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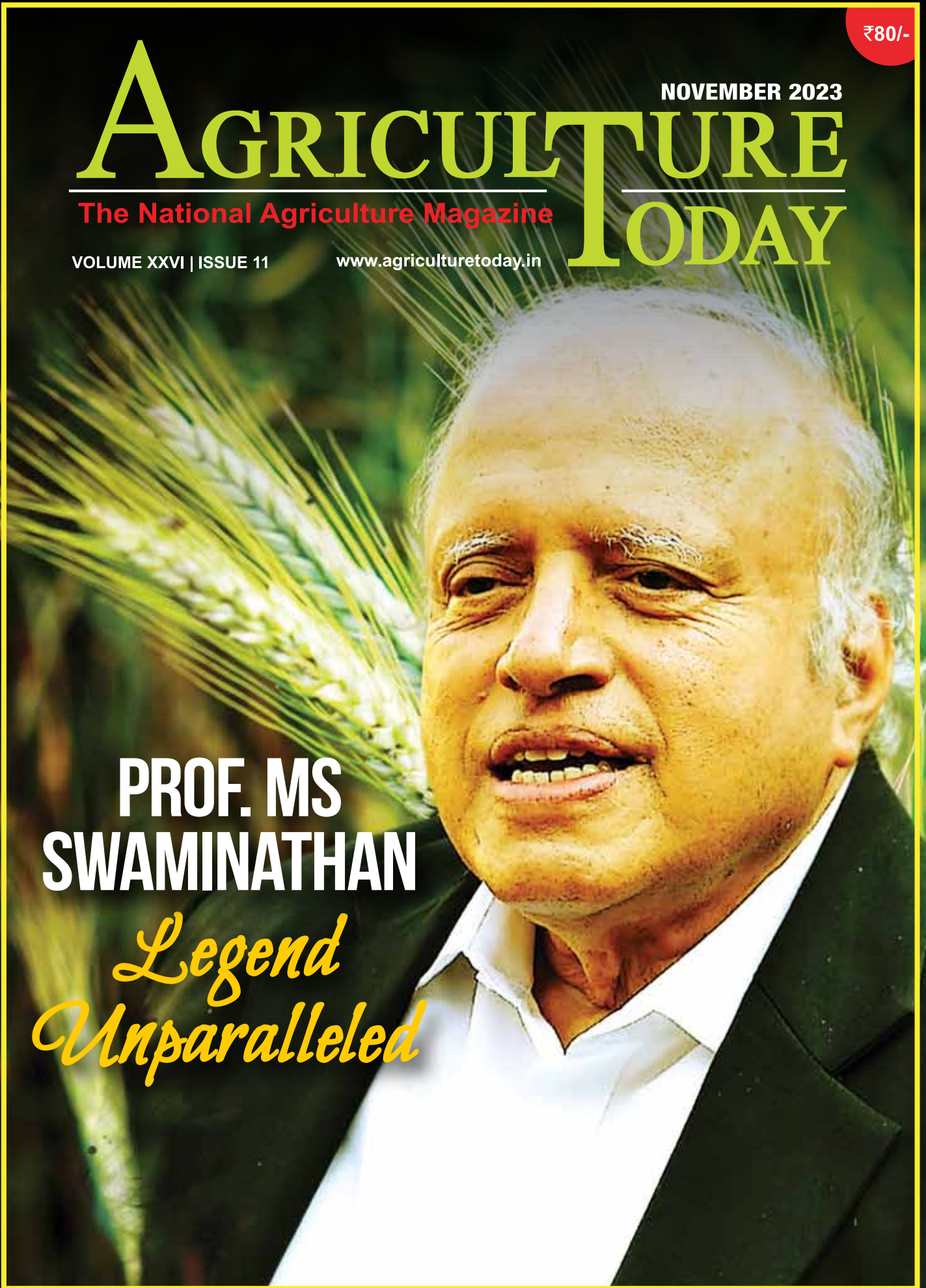
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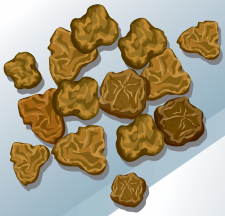
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**PROF. MS  
SWAMINATHAN**

*Legend  
Unparalleled*





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# A HUMANIST SCIENTIST

September 28, 2023 marked the passing away of Dr MS Swaminathan, the architect of India's Green Revolution. His passing away marks the end of an Era, the legacy of whom will continue to be cherished as long as there are humans on earth.

Dr. Swaminathan sowed the seeds of India's First Green Revolution by inter sub-species crosses between 'Indica' and 'Japonica' rice varieties. In 1967-68 wheat yield accelerated by the dwarf and semi-dwarf wheat varieties suddenly transformed India's then image as 'begging bowl' to 'bread basket'. As Borlaug acknowledged, "a great deal of credit must go [to Swaminathan] for first recognizing the potential value of the Mexican wheat dwarfs. Had this not occurred...there would not have been a Green Revolution in Asia".

At the same time, Swaminathan was concerned that the dwarf wheat based agriculture, requiring enormous inputs is exploitative in nature, and it would not be sustainable over long periods of time. He foresaw irreparable damage to soil, ground water and biodiversity. His warning indeed came true by the late 1980s when the yield gains started showing symptoms of fatigue.

He developed a systems-based agriculture which he called 'evergreen revolution' and defined it as achieving productivity in perpetuity without resulting in environmental and ecological harm. The "Evergreen Revolution" developed by Swaminathan has won international recognition and appreciation. He developed what are called 'ecotechnologies' by blending the best of the frontier technologies (nuclear, space, bio- technologies) with traditional knowledge and ecological prudence of the rural communities.

Swaminathan is amongst the fewest of the few geneticists with heart devoted to conservation of biodiversity for future food and nutrition security. He has played a crucial role in the cryopreservation of seeds and propagules at 'Svalbard Global Seed'. His major focus in the last decade had been on achieving a 'world without hunger'. Most noteworthy is that his fight against hunger is sequential and evolutionary in the sense that he first addressed the 'caloric hunger' then the 'protein hunger' and now finally the 'hidden hunger' caused by deficiency in diet of micronutrients and vitamins. His works on gender equity and ensuring rural livelihoods have been inspiring.

While curating this special edition, we were inundated with tributes to him. This shows how Dr MS Swaminathan had inspired and touched the lives of many. We are truly indebted to the time he had with us and pray for his noble soul.



*Anjana*



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**PROF.**  
**MS**  
**SWAMINATHAN**





# PROF. SWAMINATHAN'S UNYIELDING COMMITMENT AND FORESIGHT USHERED A NEW ERA OF AGRICULTURAL PROSPERITY



A few days ago, we lost Professor MS Swaminathan. Our nation lost a visionary who revolutionised agricultural science, a stalwart whose contribution to India will always be etched in golden letters. Prof. MS Swaminathan loved India and wanted our nation, and our farmers, in particular, to lead a life of prosperity. Academically brilliant, he could have chosen any career but he was so impacted by the Bengal famine of 1943 that he was clear that if there was one thing he would do, it would be to study agriculture.

At a relatively young age, he came in contact with Dr. Norman Borlaug and followed his work in great detail. In the 1950's, he was offered a faculty position in the US but he rejected it because he



**Narendra Modi**  
Prime Minister, India

wanted to work in India and for India.

I want you all to think about the challenging circumstances in which he stood as a colossus, guiding our nation towards the path of self-sufficiency and self-confidence. In the first two decades since Independence, we were dealing with immense challenges and one of them was food shortages. In the early 1960s, India

was grappling with the ominous shadows of famine and it is then that Prof. Swaminathan's unyielding commitment and foresight ushered in a new era of agricultural prosperity. His pioneering work in agriculture and specific sectors like wheat breeding led to a significant increase in wheat production, thus turning India from a food-deficient country into a self-sufficient nation. This tremendous achievement earned him the well-deserved title of, "Father of the Indian Green Revolution."

The Green Revolution offered a glimpse of India's "Can Do Spirit" - that if we have a billion challenges, we also have a billion minds with the flame of innovation to overcome those challenges. Five decades after the Green Revolution began, Indian agriculture has become far



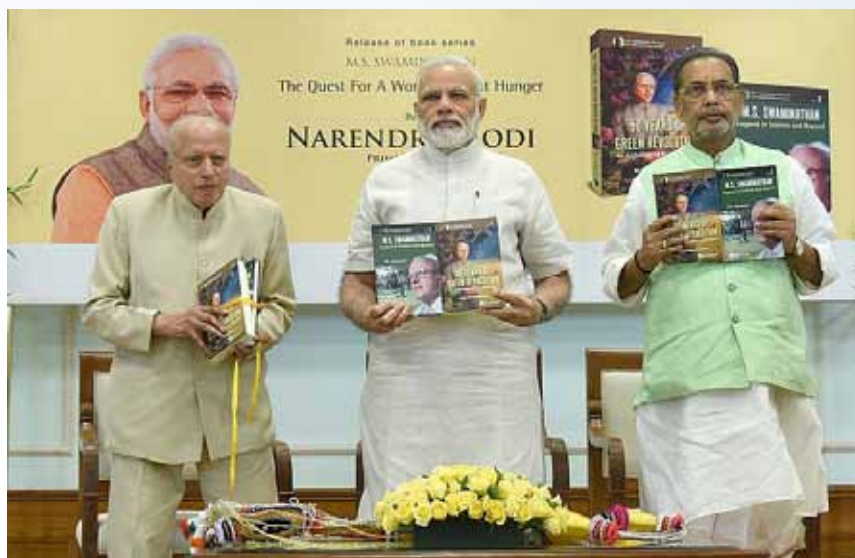
more modern and progressive. But, the very foundations laid by Prof. Swaminathan can never be forgotten.

Over the years, he undertook pioneering research in combatting parasites affecting potato crops. His research also enabled potato crops to withstand cold weather. Today, the world is talking about Millets or Shree Anna as superfoods, but Prof. Swaminathan has encouraged discourse around millets since the 1990s.

My personal interactions with Prof. Swaminathan were extensive. They began after I took over as Chief Minister of Gujarat in 2001. During those days, Gujarat was not known for its agricultural prowess. Successive droughts and a super cyclone and an Earthquake had impacted the growth trajectory of the state. Among the many initiatives we launched, was the Soil Health Card, which enabled us to understand the soil better and address problems if they arose. It was in the context of this scheme that I met Prof. Swaminathan. He appreciated the scheme and also shared his valuable input for the same. His endorsement was enough to convince those who were sceptical about the scheme which would eventually set the stage for Gujarat's agricultural success.

Our interactions continued during my Chief Ministerial tenure and also when I took over as Prime Minister. I met him at the International Agro-Biodiversity Congress in 2016 and the next year in 2017, I launched a two-part book series written by him.

The Kural describes farmers as the pin that holds the world together because it is the farmers who sustain everyone. Prof. Swaminathan understood this principle very well. A lot of people call him a "Krishi Vaigyanik" – an Agricultural Scientist. But, I have always believed that he was even more. He was a true "Kisan Vaigyanik" – a Farmers' Scientist. In his heart, there was a farmer. The success of his works is not restricted to their academic excellence; it lies in the impact they have had outside the laboratories, in the farms and the fields. His work narrowed the gap between scientific knowl-



**Our interactions continued during my Chief Ministerial tenure and also when I took over as Prime Minister. I met him at the International Agro-Biodiversity Congress in 2016 and the next year in 2017, I launched a two-part book series written by him.**

edge and its practical application. He consistently advocated for sustainable agriculture, emphasising the delicate balance between human advancement and ecological sustainability. Here, I must also note Prof. Swaminathan's special emphasis on improving the lives of small farmers and ensuring they also enjoy the fruits of innovation. He was particularly passionate about improving the lives of women farmers.

There is another aspect about Prof. MS Swaminathan which is remarkable - he stands tall as a paragon of innovation and mentorship. When he won the World Food Prize in 1987, the first recipient of this prestigious honour, he used the prize money to establish a not-for-profit re-

search foundation. To date, it undertakes extensive work across various sectors. He has nurtured countless minds, instilling in them a passion for learning and innovation. In a rapidly changing world, his life reminds us of the enduring power of knowledge, mentorship, and innovation. He was an institution builder as well, having to his credit many centres where vibrant research takes place. One of his stints was as Director, International Rice Research Institute, Manila. The South Asia Regional Centre of the International Rice Research Institute was opened in Varanasi in 2018.

I will again cite The Kural to pay tributes to Dr. Swaminathan. It is written there, "If those who have planned have firmness, they will attain what they have desired the way they have desired." Here was a stalwart who decided early on in his life that he wanted to strengthen agriculture and serve farmers. And, he did it exceptionally innovatively and passionately. Dr. Swaminathan's contributions continue to inspire and guide us as we navigate the path of agricultural innovation and sustainability. We must also keep reaffirming our commitment to the principles he held dear, championing the cause of farmers and ensuring the fruits of scientific innovation reach the roots of our agricultural expanse, fostering growth, sustainability, and prosperity for generations to come.





# DR SWAMIANTHAN'S CONTRIBUTIONS ARE EXEMPLARY

**D**r MS Swaminathan's unprecedented contribution in the development of agriculture sector will always be unforgettable and his work will continue to inspire all of us. His reputation is not limited to India. His demise is an irreparable loss for the agricultural sector of the entire country and the world. Due to the contributions Dr. Swaminathan in the field of agriculture, farmers have benefited a lot. During the tenure of the then Prime Minister Shri Atal Bihari Vajpayee, the Farmers Commission was formed under the chairmanship of Dr. Swaminathan. He was the Director General of the Indian Council of Agricultural Research and also served the agricultural sector through other organizations.

Farmers were benefited by his recommendation of MSP to the Govern-



**Narendra Singh Tomar**

Minister for Agriculture and Farmers' Welfare of India

ment of India. His recommendations were accepted and implemented. Farming received a new dimension due to the contemplation of Dr. Swaminathan, who had extraordinary passion and dedication towards agriculture. In view of his unprecedented contribution, he had received many national and international awards including the World Food Award.

Dr. Swaminathan ji had also called

for Evergreen Revolution, which is based on ecological principles. Through this, the fertility of the land is maintained and sustainable farming is ensured. Dr. Swaminathan started his research career at the National Rice Research Institute, Cuttack, where he was involved in Indica-Japonica hybridization. He initiated the breeding of Basmati rice, which has made the country a leading exporter of Basmati rice, earning Rs 30 thousand crore annually. His visionary approach towards the use of genetics science in crop breeding is recognized globally. Identification of the potential of semi-dwarf wheat and rice varieties and their introduction for the Green Revolution in the country is a proof of his foresight. We pray to God to grant peace to the departed soul.

Om Shanthi.









# A Son of India and a Bold Visionary

**T**he most revered agricultural scientist on our planet is no longer with us.

Dr. M. S. Swaminathan, lauded by Time magazine as one of the twenty most influential Asians of the 20th century, treasured by Dr. Norman Borlaug as his indispensable brother in igniting the Green Revolution across India and the first recipient of the World Food Prize - The Nobel Prize for Food and Agriculture, has passed away.

From India to Iowa and around the globe, the thousands, no millions, who have been touched by his innovative scientific prowess, his insightful policy recommendations and his inspirational humanitarian spirit are joining in mourning his loss and celebrating his century long leadership in confronting poverty, reducing hunger and uplifting the poorest farmers, the great majority of them women, while sustaining the environment for future generations.

