  
Andhra Pradesh





# Journey of a Scientist

## Challenges & Rewards



**Dr. Bhagat has made significant contributions to pest management, veterinary nutrition, medicinal plants, nanofertilizers, pesticides, and biopesticides**

**W**hen I was five years old, my great-grandfather, Shri Ramanand Bhagat, a renowned lawyer at the High Court, played a pivotal role in shaping my early years. My grandfather, Mr. Nityanand Bhagat, served as a Block Officer and Professor at the Teacher Training College in the Bihar Education Department. Additionally, all my maternal and paternal aunts were teachers in the Bihar Government. Surrounded by a family deeply immersed in academia, I found myself captivated by the sight of rooms brimming with books, witnessing their diligent study routines in both the early morning and evening hours.

My educational journey began at Kendriya Vidyalaya, Indian Embassy, Kathmandu, Nepal, where my passion for both academics and sports first took root. Upon my father's relocation to India during my eighth standard, I transitioned to Kendriya Vidyalaya in Lucknow, India, continuing my academic pursuits. Despite my mother having to forego her studies after my birth, she held steadfast dreams of seeing me pursue higher education. It became my personal mission to fulfill my parents' aspirations, culminating in the completion of my Graduation, Post-graduation, and PhD, all achieved in Lucknow.

### **Finding My Path**

During the course of my PhD, I was selected as ARS ICAR on November 18, 1999. As a single woman scientist, establishing myself proved to be a formidable challenge. My two brothers played a pivotal role, supporting me as pillars of strength, enabling me to forge ahead independently and become a self-reliant woman. I encountered resistance from those who struggled to accept the capabilities of a woman in the field. However, my tenure at IISc, Bangalore, which commenced in 2009 and continues to this day, provided me with a nurturing environment where I could thrive and actualize my ideas.

Working in a laboratory where gender equality was embraced, I found solace and support. Yet, a lingering sense of dependence on IISc, Bangalore prevailed, as I lacked a laboratory of my own. From 2009 to 2020, I dedicated myself to my work at IISc, Bangalore. It was only in 2022, after the retirement of my senior collaborator, that I finally acquired my own laboratory.

### **Challenges**

These challenges mentioned here is not to insult anyone but to represent hurdles I had gone through may be roadmap for others success or challenges they are facing.

## **ABOUT THE AUTHOR**

**Dr Deepa Bhagat** is Principal Scientist (Organic Chemistry) at ICAR- National Bureau of Agricultural Insect Resources, Bangalore

Commencing my journey as an ARS scientist on November 18, 1999, in Mumbai, I encountered numerous hurdles. There was no designated workspace or laboratory, and no seed grant was provided for setting up one. Moreover, the severe lack of accommodation made life incredibly challenging. This shortage persisted even in subsequent postings in Anand, Gujarat, and Bengaluru, Karnataka. The absence of on-campus housing exacerbated the situation. To this day, I believe that having on-campus accommodation could have significantly enriched my experience.

For a woman scientist like myself, securing on-campus accommodation was not just about convenience but also about safety and well-being. As a single woman, living alone outside the campus was often unsettling, significantly impacting my quality of life. The constant concern for safety made it difficult to sleep properly, affecting both my personal and professional life.

Additionally, travel posed another hurdle. To work late nights in the laboratory, I often had to drive home alone at 11 pm or 2 am, further compounding the challenges I faced.

My expertise in Organic Chemistry, often regarded as a secondary subject within the realm of agriculture, presented unique challenges. As one of the few scientists specializing in this field within ICAR and specifically at ICAR-NBAIR, I encountered significant difficulties due to the lack of a supportive community familiar with the intricacies of my subject. Additionally, there was a dearth of colleagues or juniors with a similar background to carry forward the legacy.

### **Nanotechnology**

Working in the emerging field of nanotechnology, which was not initially not within the clear mandate of the Project Directorate of Biological Control, Bengaluru (Presently ICAR-NBAIR, Bengaluru) led me to endure a six-month period of loss of pay and the depletion of my earned leave in 2009. The absence of necessary equipment and facilities for nanotechnology research prompted me to seek a postdoctoral position at the Indian Institute of Science (IISc), Bangalore, renowned for its state-of-the-art facilities. However, due to regulations stipulating that in-service candidates, like myself availed PhD study leave in 2005, were ineligible for postdoctoral study leave in 2009, for the subsequent ten years, I encountered further obstacles.

Subsequently, I embarked on a visit to CICAT, China, which incurred another period of loss of pay as I had exhausted all my earned leave during my postdoctoral tenure, leaving me without the accrued leave necessary to receive a salary while abroad. Consequently, I faced a three-month period without salary during my training in China. Most of the financial burden for international conference presentations falling on me, partially offset by conference organizers.



Despite efforts to seek guidance and support, particularly regarding Memoranda of Understanding (MoU), there was a lack of senior support and clarity on protocol. Consequently, although the research conducted at IISc, Bangalore resulted in patents, including international ones, it took decades for the parent organization to recognize and accept them. Both institutions had established channels for Intellectual Property (IP) management, with IPTel at IISc, Bangalore, and ITMU at PDBC, Bangalore. However, instead of facilitating the process for scientists who persevered through significant challenges, the bureaucracy proved cumbersome.

It was only in 2023, with the backing of the present Director, that the patents were finally acknowledged. Despite working diligently for the advancement of science in India, navigating through rigid regulations and bureaucratic hurdles proved to be a formidable challenge.

Women continue to be underrepresented in leadership positions and decision-making roles within scientific institutions and organizations, and I am no exception. It is disheartening to note that since its inception in 1972, ICAR has not appointed a single woman as Director General.

#### Achievements & Contribution to Agriculture

Dr. Deepa Bhagat, an eminent expert in Organic Chemistry with a specialization in nanomaterial synthesis, has been at the forefront of pioneering research in the agricultural domain. Her dedication to unraveling the impact of nanomaterials on natural enemies was prominently featured in her recent publication in Heliyon, 2023 [21] titled "Nature to Nurture: Chitosan nanopowder, a natural carbohydrate polymer choice of egg parasitoid, Trichogramma Japonicum Ashmead." This publication underscores not only the depth of her scientific contributions but also her unwavering commitment to sustainable agricultural solutions.

Dr. Bhagat's contributions to agricultural research span a wide spectrum, encompassing evaluations of nanomaterial toxicity on natural enemies, the development of nanogels infused with pheromones for precise pest management, and groundbreaking advancements in nanofertilizers, MEMs-based sensors, biopesticides, insecticides, and oxalate sensors.

#### National And International Patents

Her research has garnered recognition through publications and accolades from ICAR newsletters and website citations. Dr. Bhagat holds national and international patents, particularly in the domain of nanosensors for early pest detection and virus sensors for biopesticide quality assessment. Notably, she has spearheaded the development of 180 nanogel-loaded pheromone products tailored for pest management, targeting a diverse array of pests.

Dr. Bhagat's focus on pests such as *Holotrichia consanguinea*, *Spodoptera frugiperda*, *Chilo sacchariphagus indicus*, *Scirpophaga*

*excerptalis*, *Plutella xylostella*, and *Bactrocera dorsalis* underscores her commitment to addressing various agricultural challenges. Her contributions extend to the creation of Oxalate and Urea pesticide sensors, providing precise tools for quality assessment.

#### Innovative Solutions In Agriculture

As a global leader in her field, Dr. Bhagat has significantly enriched the scientific community and advanced high-tech and sustainable agricultural practices. Her interdisciplinary approach has paved the way for innovative solutions in agriculture, evident through her extensive array of patents, publications, and innovative protocols.

Dr. Bhagat's achievements have been recognized through numerous awards, including the Gandhian Young Technological Innovation (GYTI) Award, Best Scientist (Research) award-2015, and Science Explorer Award. She has also been actively involved in international conferences, delivering over 100 lectures as a Lead Speaker, Keynote Speaker, and Panelist.

Committed to nurturing young talent, Dr. Bhagat has trained numerous individuals through NAAS Policy Paper 63 and provided valuable insights into the future of agricultural research through publications by ICAR. She has undertaken national priority program projects under CRP-Nanotechnology by ICAR, DBT, New Delhi, and IISc-INUP, Bangalore, collaborating with esteemed institutes and industry partners.