I join with countless of his colleagues and all whose lives were touched by Dr. Swaminathan in sending our deepest and



## Ambassador Kenneth M. Quinn

Founder & CEO – Pranam Kisan (Cofounder – Hello Farmers, Green Collar India and Cow Currency)

most heartfelt sympathy to his three exceptional daughters - - Soumya, Madhura and Nitya Rao - - and his entire family and the MSSRF staff at this profoundly difficult time. In addition, we offer our consolation to the people of India on the loss of one of your country's greatest heroes.

Born in 1925, M. S. Swaminathan came of age in the 1940s when the confluence of three great historical factors in India's history revised the trajectory of his career

and his life with enormous consequences. Inspired by the leadership of Mahatma Gandhi, impacted by the tragic loss of millions of lives during the Great Bengal Famine and influenced by India's quest to achieve freedom and independence, young M. S. Swaminathan changed his academic focus from medicine to agriculture.

This fateful decision would lead him to a Ph.D. and then a post doctoral fellowship at the University of Wisconsin in the United States. It was there in 1953 that he encountered a young scientist who had been doing remarkable work with poor farmers in Mexico, named Norman Borlaug. Over a cup of tea at Rennenbohm's Drug store a life long bond was formed.

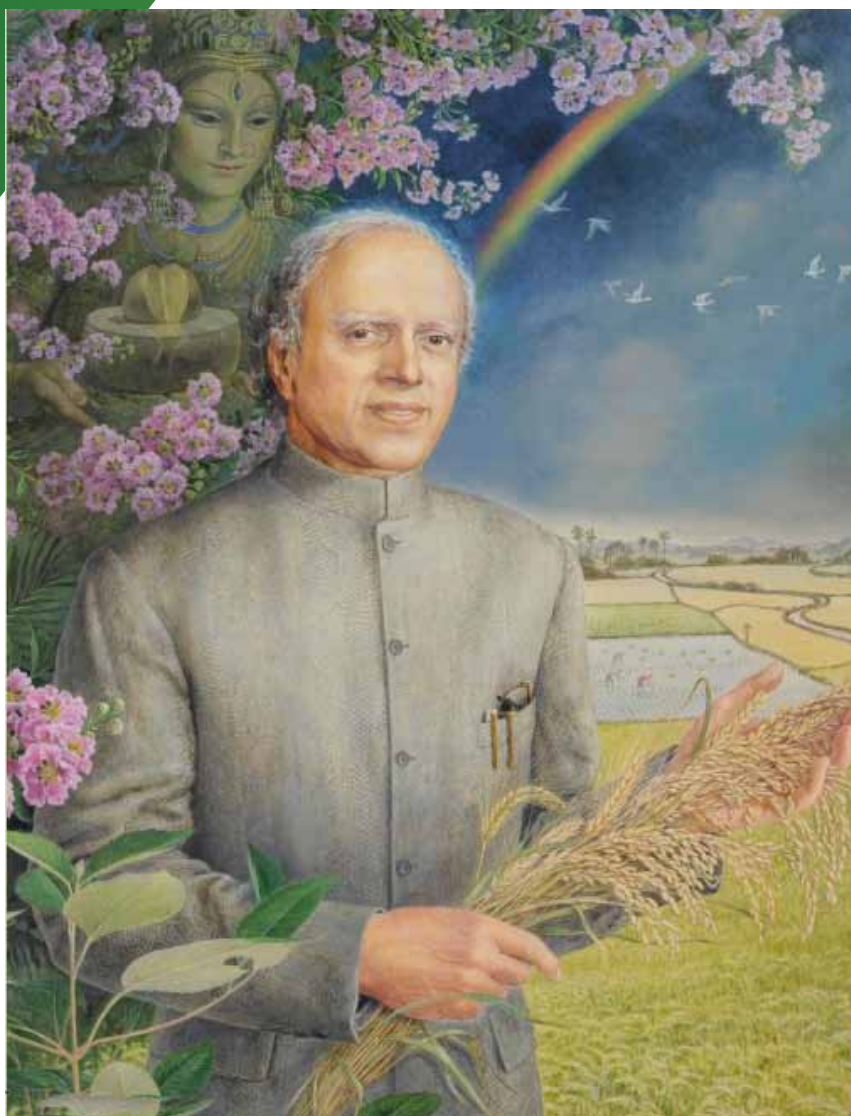
It was this personal connection that a decade later would lead M.S. Swaminathan to invite Norman Borlaug to come to India as that country and Pakistan faced imminent mass famine and starvation with millions of deaths likely. The rest, as they say, is history. Together those two scientists convinced India to adopt new seeds and varieties of crops, new policies and new science-based amendments which saved millions and millions of lives and launched the single greatest period of food production and hunger reduction in human history - - The Green Revolution.

In 1987, our paths crossed in Manila where I was stationed as an American diplomat. Dr. Swaminathan, then the Director General of the International Rice Research Institute, received a high honor from Philippine president Corazon Aquino, who would two decades later accept my invitation to become a member of the World Food Prize Council of Advisors.

It was in that same year that Dr. Swaminathan was, most fittingly recognized as the







The mosaic I personally commissioned of Dr. Swaminathan which is displayed at the Hall of Laureates

first World Food Prize Laureate, the award that Dr. Borlaug created to be the equivalent of a Nobel Prize for Food and Agriculture. He used the \$200,000 cash prize to establish the MS Swaminathan Research Facility in Chennai.

It was in that role as Dean of the Laureates that I first met M.S. Swaminathan in 1999, when I assumed the role of president of the World Food Prize. Over the next two decades, I watched in awe as he provided leadership of the UN Hunger Task Force created by Secretary General Kofi Annan; put forward his vision for an Evergreen Revolution at the Borlaug Dialogue in Des Moines; and stressed the critical importance

**It was in that same year that Dr. Swaminathan was, most fittingly recognized as the first World Food Prize Laureate, the award that Dr. Borlaug created to be the equivalent of a Nobel Prize for Food and Agriculture**

of biodiversity and nutrition.

When Norman Borlaug could no longer continue as chair of the Laureate Selection Committee, MS Swaminathan stepped forward to assume that responsibility. Reflect-

ing his own focus on building peace through agriculture, in 2012, his committee chose Dr. Daniel Hillel of Israel, who had been nominated by three Muslim scientists from three Arab and Muslim countries, as the World Food Prize Laureate. UN Secretary General Ban Ki-moon came to Des Moines to join in the presentation of the World Food Prize to Dr. Hillel.

Like Dr. Borlaug, Dr. Swaminathan's favorite part of the World Food Prize was interacting with young high school age students both at the Global Youth Institute in Des Moines and in hosting a Borlaug - Ruan International Intern each year at his M.S. Swaminathan Research Facility in Chennai, India.

Perhaps the event involving Dr. Swaminathan that is most deeply etched in my memory came in 2007 when Norman Borlaug received the US Congressional Gold Medal America's highest civilian honor - from the President of the United States in the Rotunda of the US Capitol in Washington D. C. Dr. M. S. Swaminathan was invited to speak about Dr. Borlaug. At the conclusion of his remarks Dr. Swaminathan read a poem by Ranier Maria Rilke that he felt captured Norman Borlaug's contributions. It reads as follows:

*"Again and again in history  
Some special people wake up  
They have no ground in the crowd  
They move to broader laws  
They carry strange customs with them  
And demand room for bold and  
Audacious actions  
The future speaks ruthlessly through them  
They change the world"*

In August 2019, when I came to Chennai for what would be my last time to meet my mentor, my colleague and my dear friend, I quoted that poem to the large gathering saying it equally applies to Dr. Swaminathan himself.

M. S. Swaminathan, a son of India and a bold visionary, inspired by Gandhi, truly did "Change the World." As such, he will always have a rarefied place in the pantheon of our planet's most distinguished agricultural scientists and greatest humanitarian heroes."



# AN ARDENT SUPPORTER OF HORTICULTURE



I am deeply saddened to hear the demise of Dr. Mankombu Sambasivan Swaminathan on 28th September, 2023. A pioneer in agricultural research, Dr. Swaminathan was widely hailed as the scientific force behind India's self-sufficiency in food production. Dr. Swaminathan's contributions to agricultural research and global food security were reflected in his many collaborations with research and policy conglomerates including CGIAR, FAO and UNESCO. A plant geneticist by training, he helped set up and promote the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT) in India, the International Board for Plant Genetic Resources (now known as Bioversity International) in Italy, and the International Council for Research in Agro-Forestry in Kenya. Dr. Swaminathan was instrumental in developing high-yielding crop varieties that led to a significant increase in crop yields between 1960s and 1970s, making India self-sufficient in food production.

In 2004, he was appointed chair of the National Commission on Farmers, a body looking into farmer distress amid alarming number of farmer suicide cases due to failed crops. He was awarded World Food Prize, Padma Shri, Padma Bhushan and Padma Vibushan and in recognition of his contribution to the world Agricultural communities. His legacy will continue to inspire researchers, policy-makers, and advocates worldwide to address the pressing challenges of our



**Dr. K.L. Chadha**  
President, Indian Academy of Horticultural Sciences

time, from climate change to sustainable agriculture.

### CONTRIBUTIONS TO HORTICULTURE

Dr. Swaminathan started his career as Scientist at ICAR-Central Potato Research Institute, Shimla and contributed significantly in the research and development of number of horticultural crops. He elucidated the mechanisms of speciation in the genus *Solanum*, section *tuberosum*. Later on, as DG, ICAR he took keen interest in development of infrastructure for Horticultural research, finalising the technical programme and priorities for various projects under Horticulture SMD. He was Honorary Fellow of the Horticultural Society of India (now Indian Academy of Horticultural Science).

### MY INTERACTIONS

I met Dr. Swaminathan for the first time on 14th April, 1992, days after he was

appointed as Director General, ICAR and Secretary, DARE. Subsequently, with his consent, I was posted as Project Coordinator and Head of Central Mango Research Station, a regional centre of ICAR-Indian Institute of Horticultural Research, Bengaluru. Thereafter, there was regular interaction with him while I was serving as Project Co-ordinator and later as Director, ICAR-IIHR and Deputy Director General (Horticulture).

Dr Swaminathan also took lot of interest in the activities of the Horticulture Society of India. He lent his advice and support in organizing number of the Horticulture Congresses. He had given a lot of emphasis on collection, maintenance, conservation and utilization of genetic resources of different horticultural crops. Dr. Swaminathan was a Gem as person, simple in habit, visionary in thoughts and was very easily approachable. He always lent his support whenever approached and for his contribution in Horticultural sciences, the Horticultural Society of India had the privilege to confer him with Honorary fellow. The Horticultural Society of India also honoured him on his 80th Birthday where all the horticultural Societies of the Country also felicitated him. The agricultural fraternity lost the leading light with the demise of the Dr. Swaminathan. I pray to the Almighty on the behalf of all the horticulturists of India to give peace to the departed soul and strength to his bereaved family to bear this great loss.





# VISIONARY AND GREAT HUMAN BEING

**W**ith passing away of Dr. Monkombu Sambasivan Swaminathan India has lost a great son who led green revolution in late sixties to let country achieve food self sufficiency. He is popularly known as father of the Green Revolution in India. Today, thanks to his dynamic leadership and invaluable contributions, India is having her head high meeting food demand of the most popular country in the world and from being a importing country, we have become a major exporting nation in world. His contributions to strengthen National Agricultural Research System and as first Director General of reorganized Indian Council of Agriculture Research, having gained the status of Secretary, Department of Agriculture Research and Education, creation of agriculture research service and many reforms would all be remembered with great admiration. He has been the



**Dr. RS Paroda**

Chairman TAAS, and Former DDG, ICAR

most decorated agricultural scientist from India.

He was the first World Food Prize winner (1987). He was also the recipient of Magsaysay award for community leadership in 1971; recipient of Albert Einstein World Science Award in 1987; the Indira Gandhi rize for Peace in 1994; UNEP Sasakawa Environment prize in 1994; UNESCO Gandhi Gold Medal in 1999 and many more.

He also was decorated with Padma Bhushan and Padma Vibhushan for his immense contributions by the Hon'ble President of India. He was also the President of Indian Science Congress and Chairman FAO Council, Rome. He also served as Director General of International Rice Research Institute and was the Founder Chairman of M S Swaminathan Research Foundation, Chennai.

The void created by him will be very difficult to fill as he had been a visionary, a good planner, great human being and above all most respected by the country for his recommendation as chairman Farmers Commission to give farmers MSP 50% higher than cost of cultivation + C2. Entire farming community is grateful for his love for the peasants and the Indian agriculture.

The entire agricultural scientific community is saddened by his demise and pray Almighty to give peace to his Noble soul.





# THE EVER-GREEN SCIENTIST- HUMANIST A TRUE BHARAT RATNA

I am blessed and privileged to be associated with Prof. Swaminathan in many ways. All along I have witnessed almost a complete man- a scientist, a humanist, a great planner and an inspiring leader- all rolled in to one.

From a brilliant scholar to a visionary global leader, he had continuously moved to higher and higher level of achievements. The nine decades of his life can be divided in 4 phases – Brilliant & dreamy student, devoted scientist and Science Manager, a visionary and missionary solving the hunger problem and a global citizen and humanist.

The vision and drive had taken him to extraordinary heights – Like Maharshi Patanjali has said in Yoga Sutra– “When you are inspired by some great purpose, some extraordinary vision, all your thoughts break their bond. Your mind transcends limitations, your consciousness expands in every direction and you find yourself in a new, great wonderful world.”

Among many things, I also recollect his inspiration when I was planning GSFC Science Foundation and later the activities of Gujarat Agricultural University. During the devastating earthquake in Kutch, he gave the confidence and support to new ideas of agricultural rehabilitation. And when he personally visited and moved in the farms in Kutch with us- talking to the farm women and men with great love and understanding, we all learned what many years of school will not teach. Similarly, post Tsunami he provided the inspiring leadership for projects like Bioshield, Coastal Development, ICT based technology transfer, etc.

His very presence at the GAU-Satellite Krushi Gosthi programme (one-way video – 2 way audio) with the support of ISRO/RESECO and interactions with farmers and scientists in different corners



**Dr. MH Mehta**

Chairman - The Science Ashram / Gujarat Life Sciences – Baroda  
Chairman - Working Group on Eco Agriculture / ICFA  
Ex. V.C. – Gujarat Agri. Uni.

of Gujarat was a thrilling experience.

Prof. Swaminathan’s global vision was for Evergreen Revolution. So, while encouraging me to write a book in his preface for my book, Eco Agri Revolution, he wrote “we need to promote eco technologies which integrate the principles of ecology in technology and use of eco-friendly biologicals for Ever Green Revolution”.

After one of a long farm visits with him, I remember to have written the following lines In my diary :

## SWAMINATHAN

*“Among the farmers of earthquake ravaged Kutch or the Tsunami affected fisher women and men, for the luster green farms of Punjab or the rice fields of Philippines. With stars in his eyes; tools of new knowledge in hands and God’s message of hope in the heart- moves a man- Combining the heart of Budha and head of Einstien- MS Swaminathan.”*

MHM

Even at advance age, his zeal and sense of urgency were amazing. A true ‘Bharat Ratna’, Prof. Swaminathan’s life will inspire the present and future generations for ever.







# LEGEND, DOYEN, GIANT, VISIONARY .....



Legend, Doyen, Giant, Visionary, Father of Indian Green Revolution, Leader, Scientist of Eminence, Mentor, Guide, Philosopher, Great Humanist, Reformer, Thinker, Policy maker & Science Administrator unparalleled in Agriculture, Global trend setter, all inadequate to describe our very own Professor Sahab, Prof. M. S. Swaminathan.

It is my fortune that I met Sir, 50 years ago as a student and providence ensured his blessings till now. As a Scientist in ICAR just for three months in 1978, he resolved my dilemma of whether to go overseas for higher studies or continue here. His words on that December evening still ring in my ears. He said, 'you have got a wonderful opportunity of serving this country and the farmers. We will



**Dr. S. Ayyappan**  
Former Secretary (DARE) & DG (ICAR)

send you to America any time, continue here'. His words have proven so prophetic and his blessings showered on me all through.

Then came several meetings and interactions. Ever ready to listen, motivate, advise, guide, encourage, all treasured

memories for lifetime.

Excellence with Relevance, Vigour with Rigour, Science for Society, Quality with Humility, are among the invaluable lessons he taught us in the last five decades.

There will be global tributes for the Nation builder and Institutional builder. For me, he ensured Farmer at the centre of all our efforts, gave a new dimension and unprecedented opportunity to thousands of agri-researchers like me, and elevated the entire domain of agri-science in the country to a level, that generations would benefit, remember, celebrate and be grateful to this Fatherly Figure.

Heartfelt respects and salutations to you SIR. We know wherever you are, you will keep blessing us.



# COUNTLESS ACHIEVEMENTS AND HUMILITY PERSONIFIED

**T**he world renowned and nationally celebrated agricultural scientist, Dr. M.S. Swaminathan left his physical body on 28th September 2023. The news was received with a blend of shock and sorrow. One's greatness can be judged not just by his/her impact on those coming in proximity, but also on those who live at distant places and times beyond, and have never physically met the person concerned. By this barometer, no one would disagree, that Dr. M.S. Swaminathan earned greatness in his life. And, he did this by opting for a profession that was never considered as dazzling and dashing.

## Father of Green Revolution

I personally heard of Dr. Swaminathan in the late 1970s while studying at the College of Agriculture, Dharwad. It was from our professors and senior students pursuing their higher studies at the prestigious Indian Agricultural Research Institute (IARI), Delhi. This was besides reading about him, and his innovative experiments by using nuclear energy for mutation in wheat. By then he was regarded as the harbinger of green revolution in India by releasing and promoting dwarf varieties of wheat, that were highly responsive to intensive use of inputs (fertilizers & water), and gave the farmers multiple times the yields in comparison to the traditional local varieties.

Dr. Swaminathan had received support for this cataclysmic change in India's food situation from Dr. Norman Borlaug, who had successfully bred new varieties of wheat at the Mexican farm, that were not only resistant to the deadly stem rust, but were also high yielders. Dr. Borlaug who was keen to support the developing world in conquering the hunger by adopting new technology came to India. It was



## Ashok Dalwai

Chairman, Empowered Body on Doubling Farmers' Income, Ministry of Agriculture & Farmers' Welfare

the partnership of these two – Dr. Swaminathan and Dr. Borlaug that succeeded in convincing the policy makers in the Ministry of Agriculture and the Planning Commission to import new varieties of seeds, and test them in the wheat fields of Gurgaon (then Gurgaon), now a sprawling concrete jungle.

A good seed or any other technology is only a necessary condition. The new wheat seed, the miracle seed had to be promoted, and made to be accepted at different levels. This is where the wholesome personality of Dr. Swaminathan as a scientist, a policy influencer, an effective advocate of new technology, as also a change maker at the farmers' level came to be tested and he proved par excellence on every count. Accompanied by Dr. Borlaug, when he went to Gurgaon farms, the farmers were reluctant to accept the new seeds. It was just a few farmers, who could be convinced, and not more than 46 acres came under these seeds in the first winter, only to result in unbelievably high harvests. And, there was no looking back thereafter with huge demand from the farmers for these high yielding varieties. Thanks to the comprehensive policy support, that included permission to import adequate quantities of nucleus seeds, fertilizer (India was short of it then)

and minimum support price combined with procurement, that increasingly larger extent of area came to be covered year after year under the new seed. India crossed the food deficit-hump by 1971 to become food-secure. We must not forget that alongside the transformation that wheat fields were seeing during the winters, the Indo Gangetic Plains (IGPs) were also benefitting from the new varieties of paddy for the kharif seasons, thanks to the new seed technology from International Rice Research Institute (IRRI), Philippines.

## The Policy Maker

Dr. Swaminathan was destined to play a dominant role in post-independent India's agricultural history. Having heard that, he was to join the Indian Police Service, I asked him personally for its confirmation. He told me, having been selected for the IPS in 1949, he received the orders when he was doing his post-Doc outside India. But he preferred to persist with agricultural science as his life's purpose. Had he decided to don the khaki uniform, India would have lost a great agricultural scientist. There are quirks of fate, and it should not be surprising.

It is very rare in India, that a scientist would be allowed to blossom as a policy maker given the kind of governance structure that we have in our country. Besides guiding the 'National Agricultural Research and Education' of India as the Director General of Indian Council of Agricultural Research (ICAR), Dr. Swaminathan had the rare distinction of serving as the Union Secretary to the Department of Agriculture and Cooperation, and to be invited subsequently to head the powerful Planning Commission as its Vice Chairperson. That, authority did not matter to him was borne out, when he resigned from this prestigious position to travel to Manila to head IRRI as its Director General.





### Relationship with Farmers

Dr. Swaminathan's understanding of agriculture in its entirety, and its organic relationship with farmers, and the society at large, as also the ecology was well recognised. Not surprisingly, therefore, he was invited to chair various national and international committees and commissions, that demanded inter-disciplinary appreciation. One of the last and important commissions that he chaired in India was the "National Farmers' Commission" in 2004, which report he submitted in 2007. His recommendation in a way can be considered as the first one to have brought focus on 'farmers' in contrast to the 'farm-growth,' as there was realisation that growth of agriculture sector, however robust it might be, may not improve the lives of our farmers. This appreciation was

carried forward in a more emphatic manner by the 'Inter-Ministerial Committee on Doubling Farmers' Income', which Report was submitted to Government of India in 2018. I as the Chairman of this Committee benefitted from intense discussions, I had with Dr. Swaminathan during the drafting of the recommendations.

### A Speaker and an Over achiever

As a student, I had been told by my seniors about his excellent inter-personal skills and powerful communication. I had heard that, whenever he would speak at the IARI Auditorium, the hall would be packed and audience would spill over into the corridors. Having met him several times, and heard to him speak from the dais I can vouch for all that was said of his. He was humility personified, notwithstanding his

countless achievements.

He was decorated with several national and international awards. He won the first 'World Food Prize' award in 1987 instituted by the World Food Prize Foundation at Iowa, USA. It is considered as the Nobel Prize in the agricultural domain. His international popularity came from his contributions to the world of agricultural science, academics, and policy making & advocacy. More than all these, it was his humility, and he remained grounded to the soil, always concerned about farming and farmers' welfare.

As I paid my respects to his mortal remains at MSSRF, Chennai on the 29th September, 2023 I did not fail to notice his calm & meditative face, that seemed to be telling all of us, 'Human life is a blessing. Lead it with a purpose, and for others.'

## REMEMBERING THE EXTRAORDINARY LIFE

Federation of Seed Industry of India takes great pride in celebrating and remembering the remarkable scientist, scholar par excellence, humanitarian, Dr. M.S. Swaminathan, a luminary in the world of science, an icon of humanitarianism, and a trailblazer whose accomplishments continue to inspire generations. Today, we celebrate his enduring legacy with a profound sense of admiration and respect.

Dr. Swaminathan's life was nothing short of extraordinary. His groundbreaking contributions to agricultural research, especially during the epochal Green Revolution, stand as a testament to his unwavering dedication to improving the lives of people worldwide. As the Father of the Green Revolution in India, he ushered in a new era of agricultural innovation that transcended boundaries of nations and saved millions of lives.

### His scientific achievements were truly remarkable

Dr. Swaminathan's pioneering work in crop breeding and genetics resulted in unprecedented increases in crop yields. For instance, between 1965 and 1970, the introduction of high-yielding wheat varieties in India led to astonishing in-



### Raghavan Sampathkumar

Executive Director, Federation of Seed Industry of India

crease in wheat production. Similarly, his innovations in rice cultivation yielded a remarkable 300% increase in rice yields during the same period. These achievements not only averted food crises but also paved the way for India's self-sufficiency in food production, eventually transforming it into a net food exporter. Internationally, Dr. Swaminathan's influence was profound. His leadership at the Indian Council of Agricultural Research and at the International Rice Research Institute shaped global agricultural policies. His commitment to the development and dissemination of high-yielding crop varieties significantly bolstered food security and poverty alleviation across the developing world. Today, billions of people benefit from the rice varieties de-

veloped by him several decades ago.

### M.S. Swaminathan Research Foundation

Dr. Swaminathan's impact extended far beyond scientific endeavours. His vision of a hunger-free world materialized through the establishment of the M.S. Swaminathan Research Foundation, an institution dedicated to sustainable agriculture and rural development. Under his guidance, the foundation reached countless farmers, playing a pivotal role in reducing poverty and malnutrition. Dr. Swaminathan's legacy resonates not only in the field of agriculture but also in the realm of philanthropy. He was a beacon of hope, advocating tirelessly for social justice and equity, inspiring many to join the fight against hunger and poverty.

As we remember Dr. Swaminathan's remarkable journey, we find cause for celebration and inspiration. His legacy lives on, a shining example of what dedication, vision, and relentless pursuit of knowledge can achieve. While we bid farewell to this extraordinary soul, we do so with hope in our hearts. Dr. Swaminathan's indomitable spirit will forever inspire us to strive for a more equitable and hunger-free world.



# A PROFOUND HUMANIST

**W**ords will always fall short in adequately describing the scientific eminence, profound humanistic embodiment, and global leadership in science-led development of our own most revered Professor M. S. Swaminathan. The Father of India's Green Revolution, Prof. Swaminathan was the transformer of the country from the Ship-to-Mouth status to the Right-to-Food situation and saviour of millions of lives from starvation death. This great humanist scientist will always remain with all of us in our memories and scientific pursuits. His rich legacy and endearing persona will keep inspiring and guiding coming generations to build a prosperous, inclusive, and world-leading New India.

I had the good fortune and privilege of working with the Professor on several national and international programmes and committees. My most gratifying and pervasive experience of working under Prof Swaminathan's able Chairmanship was as the senior most Full-Time Member of the National Commission on Farmers during 2004 to 2006. Besides chairing frequent regular meetings of the three Full-Time and four Part-Time Members and several supporting staff and research associates at the Headquarters, NASC Complex, New Delhi, comprehensive meetings were held in different States, from Ladakh to Kanyakumari, including Andaman & Nicobar and Goa, involving all stakeholders, from Chief Ministers to



**R.B. Singh**

Former Chancellor, Central Agricultural University;  
Past President, NAAS;  
Former Assistant Director-General  
FAO of the United Nations;  
Former Director and Vice-Chancellor, ICAR-IARI

farmers and local communities. Professor Swaminathan, along with some of us, also visited Vidarbha villages, hotspot of farmers' suicides, and met the affected families, a heart-breaking experience.

Based on ground realities, The Commission, popularly known as Swaminathan Commission, prepared six-monthly five volumes of Reports and presented to the Government on regular intervals. The Fifth Report, summarising the past findings and taking note of farmers' distress, recommended addressing them on priority basis through a holistic national policy for farmers, and provided a widely discussed draft of the policy to the Government for approval, adoption, and implementation to ensure a faster and more inclusive growth. The Government of India approved the National Policy for Farmers in 2007.

The primary focus of the Policy is on "farmer" defined holistically and not merely on agriculture, with the main objective of improving the economic viability of farming through substantially improving net income of farmer. Ensuring excellence with relevance, emphasis was also placed on increased productivity, profitability, institutional support, and improvement of land, water and support services apart from provisions of appropriate price policy, risk mitigation measures etc. Highlighting Serving Farmers and Saving Farming and echoing Mahatma Gandhi's words "To those who are hungry, God is bread", the Swaminathan Commission had strongly suggested adoption of Minimum Support Price for crops and other agricultural produce to enhance farmers' income and enhanced agrarian livelihood security. Adopting a pro-poor, pro-women, and pro-nature approach, Prof Swaminathan strongly believed that if our farm women and men are assisted on the lines proposed in the Policy, they will ensure a glorious destiny in the field of agriculture and food security.

The greatest tribute that the nation can pay to our own world-renowned leader for science-led development, most revered Professor M. S. Swaminathan, is to faithfully implement the Policy on Farmers and to pursue his thrust on transforming Green Revolution into Ever Green Revolution scientifically rooted in the principles of ecology, economics, and social and gender equity, the foremost need of the day.





# THE FATHER OF GREEN REVOLUTION IN INDIA

## Dr. Habibar Rahman

Regional Representative for South Asia,  
International Livestock Research Institute (ILRI)

**D**r M.S. Swaminathan (Mankombu Sambasivan Swaminathan), the architect of the 'Green Revolution, known as the Father of Green Revolution of India, passed away in Chennai on September 28, 2023, at 11.20 am at the age of 98 years.

Dr Swaminathan was born in Kumbakonam, Tamil Nadu, India, on August 7, 1925. He studied agriculture at the University of Madras and plant genetics at the University of Cambridge, where he received his PhD in 1952.

In 1966, Swaminathan was appointed Director of the IARI. Under his leadership, the IARI released a number of high-yielding varieties of wheat and rice that were adopted by farmers across India. These varieties helped to increase crop yields significantly, leading to a dramatic increase in food production in the country.

In 1972, Swaminathan was appointed as the Director General of the Indian Council of Agricultural Research (ICAR) and a Secretary to the Government of India. In 1982, he was made the first Asian Director General of the International Rice Research Institute (IRRI) in the Philippines.

After leaving the IRRI, Swaminathan founded the M.S. Swaminathan Research Foundation (MSSRF) in Chennai, India. The MSSRF is a non-profit organization that works to promote sustainable agriculture and rural development.

According to a Time magazine review (1999), Swaminathan was one of the 20 most influential people of Asia in the 20th century along with Mahatma Gandhi and Rabindranath Tagore.

He was the recipient of the first World Food Prize (1987) for his leadership in India's Green Revolution and numerous other national and international awards, including Ramon Magsaysay award (1971), Padma Vibhushan (1972). He was also a member



of the National Academy of Sciences of the United States and the Royal Society of London. The United Nations Environment Programme has called him "the Father of Economic Ecology".

Swaminathan's contributions to Indian agriculture are immense. He is credited with helping to avert famine in the country and for making India self-sufficient in food production. He was a visionary leader who dedicated his life to improving the lives of farmers and rural communities. Farmers, which Swaminathan chaired, recommended that the minimum support price (MSP) be set at least 50 per cent higher than the weighted average cost of production.

At MSSRF, he did a lot of work on hunger and malnutrition. According to Swaminathan, hunger has three major dimensions: The first is calorie deprivation; the second is protein hunger due to inadequate consumption of pulses, milk, eggs, fish and meat; and the third is hidden hunger caused by the deficiency of micronutrients such as iron, iodine, zinc, vitamin A and vitamin B12.

When accepting the Ramon Magsaysay Award (1971), Swaminathan quoted Seneca: "A hungry person listens neither to reason, nor to religion, nor is bent by any prayer."

"The test of our progress is not whether we add more to the abundance of those who have much, it is whether we provide enough for those who have little" - M.S. Swaminathan.

Dr. M S Swaminathan visited Sikkim in 2009, as Chancellor of Sikkim University (A Central University), during that time, I was Joint Director, ICAR – Research Complex for NEH Region, Gangtok. He came to the ICAR institute first before going to Sikkim University and he told that this institution was established by him immediately after Sikkim annexed to India in 1975. This was his commitment to ICAR, and we always remember him for his great leadership for the development of agriculture in the country. The Vice Chancellor of the University, Dr. M P Lama, told me that Dr Rahman, you have hijacked Dr. Swaminathan from the University to your institute.