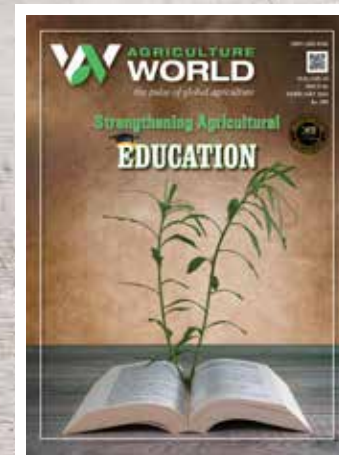
With extensive experience spanning four ICAR institutes and a robust background in agricultural research, Dr. Bhagat has made significant contributions to pest management, veterinary nutrition, medicinal plants, nanofertilizers, pesticides, and biopesticides. Her leadership in national priority nanotechnology projects has yielded tangible results, including products that reduce input costs and contribute to doubling farmer income.

Dr. Bhagat's role in technology transfer and commercialization through the Institute Technology Management Unit (ITMU) underscores her commitment to fostering innovation. She has also served as a Team Leader at the China International Centre for Agricultural Training (CICAT), where she supervised and directed international projects.

Beyond her research endeavors, Dr. Bhagat has actively contributed to institutional building activities and served on various committees, demonstrating her multifaceted leadership capabilities. Her efforts to create a safe environment for female employees as a member of the women's welfare committee are particularly commendable.

Dr. Deepa Bhagat is a self-motivated visionary whose remarkable contributions to agricultural research and institutional development have left an indelible mark on the field. Her expertise, leadership, and dedication make her a valuable asset to any research-oriented dynamic environment, poised for global recognition.

# Subscribe Now



Please fill the form in CAPITAL LETTERS and mail it with Cheque/DD to the address mentioned in the form

Name \_\_\_\_\_ Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Pin \_\_\_\_\_ Mobile \_\_\_\_\_ Email \_\_\_\_\_  
 I am enclosing Cheque/DD No. \_\_\_\_\_ Dated \_\_\_\_\_ drawn on (specify Bank) \_\_\_\_\_  
 favouring DSR AGRI MEDIA PRIVATE LIMITED for ₹ \_\_\_\_\_

### AGRICULTURE WORLD Subscription Tariff Single Copy-₹200/-

Subscription	Copy	Rate	Charges	Total
6 Months	6	1200	360	1560
1 Year	12	2400	720	3120
2 Year	24	4800	1440	6240
3 Year	36	7200	2160	9360

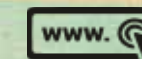
## To Subscribe



**CALL**  
 011-41005136, 45503170  
 +91 9891 889 588



**EMAIL**  
 samad@krishijagran.com  
 circulation@krishijagran.com



**ONLINE**  
 subscription.krishijagran.com

### DSR AGRI MEDIA PRIVATE LIMITED

**Term & Conditions :**  
 Kindly write a cheque or DD in favour of DSR AGRI MEDIA PRIVATE LIMITED and send it at 60/9, 3rd Floor, Yusuf Sarai Market, Near Green Park Metro Station, New Delhi-110016 For fast process of your subscription, do write your Name, Address and Mobile Number on the back of cheque /DD.

Please allow 3-4 weeks for processing of your subscription. Dispute, if any are subject to the exclusive jurisdiction of competent courts and forums in Delhi only. Terms and Conditions are subject to change. For complete T&C, please log on to krishijagran.com & subscribe.



# INDIA'S MOST ADVANCED TRACTOR RANGE



## MAHINDRA TRACTORS

Mahindra & Mahindra Ltd., Farm Equipment Sector:  
Farm Division, AFS Headquarters, Mahindra Towers, 1st Floor, Akurli Road, Kandivali [E], Mumbai - 400101, India.  
[www.mahindractor.com](http://www.mahindractor.com) [facebook.com/MahindraTractorsIndia](https://www.facebook.com/MahindraTractorsIndia)  
[twitter.com/TractorMahindra](https://twitter.com/TractorMahindra) [youtube.com/MahindraTractorsofficial](https://www.youtube.com/MahindraTractorsofficial) [www.instagram.com/mahindractorsofficial](https://www.instagram.com/mahindractorsofficial)

**CALL NOW 1800 425 6576**