# AN ENDEARING GLOBAL INDIAN

**A**s an accomplished researcher in agriculture, Dr M.S. Swaminathan not only demonstrated the power of science and technology but also inspired thousands of budding researchers to aspire for big. Known as the Father of the Green Revolution in India, he not only steered the R&D in agriculture thereby making the country self-reliant in food grains, but showed the path for the country to become strong, progressive, resilient, and confident to outshine in all spheres of the agricultural arena. As a competent administrator, he left behind an imprint of the highest degree of efficiency, and also compassion at both national and international levels. As an intellectual visionary, he was not only instrumental in strategizing and implementing several policy milestones for the apex R&D wing of Indian agriculture - the Indian Council of Agricultural Research (ICAR), but also piloted shaping it as one of the largest National Agriculture Research & Education System in the globe. He whose clarion call 'From Green to Evergreen Revolution' is keeping all of us reminded of the need for agricultural transformation towards wholesome development in agriculture. He was not only an Institution-builder, but an Institution himself. A soft-spoken and diligent personality of highest esteem and modesty, who was admired by people of all professions. Reaching the crest of the positions & pride, although he was showered with numerous identities, recognitions, awards, and accolades, I personally like him to be remembered as the Secretary, DARE and Director General, ICAR as many of our scientific fraternity in agricultural science. My heartfelt tribute to you Dr. M.S. Swaminathan Sir.

Sir, I had heard your name in our initial college career ..... narrated your research contributions in the examination ..... recited your name in several meetings & fora ..... had the opportunity to



**Dr. J. K. Jena**

Deputy Director General (Fisheries & Animal Science)  
ICAR, New Delhi

listen to your speech at numerous national and international events ....., and considered fortunate & honoured to have

personal interaction and sharing the dais with you in important national-level programmes. The last opportunity I had meeting with you Sir was during the Inaugural programme of the First National Brackishwater Aquafarmers' Conclave organized by ICAR-CIBA at Chennai on 22 January, 2019 which was inaugurated by you.

It is difficult to believe that leaving all of us, you have taken heavenly abode. However, You will remain immortal and remain in our heart forever Sir.







# Celebrating His Legacy

**D**r. M S Swaminathan who bid adieu from this mortal world leaves behind a legacy that will continue to inspire millions of life on earth. He changed the landscape of Indian agriculture and also the stature of a country whose existence post independence was most often mocked at. He gave India her pride and a granary that has since been never vacant.

## India's Rise From Hunger to Power

While most credit Dr Swaminathan to have sown the seeds of green revolution, I would say that he was instrumental in sowing the seeds of India's absolute sovereignty. Of course we had gained our freedom from the colonial powers in 1947. But we were still at mercy of other powers. The fledgling nation which was battling over population, hunger, threats from other nation, was at mercy of charity that arrived from other countries.

India was importing wheat from the US under Public Law 480 during sixties. Introduced by President Dwight D. Eisenhower, the law provided foreign food aid to countries in need. However, the presidents to follow began to use PL 480 as a diplomatic tool. Infuriated by India's criticism of American bombings of Hanoi and Haiphong in the course of the Vietnam War, food shipments were put on a tight leash.

Food was the key to have a voice of our own on international arena – a lesson which we had learnt from our past. When we won over the battle of food production, we had won over the biggest of all battles.

## My First Meeting

As the Editor, Agriculture Today, I held constant communications with Dr MS Swaminathan. Our mode of communication was mostly through emails. For every mail sent, responses were guaranteed! I imagined he had a robust and agile staff that made sure



**Anjana Nair**

Group Editor, Agriculture Today

every mail was replied.

When ICFA decided to bestow its 1st World Agriculture Prize on the legend himself, we got a request from him. He wanted to personally interact with the person in charge of preparing citation. It was unusual. For a person of his eminence, preparing citation- was easy. His accomplishments were available at the stroke of a few keywords.

Thus I went to Chennai. I was nervous. I was going to meet a legend, the existence of whom was conveyed to me through only his legendary works. With trepidation in mind, I walked through the corridors of M S Swaminathan Research Foundation where I was directed to a room. I peered through the glass doors. There was the man...the world renowned scientist seated in an unassuming chair, seated away from my view. He was carefully watching a computer screen, interjecting quite often and directing another person sitting next to him. He seemed



to be in between an important work. I did not want to interrupt him. I was a bit sceptical. What if I upset him?

All these apprehensions were laid to rest when I met the sweetest man on earth. He spent a good amount of time with me explaining to me the nuances of his work. Like a child hearing a story, his words filled me with astonishment and admiration. He gently requested to strike off the eulogies that we tend to liberally gloss over while preparing citations. He spoke about evergreen revolution, his works on sustainable agriculture and his intense desire to win over hidden hunger.

We had coffee together in his beautiful and tranquil office - the best coffee that I had in my life. He made sure that I had lunch before I left. He enquired multiple times that I was ok and I had food.

As he left from the office, he held my hand and I bid farewell. I watched him leave. It was five years ago. Old age has robbed away his physical strength. While he was being helped into his wheel chair, I thought here goes the man who gave us and the future generations, the will to stand tall.

We communicated quite often before and after the meetings. Every time, I received a reply, most often in affirmation. Before meeting him, I had assumed that those mails were written and sent by his office. I came to know later, that he had a dedicated time slot to read and reply to all mails addressed to him; the sight of which I witnessed when I had seen him for the first time. He was gracious enough to house my poetry book in the library of the institution and write a few lines about the book.

Beyond being a great scientist, I identify him as a great humanist. He was eager to interact and most importantly listen. There was time for everyone. He bestowed importance on everyone. I thank the God Almighty for the time he had with us. He lived a great life and we need to celebrate his legacy.



# HE NOURISHED OUR STOMACHS, SOULS AND SELF-RESPECT



**Dr. Tarun Shridhar**  
former Secretary, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India

“**B**loody PL 480” was a killer abusive insult in the 1960s when insults were hard hitting, but they had not attained the crass vulgarity of today.

Dr MS Swaminathan, as yet, was not a well known personality in the mainstream of agriculture. Who knew then that this gentle, sober and erudite scientist would effortlessly avenge the humiliation hurled by the abuse; and do so with action and deeds, not words.

For the hardworking common man of India, PL 480 was the only wheat avail-

able to the almost entire populace, majorly having wheat as the staple food, even though it was generally considered “fit enough for only the pigs to eat”. Anything worthless to be deprecated was castigated as PL 480. In fact, then and even now majority believed PL 480 to be a variety of wheat which was given to us in the 1950s and 60s as “aid” by the USA which had already reached surplus during this period. Please be informed that it was not wheat but law; PL (Public Law)-480, a law which authorised the President of the USA to provide food grains to India on “concessional” terms, and we

imported huge quantities of wheat under this provision. And what was the “concession” allowed to us? We could pay for the wheat so imported in Indian rupees; sadly, people continue to be mistaken that it was an aid.

“Sacrifice one meal at least a week” was the call given by the then Prime Minister Lal Bahadur Shastri to us in 1965 when India was at war with Pakistan and the vagaries of war further exacerbated the acute shortage of food grains. Monday became the day of fasting for the nation. It was one of the various struggles the country had to undergo in meeting





food demand for its burgeoning population. Does the generation of today have an idea of what it was? It is truly a remarkable story that today, like the USA of the 1950s, we grow surplus foodgrains. Above all, we are amongst the top in the world in production of almost all agricultural products, a huge feat of our farmers and scientists such as the man whose demise we condole but the legacy we celebrate.

While the PL-480 programme ward off immediate hunger and starvation, it severely dented our self-respect and dignity as a nation. Dr MS Swaminathan restored it. We can surely and confidently thump our chests to celebrate our climb to the Everest of agriculture, thanks to this humble scientist.

### World Food Prize

The World Food Prize is the foremost international honour that recognizes, without regard to race, religion, nationality, or political beliefs, the achievements of individuals who have advanced human development by improving the quality, quantity or availability of food in the world. The award recognizes contributions in any field involved in the world food supply. It calls forth the global imperative to provide safe, affordable, nutritious, sustainable and equitable food for all.

The first World Food Prize Laureate is none other than Dr MS Swaminathan. Most deservedly too. Interestingly, important revolutions in the agriculture sector carrying different colours in their nomenclature have occurred over a period of time- White, Blue, Pink etc.- but the harbinger has been the Green Revolution. Life and achievements of its architect Dr Swaminathan deserve to be celebrated and emulated.

### My interactions

I recognise my good fortune of a few opportunities to interact with Dr Swaminathan, but also rue that these were minuscule and purely professional. I didn't know him at a personal level at all. Still, in my



### In my memory are etched the few words of acknowledgement and appreciation made by him in response to my small contribution to a discussion on the fisheries sector.

memory are etched the few words of acknowledgement and appreciation made by him in response to my small contribution to a discussion on the fisheries sector. It egged me on to demonstrate greater commitment; the man himself was a shining example of what professional commitment and dedication means.

### Global Interdependence

In 1987, when Dr MS Swaminathan was honoured as the first World Food Prize Laureate, he conveyed to the audience his belief and values thus: "I would like to share with you my personal philosophy of agriculture. It was Martin Luther King who once observed: 'All life is interrelated. We are caught in an inescapable network of mutuality. Before you finish eating breakfast in the morning, you've depended on more than half the world. This is the way our universe is structured, this is its inter-related quality. We aren't going to have peace on earth until we recognize this basic fact of the interrelated structure of all reality.'" Vasudaiva Kutumbham! Isn't it?

He went on to expound, "In no other area of human need and endeavour is there so much global interdependence as in agriculture. Yet the urban public seldom recognizes that we live in this world as guests of green plants and of the farmers who cultivate them. Experience shows that countries that take farmers and farming for granted come to grief sooner or later." What a powerful message delivered effortlessly in the simplest of the languages! This precisely is the hallmark of a genius and greatness: ability to communicate and convey the most complex of things in a simple manner.

Dr. Swaminathan shared his dream with those gathered with him to celebrate in the following words which are truly moving. These would give further insight into the man he was. "We live in an age of unparalleled opportunity for promoting sustainable nutrition security. The prospect for a world without hunger is a glorious legacy given to our contemporary world by scientists and technologists; communicators and social scientists; administrators and industrialists; and workers in factories, fields, forests, pastures, rivers and oceans. As we depart for dinner this evening, what could be more satisfying and joyful than knowing that every other member of the human family will also go to bed after a nourishing meal."

When you say prayers to thank God for the food aplenty on your plate, do spare a thought for Dr MS Swaminathan too.



# A MESSIAH OF FARMERS

**T**he demise of Professor MS Swaminathan on the 28th of September 2023 in Chennai at the age of 98 ends an era in the world agriculture.

He will go in the annals of history as living legend for having pulled out a large population in India from the jaws of hunger deaths, and proved the Pad-dock Brothers wrong of their prophecy that Indians will have no choice but to die of hunger in huge numbers.

While MSS is known in India and around the world as the great scientist and Architect of India's Green Revolution, who worked with a vision and determination to feed the billions, he was truly a saint, who dedicated his life to the well-being of farmers, poor and hungry. Rightly termed as Kisan Vaigyanik (farmer scientist) by the Prime Minister, Narendra Modi ji in his article on him on October 7, 2023 and Krishi Rishi (agriculture saint) by the then Vice President of India, Sh. M Venkaiah Naidu on the occasion of the launch of the Table Book on him, authored by none other than his daughter Nitya Rao and hosted by Agriculture Today Group in 2016 in New Delhi.



**Dr. M.J.Khan**

Chairman,  
Indian Chamber of Food and  
Agriculture

### My First Meeting

I recall my first time meeting him in 1997 in Hyderabad at a dinner hosted by APAU, the closeness grew with time and in 2003, when he was appointed as the Chairman, National Commission on Farmers, we started meeting more often and discussed issues at length. He also started participating in our different events more regularly, importantly the annual events; MPs Round Table on Farmers Issues and Agriculture Policies and Agriculture Budget analysis. We were always amazed by his memory of small things and ability to pick up minutest of points in the discussions. I recall travelling with him from Ludhi-

ana to Delhi in 2007, after attending a conference at PAU, we discussed in details about the need for making agriculture a profession of pride and glamour to attract youth and attract investment. We conceptualised the famous program, Agriculture Leadership Summit and Leadership Awards, which we launched in 2008, and that continues to be amongst the most important events and the awards most sought after in agriculture sector.

### Stellar Contributions

Dr Swaminathan had made stellar contributions to agricultural research and development. The Father of Green Revolution across tropical Asia, Dr. Swaminathan later on also emphasised on the environmental impacts of agriculture and urged for the introduction of strategies for Sustainable Development. Ever-green revolution for him was as close to his hear as green revolution. Apart from food security, he was also concerned with nutritional security.

His concepts of "biovillages" and Village Knowledge Centres" to empower the rural and tribal women and men is an instance which showed that he was not just a scientist but a humanist who believed in all round development of humanity. He also lent his support to farmers. As the head of the National Commission on Farmers from 2004-06, he recommended that the Minimum Support Price at which farmers sell their crops to the government should be at least 50 per cent more than the weighted average cost of production.

### A Global Icon

Professor Swaminathan was equally respected the world over for his work in the areas of ecology and environment, and thrust to nutrition security and women empowerment. I recall one







instance at the World Food Summit in 2016 in Des Moines, where I was seated on the front row in the talk by Chelsea Clinton, and a lady sitting next to me introduced herself as Oluremi Tinubu, former President of Nigeria. As I introduced myself from India she instantly asked if I knew Prof. Swaminathan? I told that he was sitting two chairs next to her, she got up to him and half bend talked to almost for almost ten minutes.

Next evening I left for Washington DC by morning flight and Professor was coming by evening flight. As I was staying with Ambassador Islam Siddiqui, both of us decided to go to airport to receive him. When we reached inside there was US Secretary of Agriculture, Tom Vilsack waiting for arrival of his luggage. He enquired about us being there and knowing about Swaminathan he decided to wait for almost 20 minutes to meet and greet him. Such was the respect and rever-

ence for professor the world over. In 2018 at the FAO Global Strategy Meet at Changsha in China, when I met Prof. Yuan Longping, he told that the title of “father of hybrid rice” was given to him by Prof. Swaminathan as DG, IRRI at an international rice conference in Bangkok. This was reconfirmed next day when we saw plaque in the photo gallery while visiting Longping Hybrid Rice Institute on the outskirts of Changsha along with the then DG FAO, Graziano and the current DG, Prof QU, then Vice Ag Minister, China.

I recall in 2015 I casually asked if he would have time to visit Lucknow, he immediately agreed. Besides other engagements, we had meeting with the then CM Akhilesh Yadav, who graciously received him at the portico along with his few cabinet colleagues. His knowledge of the local agriculture issues amazed the CM, who later asked me if I had briefed him about

the state’s agriculture and context, to which I replied in the negative. There are hundreds of such stories and personal experiences to share.

### Association with ICFA

The blueprints of Indian Council of Food and Agriculture were finalised at his room at India International Centre in 2014, and he was instrumental in its launch and working. We were fortunate to have him in our office 2-3 times to chair board meetings, besides having him always with us at the annual Agriculture Summit till 2018, when his life’s last visit to Delhi was to attend the Summit and of course to receive the 1st World Agriculture Prize instituted by ICFA.

Every meeting with him has been an exciting experience. The simplicity, warmth, energy and positive vibes one gets being with him, besides depth of unmatched knowledge. My last meeting with him was on 28 Sept 2022, when we announced instituting MS Swaminathan Global Leadership Award for Sustainable Development for INR one million. Accordingly a 15 member awards jury under the chairmanship of Prof. Ramesh Chand was formed and the 1st Award was presented to the Agriculture Minister of Phillipines, Dr. William Dar. Incidentally, after exactly one year on Sept 28, 2023 this great son of soil, a noble soul, messiah of farmers, role model for millions of us in agriculture and a saviour of billions of people breathed his last, bidding good bye to this mortal world.





# INSPIRATIONS FROM THE AGRICULTURAL LUMINARY

In the realms of agriculture, a luminary has departed, leaving a void that seems impossible to fill. Dr. M.S. Swaminathan, the eminent agricultural scientist, a true visionary and a pioneer in every sense, bid us farewell. My association with this remarkable individual dates back to the year 2011 when I had the distinct privilege of closely interacting with him during my tenure as the Director of Research at Punjab Agricultural University, Ludhiana.

Dr. Swaminathan's impact during a critical juncture in India's history cannot be overstated. In the face of an impending mass famine, his efforts were nothing short of a lifeboat. Leading the charge in developing high-yield wheat and rice varieties, he steered India away from the abyss of food shortages. This monumental achievement marked a watershed moment, ushering in an era of exponential productivity in staple crops through the adept integration of chemical-biological technologies.

Acknowledged by the United Nations Environment Programme as the "Father of Economic Ecology," Dr. Swaminathan showcased how scientific innovation could effectively address pressing food security concerns on an unprecedented scale. His vision propelled the Green Revolution to glorious success, forever altering the trajectory of agriculture.

Dr. Swaminathan's illustrious journey was adorned with prestigious accolades – the World Food Prize in 1987, Ramon Magsaysay Award in 1971, and the Albert Einstein World Science Award in 1986. These honours were a testament to his profound impact not only on Indian agriculture but also on the global agricultural and environmental landscape. His dedication to advancing agriculture



**Dr Satbir Singh Gosal**

Vice-Chancellor  
Punjab Agricultural University

and advocating for sustainable practices was further evidenced by the establishment of the MS Swaminathan Research Foundation in Chennai and the numerous prestigious awards he received, including the Padma Shri, Padma Bhushan, and Padma Vibhushan.

Reflecting on my first-hand experience of his discourse at PAU, I stand in awe of Dr. Swaminathan's unwavering commitment to science, his relentless pursuit of excellence, and his unyielding dedication to improving countless lives through agricultural innovation. His legacy will forever serve as a guiding beacon,



inspiring generations of agricultural scientists and researchers.

Even back in 2011, Dr. M.S. Swaminathan's wisdom bore the weight of the future. His insights, profound and sagacious, were an inspiration in the looming shadows of climate change that threatened to engulf the agricultural realm. In those moments, he spoke of an essential harmony between farm ecology and economics – a harmony, if disrupted, would unhinge the very fabric of sustainability.

He painted a vivid canvas of the 'Evergreen Revolution,' a blend of perpetual productivity in consonance with nature's balance. He championed 'green agriculture,' where conservation and cultivation mingle together, guided by the techniques of integrated pest management, nutrient supply, and natural resource stewardship. Agro-forestry system involving fertilizer trees was a vital refrain in his anthem of the evergreen revolution.

In his discourse, Punjab emerged as the steadfast cornerstone of the public distribution system. He expressed the need for enough land to cradle the seeds of progress, nurturing germplasm for a purposeful crop improvement programme. Maize, especially the quality protein maize (QPM) and arhar, found a place in his diversification opus. Pulses stood in the spotlight of his vision, for they held the power to replenish the soil with atmospheric nitrogen fixation.

Today, as we grapple with contemporary agricultural and environmental challenges, Dr. Swaminathan's profound wisdom and vision resonate even more profoundly, lighting the path for a sustainable and prosperous future. Dr. M.S. Swaminathan's name is etched in the annals of history, and his contributions will echo as a hymn through the ages.





# THE AGRI-LEGEND OF INDIA



**P**rof. M.S. Swaminathan; a globally renowned Agricultural Scientist, has contributed immensely for the cause of agricultural development in India. Prof. M.S. Swaminathan, a great visionary and able administrator, has influenced the research and academic ecosystem of Odisha University of Agriculture and Technology (OUAT), Bhubaneswar through his association in several occasions. Prof. Swaminathan played a pivotal role in Green Revolution of India, which had a positive impact on agricultural productivity by introducing high-yielding crop varieties and improved farming practices. He advocated for integrated rural development programmes that focused on improving the living standards of rural communities.

Dr. Swaminathan has collaborated with OUAT on various innovative projects and initiatives. His expertise in crop improvement, sustainable agriculture and rural development has been invaluable in advancing the university's research goals. His recommendations and insights have influenced OUAT's academic curriculum and research agenda, aligning them with contemporary agri-



## Prof. Pravat Kumar Roul

Vice Chancellor  
Odisha University of Agriculture and  
Technology  
Bhubaneswar, Odisha

cultural challenges and opportunities. As a renowned agricultural scientist, Dr. Swaminathan has delivered lectures and seminars at OUAT, sharing his knowledge and insights with students, faculty and researchers. To reminisce one, he has delivered a talk on "Dr K. Kanungo and Agricultural Renaissance" on the backdrop of Dr. Kissen Kanungo Memorial Lecture on 26th December 2012.

In recognition of his outstanding contribution in the field of agricultural sciences, OUAT has conferred the Degree of Doctor of Science (Honoris Causa) on Dr. M.S. Swaminathan during 37th Con-

vocation of the University on 23rd February 2018. As a mark of respect, a state of the art auditorium at the University headquarters is named after Dr. M.S. Swaminathan. We had the opportunity of interacting with Prof. Swaminathan at MSSRF, Chennai during 30-31 October 2019 in connection with implementation of the project entitled "Building climate resilience of Indian small holders through sustainable intensification and agro-ecological farming systems to strengthen food and nutritional security (RESILIENCE)" supported by Norway Government. It is relevant to mention that the RESILIENCE project operates for Odisha with OUAT as the lead institute and ICAR-National Rice Research Institute, Cuttack & M. S. Swaminathan Research Foundation as the partnering institutes. His words of wisdom during our visit were useful for effective implementation of project for achieving its objectives. Today, Prof. Swaminathan may not be there with us, but his memorable contributions in the field of agriculture and allied sciences will ever guide us for sustainable food production, strengthening rural economy and community development.



# TREASURE OF SPLENDID REMINISCENCES



**M**onkombu Sambasivan Swaminathan hails from the village Monkombu in Kerala. He graduated as valedictorian with highest grades from Coimbatore Agricultural College. He received a UNESCO Fellowship for his research on potato genetics at Wageningen Agricultural University, the Netherlands. Despite maiden and immensely valuable research work on potato genetics, he evolved himself as a multifaceted scientific personality endowed with pronounced accomplishments in several major crops in India. His contributions led to the development of high yielding varieties which were responsible for food and nutritional security in the country and hence he was renowned as Father of Green Revolution. His vision was to rid the world of hunger and poverty through the adoption of environmentally sustainable technologies in both agriculture and horticulture. Dr. Swami-



**Dr. T. Janakiram**

Vice Chancellor  
Dr. YSR Horticultural University,  
Venkataramannagudem

nathan was not only a legendary scientist but a true contributor to the well-being of the society in India and elsewhere in the developing world. He developed the concept of Farmers' Rights and the text of the International Undertaking on Plant Genetic Resources (IUPGR).

Dr. Swaminathan has worked worldwide in collaboration with esteemed scientists and post graduate scholars on a wide range of problems in basic and ap-

plied aspects of agricultural research and conservation of valuable and futuristic resources of precious nature. He is a prolific scientific researcher and prolific writer. He published beautiful books on subjects like ever green revolution, biodiversity and sustainable agriculture. He was honoured by the triplet of Padma awards; Padma Shri in 1967, Padma Bhushan in 1972 and Padma Vibhushan in 1989.

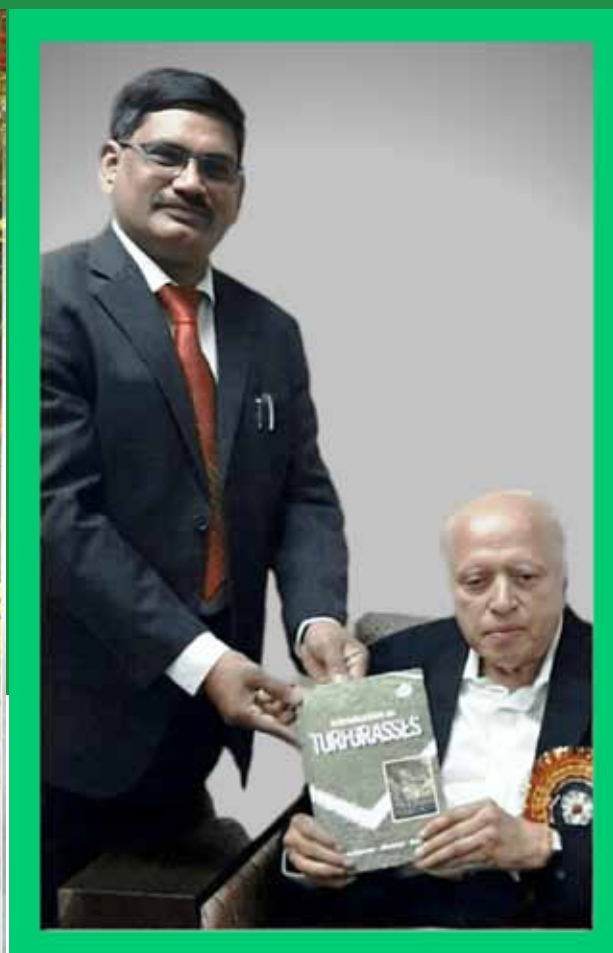
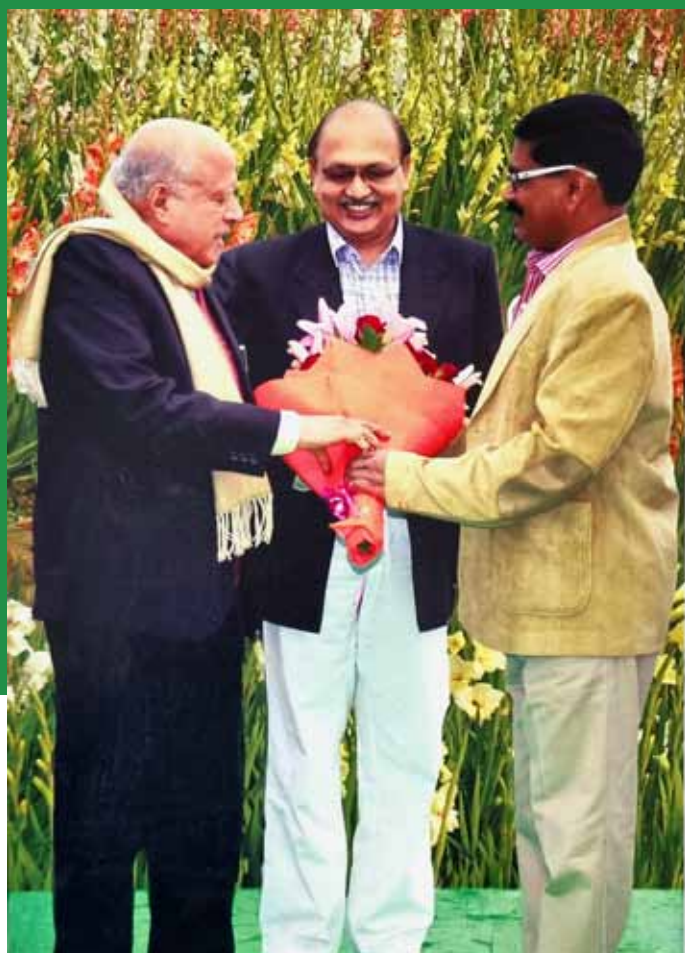
It is a great privilege to be associated with him in my well regarded and highly cherish able memories.

## As Vice-Chancellor at Dr. YSRHU

■ Dr. Swaminathan inspired our students and staff with his inaugural blessings during the inaugural programme of Dr. B.P. Pal Rose Garden and unveil of Dr Pal's statue, at COH, Venkataramannagudem.

■ Dr. B.P. Pal Rose Garden is unique of its kind for conservation and maintenance of modern horticultural classes of





roses such as Hybrid Teas, Floribundas, Grandifloras, Miniaturs, Shrubs and Climbers. A total of 200 cultivars are maintained in this garden which includes latest ones viz., 'The M.S. Swaminathan Rose' and 'Jewel of Monkombu'.

- Characteristic traits of diverse groups of roses with exquisite shapes in varied colours are studied in this rose garden along with different special horticultural practices by the students. On account of immense contributions, the garden was named in the honour of Dr. B.P.Pal, who was an eminent rose breeder of international repute.

### As Division Head at IARI

- It was a wonderful enlightenment to witness his personal visit to floriculture research plots and the infrastructure in the Division of Floriculture and Landscaping at Indian Agricultural Research Institute, New Delhi. The staff and post graduate scholars were extremely benefited by his ideas and were indebted to his blessings.

- It was a great honour for the authors Dr. T. Janakiram, Namita and Ritu Jain for having fetched preface by Professor Swaminathan in their book "Introduction to Turf Grasses"

- His inspiring words brought me a long way in contributing

a valuable treasure of knowledge in a rare field of horticultural science.

### As a student at IARI

It was a delightful experience to have his presence in the lawns of Dr. B.P. Pal auditorium, IARI every time during convocation. As a student of the prestigious institute, it was a magnificent feeling to cherish his gestures and personal remembrance of many students by name which was so inspiring that many of my batch mates including myself determined to become ARS scientists.

### An intimate personal moment

One of the most auspicious and rare occasions, unforgettable forever in my life was to spend a few moments with him at Indian Habitat Centre, New Delhi along with family. He was very kind and affectionate in his reception and blessed me and my wife Smt. Usha Janakiram.

*"Mahatmanamthu Vasudhaika Kutumbakam"*

**SALUTE TO A GREAT LEGEND WHOSE MEMORIES SHALL BE CHERISHED IN MY SPIRIT FOREVER**



# KEY ARCHITECT OF INDIA'S 'GREEN REVOLUTION'

**Dr K. Prathapan**

Vice Chancellor, D.Y. Patil University



**D**r. M S Swaminathan was the key architect of India's 'Green Revolution'. Mankombu Sambasivan Swaminathan, popularly known as M S Swaminathan was a legendary agricultural scientist and a key architect of the country's 'Green Revolution'. I had the opportunity to work with Dr. M S Swaminathan as National Horticulture Mission Director, for the development of Kerala Kuttanad Package and Idukki Package for the upliftment of small and marginal farmers of Kerala. The Kuttanad package is a comprehensive, sustainable agriculture and allied sector project proposal made for the development of below sea level farming in back water lands of Alappuzha, Kottayam and Pathanamthitta districts of Kerala. The Government of Kerala had entrusted Dr.MS Swaminathan with the



responsibility of making the project proposal.

He served as the Chairman of the project formulation committee and served as the advisor for the implementation of the approved proposal. As the NHM Director my responsibility was to implement the area expansion programme of various horticulture crops,

training the women farmers on value addition in fruits ,vegetables, spices, mushroom, honey etc. He paid close attention to all the details in all these programmes. We travelled together in all the back water areas of the three districts to study the needs of the farmers and their groups. In the package project he paid lot of attention for uplifting the women farmers of that region. He strongly believed that the development of women of farm household is the fundamental thing for the community development. He also served as the Chairman of the Selection committee of Best Farmer award, constituted by Malayala Manorama News Paper, in which I also served as a member.

May his noble soul rest in peace . Heartfelt condolences to his family members, Staff and friends of M S Swaminathan Foundation, Chennai (MSSRF).





# STALWART OF AGRICULTURE



**Dr. K. B. Kathiria**

Vice Chancellor  
Anand Agricultural University, Anand

**O**n Sept 28, 2023, the world bid farewell to a true luminary in the field of agriculture, Dr. Mankombu Sambasivan Swaminathan. His passing marked the end of an era, but his remarkable legacy continues to inspire and guide those who are committed to the welfare of smallholder agriculturalists, sustainable farming, and global food security.

His contributions are considered the lion's share to India's farming revolution as a geneticist. During famine (1960), Dr. Swaminathan along with Dr. Norman Borlaug and other reputed researchers worked towards high yielding varieties and low altitude wheat seeds suitable for India's climate. Green Revolution facilitated increase in cultivation area, adoption of high yielding varieties of seeds, increase in use of chemical fertilizers and pesticides, improved irrigation systems, increased mechanization of agriculture and awareness on crop protection. His ideas on sustainable agricultural development (leading to a permanent green revolution) gained global recognition, establishing him as a world leader in food and food security.

His contributions to the world of agriculture are nothing short of monumental with various dimensions namely green revolution pioneer, small farmers empowerment, sustainable farming advocacy, bio-diversity preservations, policy advocacy, educating and mentoring releases, enormous recognitions/honors, and legacy of hopes for the India at global platforms. These contributions to agriculture have transcended generations and

his legacy continues to inspire efforts to combat global hunger, promote sustainable farming practices, and empower small-holder farmers.

## HIS VISIT TO ANAND AGRICULTURAL UNIVERSITY, ANAND GUJARAT

There remained couple of blessing-full moments, when I got the opportunity to be in person with him, either during 2nd Convocation of AAU (16.05.2006) or at couple of other instance. I always remained fortunate to avail and witness his depth of wisdom and simplicity. Being a plant breeding & genetics-oriented researcher, I have personally gained a lot from his deep high-end visionary insights. Dr Swaminathan had a wide canvas of ongoing research programmes in both fundamental and applied Genetics, Cytogenetics, Radiation Genetics, Mutation Breeding and Cytology, including variety of field-crops. His conceptual methodology towards teaching was 'learning by doing till you succeed'; and his profound watchwords for a successful researcher always remained 'relevance and excellence'.

As a Vice Chancellor of AAU (located at soils of Indian Iron Man Saradar Vallabhbai Patel), I can heartily mention that even in the vast tapestry of agriculture, Dr. Swaminathan wove threads of innovation and compassion, leaving a legacy that nurtures both crops and communities. His unwavering commitment to sustainable agriculture echoed through the fields, inspiring generations of farmers to cultivate not just 'crops' but also the 'hopes'.



# A Visionary Agricultural Scientist

**A**n era has ended in the history of agriculture in India with the demise of Dr. M.S. Swaminathan, the Father of the Green Revolution in India. He left an indelible mark on everyone in agriculture sector through his seminal contribution, inspiration and leadership. He is an iconic leader whose research, innovative initiatives, and tireless efforts revolutionized crop production, technological advancements and agricultural institutional building in the country. India's journey from food scarcity to food surplus over these years is a true testament to the impact of Dr. Swaminathan's contribution.

Dr. Swaminathan is the first visionary scientist who advocated the pro-poor,



## Dr. P. Chandra Shekara

Director General  
National Institute of Agricultural  
Extension Management (MANAGE)

pro-planet, and pro-women policy initiatives which greatly helped smallholder farmers, ensured sustainable agriculture and uplifted the role of women in agriculture in India. His work has had an unpar-

alleled and lasting impact on the country, and changed the lives of farmers in India.

The National Institute of Agricultural Extension Management (MANAGE) owes much for his guidance and association in developing eLearning Modules on Rice Crop Cultivation in 1990s. His ideas and advanced thinking in taking technologies on rainfed rice cultivation to farmers through modern ICT tools indeed revitalised the agricultural extension and advisory services much ahead of the time more than decades back.

For us at MANAGE, Dr. Swaminathan is a true Extension Philosopher at the core, always committed to take innovative technologies to farmers. Under his leadership, agricultural extension services in India underwent a transformation. Dr. Swaminathan championed the establishment of Agricultural Universities, shaping the Indian Council of Agricultural Research Institutes, and institutions of excellence. He emphasized the importance of training extension workers who could serve as a bridge between scientists and farmers. His efforts led to the creation of a vast network of Krishi Vigyan Kendras across India, which served as hubs for disseminating agricultural knowledge and innovations. His remarkable contributions in the field of agricultural extension have not only revolutionized Indian agriculture but have also left an indelible mark on the global agricultural landscape.

I pay my hearty tribute to Dr. M.S. Swaminathan for his unwavering commitment to empowering farmers and improving their lives through scientific brilliance and leadership. His legacy and dedication serve as a guiding light for future generations of administrators, agricultural scientists, extension workers and the actors like agripreneurs, NGOs, and agri-business managers to rededicate themselves to their crucial roles, working tirelessly to ensure food security and a more sustainable future for all.







**"D**r. M.S. Swaminathan, a legendary agricultural scientist with historical unparalleled contributions was true human being who dedicated his life to Science and Society. Known as the father of the green revolution and the first world food prize laureate in 1987, he was conferred with Padma Vibhushan along with many other honours for developing and spearheading the introduction of High Yielding Varieties of Wheat and Rice which changed India's status from a food deficient country to one of the World's leading agricultural nation saving mankind from hunger and alleviating poverty.

Dr. Swaminathan always advocated the need for green revolution to be ever green revolution and believed in the power of science through innovative technologies and firm approach. Swaminathan was deeply concerned about the farming community and was the Chairman of the National Commission on Farmers and recommended that the MSP of various crops should be at least 50 percent more than their weighted average cost. I had the privilege to interact with him on vari-



**Dr. Arvind Kumar**

Former Vice Chancellor,  
RLBCAU, Jhansi

ous occasions in conferences, convocations and meetings during my tenure as DDG, Agricultural education, ICAR and later as founder Vice Chancellor, RLBCAU Jhansi. As President of Indian Society of Agronomy, I had a chance to interact with him closely in November 2012, at the time of third International Agronomy Congress, having a theme on Agriculture Diversification, Climate change management and livelihoods. He appreciated it and supported that farming requires diversification and sustainable intensification in the era of climate change. He told that the power and economy of scale has

to be given to farmers with small holdings through appropriate management structures like co operatives.

He cited the vital role of the Agronomists and observed the stubble burning in northern India as one of the example of wastage of resources which otherwise could be turned into wealth. He supported nutrients based subsidy and the need for balanced fertilization along with judicious use of ground water. The term nutri millets coined by Dr. Swaminathan, paved the way forward to Celebrate 2023 as the International Year of Millets. The foundation of MSSRF with proceeds of world food prize to accelerate use of modern science for sustainable agriculture and rural development shall serve his legacy and inspiration to address key challenges that the world is facing today.

The sad demise of Dr. Swaminathan on 28 September, 2023, at the age of 98 years has created a big vacuum in the country and shocked all his well wishers. We pray to almighty that his pious soul rest in peace. His words of wisdom shall always serve as a motivation for furthering the cause of agriculture in Bharat."

**"T**he demise of Prof. M S Swaminathan, the father of Green Revolution, profoundly sadden all of us. He was very humble scientist of international repute. I am fortunate that I got an opportunity to work very closely with him as member of Award Committee of Indian Chamber of Food and Agriculture (ICFA) where he was Chairman. We used to visit him at his New Delhi residence and still cherish the good memories of our meeting. I had the privilege of interacting with him during ICFA meetings also. It was a wonderful experience to work with him. He was always encouraging and used to involve every member of the committee at all level. He was encyclopedia of information not only in the field of agriculture but in all subjects. He was always eager to listen to young scientists and used to encourage our ideas.

Today, we mourn the loss of an extraordinary individual. Prof. M S Swa-



**Prof K.M.L.Pathak**

Chairman, ICFA Working Group on  
Animal Health  
Former Deputy Director General (AS),  
ICAR and Vice chancellor, DUVASU,  
Mathura

minathan has left us, but his invaluable contribution and dedication to feeding the world and improving the lives of countless people will continue to inspire all of us. His contributions have secured millions of people's lives and livelihood, and everyone in the agricultural sector will remember him for his services.



Our heartfelt condolences go to his family and pray God to let his soul rest in peace. Om Shanti Shanti. "



# THE GLOBAL GREAT HUMAN BEING AND EVER-LIVING LEGEND FOR NEXT GENERATION

It was my wonderful privilege to meet Professor along with Dr Rajeswari Mahalingam on 10th July 1988 at IIT Madras where he was serving as Visiting Professor in Department of Chemical Engineering. In course of time, by identifying loyalty and calipers in me, Professor offered a job at MSSRF and accordingly I reported duty at MSSRF on 31st October 1989 when Professor, Dr Rajeswari, and I were the founder staff members of the MSSRF. At that time, we worked from IIT Madras campus for about six months and then moved to Plot No. 14, Second Main Road, Kotoorpuram, Chennai - 600 085 address.

As soon as I joined, firstly Professor provided an excellent opportunity to organize a 'Conference on Wheat Revolution Dialogue' in 1990 at Hotel Taj Coromandel, Chennai, where the Nobel Laurette Dr Norman Borlaug graced along with numerous international dignitaries and delegates. An International Keystone Dialogue on Biodiversity was organized in 1990 at Taj Fishermen Cove, Chennai. This programme was of first of its kind in the State. The third large event we organized was an 'International Workshop on Biotechnology' at Fishermen Cove of Taj Group. In the International Workshop on IITO held in 1991, the Scientists working in the area of Mangrove ecology from almost twenty countries participated and presented research contents and themes. Information Technology Dialogue was held on 1992 in Fishermen Cove of Taj Group. With these unique dialogues, Professor's



**N. Parasuraman**

M.S. Swaminathan Research Foundation

dream projects evolved. The first project Professor took to field level was Coastal System Research at Vettaikkaraniurpu, Vedaranyam Taluk of Nagapattinam District. Then Professor extended his research mandate to mangrove restoration programmes at Pichavaram, Cuddalore district. For instance, Biotechnology became Bio-Village Programme at Puducherry, Information Technology became Information Village Programme or Village Knowledge Centre and Village Resource Centre in Puducherry. With these proven experiences of MSSRF, the Government of India replicates as Common Service Centre (e-Centre) presently all over the country.

The foundation stone was laid for the present campus in 1991 and the building was inaugurated on the auspicious day of 14th April 1993. Professor named it as Eco-friendly Building. I dedicated my life to Professor by working with the legend for the past 35 golden years.

Dr Swaminathan's brilliant approaches to tackle rural and urban insecurity in



all its dimensions viz. availability of food, access to food (purchasing power) and absorption of ingested food by ensuring clean drinking water in the rural and slum areas are simple and quite "doable". Similarly, his creation of "biovillages" and Village Knowledge Centres" to empower the rural and tribal women and men with ecotechnologies and time- and locale-specific knowledge for poverty alleviation and food and nutrition security is relevant to the entire developing world. In the area of agriculture, his endeavours are to transform the "Green Revolution" into "Ever-green Revolution" which is the way for establishing productivity in perpetuity without accompanying ecological harm.

In his mission of harnessing science and technology to provide basic human needs, he not only ensured social and gender equities, but infact more focuses on Gandhiji's "Antyodaya" (attention particularly to the weakest and the poorest) principle. The activities led by him are participatory and "bottom-up" in approach.

Modern information and communication technologies have given meaning and content to the concept of a "global village". However, they have also brought to light the growing rich-poor divide in opportunities for a healthy and productive life. Unless the Global Community (particularly G8 nations) take sincere steps to ensure that both unsustainable life styles on the part of a billion of the human family, and unacceptable poverty on the part of another billion are ended, Peace and Sustainable Human Security will remain elusive goals. I would like to end with an appeal by Bertrand Russell and Albert Einstein in 1955.

"We appeal, as human beings, to human beings. Remember your humanity and forget the rest. If you can do so, the way is open to a new paradise, if you cannot, there is before you the risk of universal death"





# TORCH BEARER OF MODERN AGRICULTURE

**T**he stalwart, Dr. MS Swaminathan was a renowned educationist, plant geneticist, policy maker and great human being who worked to reduce hunger in society. He was called as Father of Economic Ecology by the United Nations and the Father of the Green Revolution in India. Dr. Swaminathan dropped the idea of becoming a doctor. The poverty and hunger in the society led him to work for rural livelihood and food security.

Dr. MS Swaminathan worked in close association with Nobel Laureate Norman E. Borlaug during the 1960s to introduce and disseminate semi-dwarf and high-yielding wheat varieties in the country. The semi-dwarf, photo-insensitive, high input responsive and lodging tolerant wheat lines, namely Sonora64,



**Dr. Gyanendra Singh**

Director, ICAR-IIWBR, Karnal (HR)

Lerma Rojo and S227 were found adaptive and disease resistant in the multi-location adaptive trials. Dr. Swaminathan was the force behind importing, evaluating and disseminating these promising genotypes to the Indian farmers. Resultantly, the wheat production increased to the tune of 41 % during 1968. This phase was known as the Green Revolu-

tion in India and addressed the issue of severe food shortage and helped the country become self-sufficient in wheat production. India achieved an all-time high wheat production of 112.74 m t during 2023 and this happened due to the concrete efforts, vision and policies of Dr. MS Swaminathan. He was quoted as "A living legend who will go into the annals of history as a world scientist of rare distinction" by Javier Perez de Cuellar, Secretary General of the United Nations.

Dr. MS Swaminathan worked in all capacities for Indian Agriculture from a Scientist to Principal Secretary at Ministry of Agriculture in India. He was dedicated to accelerating the use of modern science for sustainable agricultural and rural development. His work focused specifically on tribal and rural communities to provide science-led innovations to address the problems faced by rural populations in agriculture. His great thoughts and significant work brought him all three Padma awards, the Ramon Magsaysay Award (1971), the Albert Einstein World Science Award (1986) and the World Food Prize (1987).

Dr. Swaminathan was instrumental in creating the Department of Agricultural Research and Education (DARE) under the Ministry of Agriculture. Based on Swaminathan's report, the Minimum Support Price (MSP) was started for farmers which led to bumper production of cereals in India. He was strong supporter of gender equity and women empowerment in society and exhorted for the decisive role of farm women in Indian agriculture. Dr. Swaminathan was the torch bearer of modern agriculture, in particular, for wheat improvement and talked for nutritional security during 1970s.

Being a wheat research, academic and extension organization, the ICAR-Indian Institute of Wheat & Barley Research, Karnal is greatly indebted of Dr. MS Swaminathan and pay the deepest tribute to his pure soul.





# THE LEGENDARY AGRICULTURAL SCIENTIST

**M**ankombu Sambasivan Swaminathan, the legendary agricultural scientist and a key architect of the country's 'Green Revolution,' passed away at his residence in Chennai on September 28, 2023. His keen interest in agricultural science coupled with his father's participation in the freedom movement and Mahatma Gandhi's influence inspired him to pursue higher studies in the subject.

The back-to-back severe drought in mid-1960s compelled the political leadership and scientific fraternity to look for solutions to overcome the "ship-to-mouth" existence when the country was dependent on food grains imported from the US. Dr. Swaminathan worked closely with two Union Agriculture Ministers, C. Subramaniam (1964-67) and Jagjivan Ram (1967-70 & 1974-77) for the success of the 'Green Revolution,' a programme that paved the way for quantum jump in productivity and production of wheat and rice through adaptation of chemical-biological technology. The discovery of Norman Bourlag, a celebrated



**Dr. Artabandhu Sahoo**

Director, ICAR-NRC on Camel, Bikaner

American farm scientist and 1970 Nobel Laureate, on wheat had played a huge role in this regard. In recognition, he became the first to get the World Food Prize in 1987 and then conferred with Padma Vibushan in 1989.

As Chairman of 'National Commission on Farmers' (2004), popularly known as the 'Swaminathan Commission', he recommended that minimum support price (MSP) should be at least 50% more than the weighted average cost of production. In his report, he categorically mentioned in para 1.6.6., "The veterinary curricula in use in the country

at present generally neglect small ruminants, rabbits, camels, yak, mithun and pack animals. There should be adequate emphasis in the syllabus on these species so that veterinary graduates can ably handle the diseases and other problems specific to these species such as trypanosomiasis in camels. "

He stressed upon 'Semen freezing techniques' in respect of other species (besides cattle and buffaloes) - sheep, pigs, horses, camels, etc. This is an important constraint which has to be taken not of in any programme of preservation of animal genetic resources. He also emphasized that maintenance of livestock herds in ecologically, geographically and utility conditioned situations appears to be the appropriate approach.

The first 'World Agriculture Prize', instituted by the Indian Council of Food and Agriculture (ICFA), was given to him in October 2018.

ICAR-National Research Centre on Camel salutes the Noble Soul for his contribution to 'FOOD SECURITY' of India.







# THE SCIENTIFIC LEADER OF INDIA'S GREEN REVOLUTION MOVEMENT

**D**r Mankombu Sambasivan Swaminathan is an agricultural scientist, administrator and humanitarian is renowned as the father of the green revolution in India, for his introduction of high-yielding genetic varieties of rice and wheat. His work alongside American agronomist Norman Borlaug led to the doubling of wheat yields in India in the late 1960s.

He was only 18 when he witnessed the devastating effects of the Bengal famine, which led to the deaths of about 3 million people. The experience spurred him into a career in the agricultural sciences. After earning degrees from the Indian Agricultural Research Institute, Pusa, New Delhi then Wageningen Agricultural University's institute of genetics, and the University of Cambridge, he turned down a faculty position at the University of Wisconsin. He chose instead to return to India with his wife, Mina, who he met at Cambridge. On returning to India, Swaminathan collaborated with Borlaug in crossing Japanese and Mexican dwarf varieties of wheat, which led to the high-yield, disease-free crop strains that revolutionised world agriculture. He was awarded the first World Food prize in 1987 for his work and he credited Swaminathan for recognising the potential value in the successful crop varieties.

Because of Swaminathan's efforts, India went from being drought-stricken and dependent on US imports in the 1960s to being declared self-sufficient in food production in 1971. As head of the National Commission on Farmers, he produced several reports which recommended minimum support prices for crops, suggestions for faster and more inclusive growth, and a holistic national policy addressing farmer suicides. To



**Dr P K Gupta**

Additional Director and  
NHRDF, New Delhi

**Sri Rajbir Singh**

IFS (Retd), Chief Executive Officer

address the issue, Swaminathan used the proceeds from the World Food prize to start the MS Swaminathan Research Foundation. In addition to the World Food prize, he was conferred awards by the Netherlands, the Philippines, France, Cambodia and China. He was also highly decorated within his country, having received India's second, third and fourth highest civilian awards.

A plant geneticist by training, Prof. Swaminathan has made stellar contributions to the agricultural renaissance of India, and is widely regarded as the scientific leader of India's green revolution movement. His advocacy of sustainable agriculture leading to an ever-green

**Prof. Swaminathan has made stellar contributions to the agricultural renaissance of India, and is widely regarded as the scientific leader of India's green revolution movement**

revolution makes him an acknowledged world leader in the field of sustainable food security. The International Association of Women and Development conferred on him the first international award for significant contributions to promoting the knowledge, skill, and technological empowerment of women in agriculture, and for his pioneering role in mainstreaming gender considerations in agriculture and rural development.

Prof. Swaminathan has received numerous awards and honours, including the S.S. Bhatnagar Award for his contribution to biological sciences (1961), Ramon Magsaysay Award for Community Leadership in 1971, the Albert Einstein World Science Award in 1986, the first World Food Prize in 1987, the Indira Gandhi Prize for Peace, Disarmament and Development, the Franklin D. Roosevelt Four Freedoms Medal and the Mahatma Gandhi Prize of UNESCO in 2000, and the Lal Bahadur Shastri National Award in 2007. Prof. Swaminathan is a proud recipient of some of India's highest honours including Padma Shri (1967), Padma Bhushan (1972) and Padma Vibhushan (1989). He is a Fellow of many of the leading scientific academies of India and the world, including the Royal Society of London and the US National Academy of Sciences. He has received 81 honorary doctorate degrees from universities around the world. He was a Member of the Parliament of India (Rajya Sabha) for the period 2007-13. He also chairs the Task Force set up by the Ministry of External Affairs to oversee the projects undertaken in Afghanistan and Myanmar in the field of agriculture and was elected as "Living Legend of International Union of Nutrition Sciences" at the 20th International Congress of Nutrition held at Granada, Spain.



# SOWING INNOVATION, REAPING PROSPERITY

**P**rof. M.S. Swaminathan stands as a luminary in the annals of Indian agriculture, having played a transformative role in paving the way for modernization. Born in 1925 in Kumbakonam, Tamil Nadu, Swaminathan's journey unfolded against the backdrop of a nation grappling with the specter of food scarcity. The architect of the Green Revolution in India, Swaminathan's vision was instrumental in steering the country from dependence on imports to self-sufficiency in staple crops. His groundbreaking work involved the development and promotion of high-yielding varieties (HYVs) of crops, notably the "Miracle Wheat," which heralded a new era in wheat production. This paradigm shift, marked by the infusion of advanced agricultural techniques, fertilizers, and pesticides, significantly in-



**Dr. Amaresh Chandra**

Director  
and

**Dr. Bishwa Bhaskar Choudhary**

Scientist, IGFRI, Jhansi

creased crop yields and transformed India into a food-surplus nation.

Swaminathan's legacy in modern Indian agriculture extends beyond scientific innovation. His advocacy for comprehensive policy reforms, technological adoption, and socio-economic empowerment of farmers reshaped the very fabric of agricultural practices in the country. The Green Revolution, under his guidance, embraced a holistic approach that not only aimed at increased yields but also addressed the socio-economic challenges faced by farmers. This encompassed fair pricing mechanisms, access to credit facilities, and insurance frameworks to safeguard

farmers from the uncertainties inherent in agriculture.

The technological revolution spearheaded by Swaminathan went beyond the development of high-yielding crop varieties. He foresaw the potential of information and communication technologies in agriculture and advocated the integration of satellite imagery, modern communication tools, and precision farming techniques. This embrace of technology not only optimized resource use but also empowered farmers with knowledge & real-time data to make informed decisions. His visionary perspective laid the foundation for a more resilient & technology-driven agrarian sector.

## Strengthening Research

Under Swaminathan's leadership, the Agricultural Research Service (ARS) was created as a comprehensive program that aimed to strengthen the entire spectrum of agricultural research and galvanized scientific endeavors nationwide. His vision extended beyond individual research projects to the coordination of efforts on a national scale. Prof. Swaminathan played a key role in strengthening All India Coordinated Projects, fostering collaboration among scientists from diverse regions and disciplines. This interconnected network facilitated the exchange of ideas, methodologies, and outcomes, ensuring a unified approach to addressing the complex challenges facing Indian agriculture.

Swaminathan's commitment to bridging the gap between



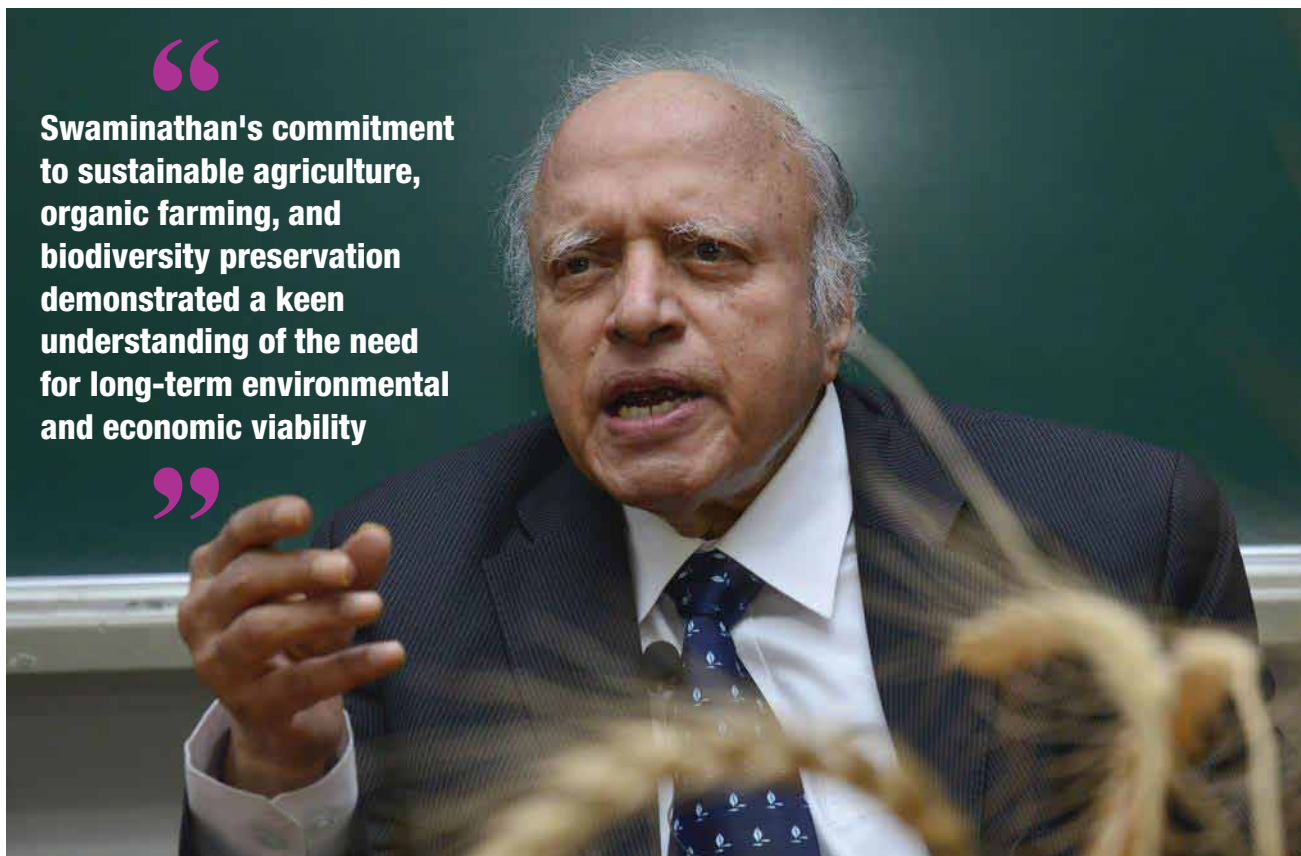




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**Swaminathan's commitment to sustainable agriculture, organic farming, and biodiversity preservation demonstrated a keen understanding of the need for long-term environmental and economic viability**

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laboratory innovations and on-the-ground application manifested in the initiation of the "lab-to-land" program. This visionary endeavor aimed to seamlessly transfer agricultural technologies developed in research labs to the hands of farmers. By facilitating the practical application of scientific advancements, he sought to empower farmers with the tools and knowledge needed to enhance productivity and improve their livelihoods. Moreover, his far-reaching vision extended to the establishment of the National Academy of Agricultural Sciences (NAAS). This institution, founded under his guidance, served as a crucible for nurturing scientific talent, fostering collaboration, and recognizing outstanding contributions to agricultural research. The NAAS became a hub for intellectual exchange, further fortifying the scientific community's commitment to advancing agricultural practices in India.

Swaminathan's foresight in establishing ICRISAT (International Crops Research Institute for the Semi-Arid Tropics) in Hyderabad as co-founder and shap-

ing its mission, objectives, and trajectory with a fervor stands as a testament to his strategic vision in addressing the unique challenges of agriculture in semi-arid regions. This visionary approach not only addressed the immediate challenges faced by farmers in these regions but also laid the foundation for global research collaborations aimed at transforming agriculture and ensuring food security in the face of changing climates.

### **Global Influence**

Furthermore, his global influence, particularly in international organizations like United Nation, Food and Agriculture Organization (FAO) and the International Rice Research Institute (IRRI), where he called for global food security and sustainable agriculture showcased India's prowess in agricultural innovation on the global stage. Swaminathan's commitment to sustainable agriculture, organic farming, and biodiversity preservation demonstrated a keen understanding of the need for long-term environmental and

economic viability. The accolades, including the prestigious World Food Prize in 1987, underscore the global recognition of Swaminathan's extraordinary contributions.

The Indian Grassland Fodder Research Institute (IGFRI), Jhansi is immensely indebted to him being vocal to protect the existence of this particular institute being one and only institute working on grassland development and rejuvenation in Asia. He has visited this institute on several occasions including the inauguration of Krishi Nagar on February 27, 1974, which will always remind us about his vision and mission for agriculture in India.

As India continues to face new challenges in the agricultural landscape, the principles and innovations advocated by M.S. Swaminathan remain integral to shaping the future of the nation's agrarian sector. His legacy endures not only in the scientific advancements but also in the ethos of sustainable and inclusive agricultural development that he propagated.



## “IF AGRICULTURE GOES WRONG, NOTHING ELSE WILL HAVE A CHANCE TO GO RIGHT”

**T**his statement still holds true even when we have proudly become the first country to land on Moons South pole. He was instrumental in developing and spearheading the introduction of high-yielding wheat and rice varieties into India during the 1960s when we faced the prospect of widespread famine. Wheat production doubled in just a few years, making the country self-sufficient and saving millions from extreme food deprivation. The father of “Green revolution” in India provided food to the millions of countrymen. From dependency on import from foreign nations, India became exporter of crops under his able leadership in agriculture sector. For his contributions, Swaminathan was awarded the first World Food



**Umesh Sharma**

President, Veterinary Council of India

Prize Award in 1987, for developing and spearheading the introduction of high-yielding wheat and rice varieties. For introducing the new varieties to Indian farmers, MS Swaminathan worked closely with agronomist and plant breeder Norman Borlaug in the 1950s. Borlaug went on to win the No-

bel Peace Prize in 1970 for his work on new wheat varieties in Mexico, India and Pakistan.

We all know that he coined green revolution. Dr. M.S. Swaminathan when he was the chairman of the National commission on Farmers, he gave the call for an “Evergreen Revolution” for doubling the present production of food grains.

The architect of India’s Green Revolution, M.S. Swaminathan died on Thursday in Chennai—a rare scientific luminary who chose to live and work in India. He was 98. It is nearly impossible to fill the void but we as a country need to move in the path shown by the legendary agriculturist and put our hands together for “Evergreen revolution”.

## A TRIBUTE TO THE MAN WELL DESERVED

**I**magine a young enthusiastic scientist writing to Norman Borlaug for a solution in that era where communication was slow and often chances of postal being amiss at times. And viola, the Green Revolution in India starts and today rather than being dependent on food grains, we are not only able to attain food security but are now also looked upon by other countries for assistance in the same. That’s the man, a man of vision and commitment.

I remember around 20 years ago during an event in India International Centre, New Delhi we were having dinner. We weren’t together. I was with my family and he was sitting a little far from me diagonally with a friend or col-



**Vipin Saini**

Chief Executive Officer-Biological Agri Solutions Association of India (BASAI)

league of his. I didn’t realise it was him with me in the same place dining till he catches my fancy. And I realised it was Sir. What an honour to be able to

finally meet up with him. Until I could figure out how to react and go over to pay my regards, I caught his eye. We both smiled at each other, he probably realised I was with my family and we exchanged our regards to one another silently as he acknowledged my Namaste from afar with a gentle smile. And we carried on with our dinner. Later on, we got a chance to meet up post our meals and had a nice informal discussion for a while on our way out.

This personal incidence I share to just depict the kind of man he was. Full of dignity and respect for others. He will be missed forever as I will be left to cherish this sweet memory I have of him for the rest of my life.





# AGRICULTURAL VISIONARY AND BIO FORTIFICATION CHAMPION

## HarvestPlus

**H**arvestPlus deeply mourns the passing of Dr. Mankombu Sambasivan (M.S.) Swaminathan—a distinguished agricultural scientist known as the “Father of the Green Revolution in India,” who passed away on September 28, 2023 at 98 years old. He leaves behind an indelible mark on the agriculture and nutrition landscape of India and beyond.

Dr. M.S Swaminathan exhibited an insatiable curiosity and passion for science and agriculture throughout his life. His contribution to Indian agriculture is immeasurable. His groundbreaking work in crop breeding and genetics laid the foundation for what would become the Green Revolution in India.

His tireless efforts led to the development of high-yielding, disease-resistant crop varieties, particularly wheat and rice, which transformed India from a food-deficient nation into a self-reliant agricultural powerhouse.

His work alleviated hunger and poverty, and catalyzed economic growth and prosperity in rural communities, and he was instrumental in the introduction and acceptance of biofortified foods in India. The HarvestPlus team worked closely with Dr. M.S. Swaminathan to advocate for Indian government support for biofortified foods, and fondly remember him as a strong supporter of linking agriculture.

As both a scientist and Member of Parliament, he was a champion for biofortification, as evidenced by his 2012 editorial published in *Science*. The HarvestPlus team had the honor to work side-by-side with Dr. M.S. Swaminathan and enjoyed a milestone with him in 2013, when the Finance Minister announced the first Indian pilot program and funding for “Nutri-Farms for introducing



new crop varieties that are rich in micro-nutrients such as iron-rich bajra, protein-rich maize, and zinc-rich wheat.”

Let us remember Dr. M.S. Swaminathan’s enduring commitment to the welfare of humanity, and let his legacy serve as a guiding light for future generations. Though he may be gone, his impact on agriculture and nutrition will resonate for eternity. HarvestPlus is thankful for having had the opportunity to work with this agricultural visionary and biofortification champion.



# THE REAL 'BHARAT-RATNA'

**H**eroes are not born, the times and circumstances shape the heroes. And later in history, that period is called the period of the hero. The above lines about the life of Dr. MS Swaminathan fit perfectly.

Dr. Swaminathan was Secretary to the Government of India in the Department of Education (1972–79), Principal Secretary in the Ministry of Agriculture (1979–80), Acting Vice-Chairman in the Planning Commission (1980–82) and later Member (Science and Agriculture) and also he was appointed Director General of the International Rice Research Institute, Philippines (1982–88).

## Beginning of Green Revolution

Green Revolution started in the year 1965-66. Before the food crisis was such that India had to depend on wheat imports from America under the PL-480 scheme. In the year 1966, the situation became such that more than 1 crore tonnes of wheat had to be imported.



## Dr. Rajaram Tripathi

National Spokesperson : MSP  
Guarantee Morcha,  
National Coordinator : All India  
Farmers Federation (AIFA)

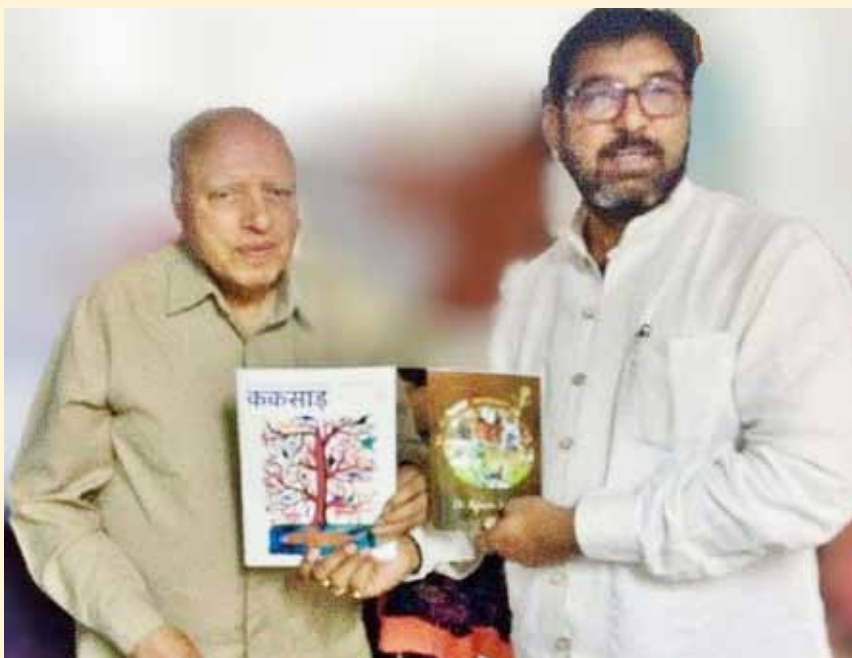
Since the adoption of Green Revolution technology in the country, India had never faced a food security crisis, even as its population increased from 50 crore in early 1966 to 140 crore by 2023. In 2004, Swaminathan was made the chairman of the National Commission on Farmers (NCF) which was formed to take stock of the distress of farmers amid increasing cases of farmer suicides in the country. The Commission submitted its report in 2006 and in its 7

recommendations suggested that the minimum selling price (MSP) should be at least 50 percent higher than the average cost of production. With the demise of Dr MS Swaminathan, an era of Indian agriculture has come to an end. This is truly an irreparable loss to the country and humanity.

Critics of the Green Revolution have perhaps forgotten the painful truth that, during the Bengal famine of 1942, there were countless deaths due to hunger in the country. We must always remember how devastating and widespread the impact of that famine was. If we talk about the comparison of facts and figures, then the total death toll due to Corona epidemic (COVID) is considered to be around 5 lakhs, while in that starvation, more than 40 forty lakh people lost their lives in agony due to hunger. Food production at that time was only about 1 lakh tonnes, which increased to about 170 lakh tonnes in 1979 due to the Green Revolution. The determined leadership of Indira Gandhi, the charismatic guidance of Dr. S. Swaminathan and the hard work of the country's farmers resulted in a 170-fold increase in grain production. That is why it is called revolution. And the hero of this Green Revolution was Dr. Swaminathan. However, in the last years of his life, he always expressed his concern and sorrow over the uncontrolled use of chemical fertilizers and poisonous medicines. He always praised our organic farming of herbs and spices and always encouraged us.

## Safeguarding the interest of Farmers

Dr. Swaminathan devoted his entire life to the country's agriculture and farmers, and till his last moments remained active in the interest of farmers and in guaranteeing fair prices to farmers for their produce. Swaminathan ji's last wish was







that as per the report prepared by him (Swaminathan Report) in the interest of the country's farming and farmers, all the incidental expenses should be paid to the farmers by adding the actual cost (C2+ FL), and the farmer's wages as per the skilled labourer plus fifty percent profit on top of that. By fixing the correct "Minimum Support Price" this 'Minimum Support Price' should be given to every farmer of the country on all agricultural produce of the country. This can be possible

**The determined leadership of Indira Gandhi, the charismatic guidance of Dr. S. Swaminathan and the hard work of the country's farmers resulted in a 170-fold increase in grain production. That is why it is called revolution. And the hero of this Green Revolution was Dr. Swaminathan.**

only with an "efficient Minimum Support Price Guarantee Law". Therefore, we all the farmers of the country request Modi ji and his government that instead of shedding crocodile tears on the demise of Dr. M.S. Swaminathan, the government should immediately honour the last wish of this true son of Mother India. This will be a true tribute to the government. It is the desire of the farmers of the country to honour this son of Mother India by awarding him Bharat Ratna even after his death for his invaluable services throughout his life.

We all the farmers of the country pay our humble tribute to him with a heavy heart.

We strongly believe that Dr. Sahab, wherever you are, there will definitely be peace, peace and happiness along with greenery.

## A GREAT AGRICULTURAL SCIENTIST AND AN OUTSTANDING HUMAN BEING

**D**r. M S Swaminathan was a great agricultural scientist and an outstanding human being. No wonder that he was recognized as one of the 20 most influential Asians of the 20th century. His departure from this mortal world is deeply shocking and has stunned the Indian as well as the international agricultural scientific community. The farmers of India will also miss him badly because he always worked sincerely for their benefit and welfare through his scientific pursuits and practical solutions.

I had the privilege of having Dr. Swaminathan as my teacher and Director of IARI during my university days at IARI. We had the opportunity of interacting with his profound knowledge, sharp intellect, visionary leadership and pragmatic approach. It was always his endeavour to bring the fruits of research to farmers in a simple manner so that they could adopt them for their own benefit as well as for the country's prosperity through increased agricultural production. He was much more than the Father of Green Revolution. His contribution to the Indian agriculture and the country's transformation from going around the globe with a begging bowl to achieve surplus production capacity was extraordinary. The country will be always grateful to him. His loss is irreparable.

### Dr. J C Majumdar

Ph. D., Dr. Sc. Agr., FISWS  
Chief Scientific Advisor, Crop  
Care Federation of India

**I**n the tapestry of our lives, certain figures stand as towering beacons of inspiration. Dr. M.S. Swaminathan, the visionary architect of India's Green Revolution, is one such luminary who has left an indelible mark on our journey.

From our early days as undergraduates, we were privileged to listen to the wisdom flowing from Dr. Swaminathan's words. Yet, it wasn't until the inception of Bioprime that the profound impact of his legacy became vivid. As scientists charting a course in agriculture, we confronted daunting questions about reshaping a nation's agricultural practices, influencing policy, and navigating the seemingly audacious notion that three scientists could alter the course of history.

It was in the principles and actions



### Dr. Renuka Diwan

CEO, Bioprime

of Dr. Swaminathan that we found unwavering strength and encouragement. His orchestration of the Green Revolution wasn't just history; it was a blueprint for us. With his guidance, we discovered that with the right technology, policies, and frameworks, a new agricultural revolution is not only possible but imminent.



# TRIBUTE TO THE FATHER OF *Green Revolution*

**O**ur association with Dr. Swaminathan goes back to the time when India hosted “World Poultry Science Congress & Expo” at Pragati Maidan way back in September 1996 and as a Chairman of the organizing committee put Indian Poultry on the World Map.

Thereafter, we had several chance meetings with him at the International Airport lounge(s) during which he always emphasized on the need to blend Traditional knowledge with Scientific Evidence-based Documents, Research for Credibility and Global Acceptance. Discussions on Water, Soil, Seed, Climate Change and food security with food



**Mr. Mohanji Saxena**

Former M.D. Ayurvet Ltd.; Managing Trustee ARF; Director, AGES Pvt. Ltd.; Director, QCS Herbals Pvt. Ltd.

safety always interested him.

Even after his compromised physical health in December 2014, he invited



**Dr. Anup Kalra**

Executive Director Ayurvet Ltd.; CEO, Ayurvet Research Foundation; Director, AGES Pvt. Ltd.; Director QCS Herbals Pvt. Ltd.

us to discuss “Hydroponic Research” for Green Fodder Production, as well as Paddy Nursery Development & Transplantation. Not only he appreciated but also appealed to the scientific community through self-drafted letters to undertake research.

Now when Dr. Swaminathan is not with us, and we are recording our tribute to him, we are reminded of the personal question, we had asked him during the ICFA Award Ceremony that Sir, “Who will be the next M.S. Swaminathan to pull India out of Agriculture Crisis and Farmer distress??”.

In his characteristic counter-question, smile said “Probably My Thoughts, My Work & My students”. The real visionaries, the like of Mahamana Malviya Jee, Dr. Kurian, Dr. B.V. Rao, and many more live amongst us through their “Karmas and Invaluable Contributions to Humanity”.

Dr. M.S.S deserve to be honoured with “Bharat Ratna” and always be a leading light for generations.







## My Cherished Memories

**D**r. M. S. Swaminathan's name evokes respect and admiration in anyone who is remotely familiar with the fields of agriculture and sustainable development in India. I still vividly remember the first time I heard him speak, during my days as a Ph.D. scholar at the Indian Agricultural Research Institute (IARI) in New Delhi. The aura of his vast knowledge and the charisma with which he held his audience spellbound was nothing short of magical. His command over the subject matter, paired with his expansive vision for the future of agriculture, left an indelible mark on me.

My association with Dr. Swaminathan deepened during my tenure at The Energy and Resources Institute (TERI) in New Delhi. Here, our paths crossed on numerous occasions. He wasn't just a distant speaker on a stage anymore; he became a mentor and an advisor. In my interactions with him, what struck me the most was his humility. Despite his towering achievements and global rec-



**Nutan Kaushik , Ph. D.,**

Director General,  
Amity Food & Agriculture Foundation

ognition, he always remained grounded, approachable, and ready to impart wisdom. Each interaction, whether it was a formal meeting, a keynote address, or a casual chat in the hallway, was a lesson in itself.

As a keynote speaker, Dr. Swaminathan had the rare ability to seamlessly blend complex scientific concepts with ground realities. His talks were never just about theories. They were imbued with real-life examples, experiences from the field, and most importantly, his

vision for a world where sustainable agriculture thrived, ensuring food security for all.

But it wasn't just his words that inspired. It was his actions. As an advisor, he always encouraged innovative thinking and holistic approaches. His feedback, although constructive, was always delivered with kindness, making you feel valued and understood. His mentorship was not just about guiding through the technical aspects, but also about instilling values of perseverance, integrity, and dedication.

Today, as I reflect upon my memories with Dr. Swaminathan, I feel a deep sense of gratitude. Gratitude for the knowledge he shared, the values he instilled, and most importantly, for showing by example what true leadership and vision look like. His legacy is not just in the countless lives he touched through his work but also in the hearts and minds of individuals like me, who had the privilege to know him personally.

## A Role Model and Inspiration

**D**r. M. S. Swaminathan was more than a great scientist. He was a true human with his life dedicated to humanity, who delivered freedom from hunger to millions of humans. By ensuring food security he has certainly played pivotal role in rising India's global socio-economic status. His transformative approach successfully drove scientific advances through the hurdles of Bureaucracy and policy towards the farm level like never before. The scientific leadership of MSS bridged the gap between policymakers, government officials and non-government field level workers that helped Independent India rise up in the agriculture production through green revolution.

MSS was also one of the first policy



**Dr. Prafull Gadge**

CEO & Principal Scientist, Biome  
Technologies Private Limited

contributors, who spoke upon the evergreen revolution. He suggested the principles of ecology, economics, and social and gender equity can only convert green revolution into the evergreen revolution.

He always focused on implementation of best in the technology in harmony with ecological prudence. With statesman like approach, MSS worked for entire agrarian population. Dedicated to his mission, MSS contributed for agriculture and climate change through integration of scientific research and public life, emphasized on working together with gender equality and eco-friendly and economical perspective.

With his selfless vision and forward-thinking approach MSS is and will always remain a role model and inspiration to many like myself. Further rooting of his wave of change at the grassroots level for evergreen revolution will be the heartfelt homage to Dr. M.S. Swaminathan



# HOW HE SHAPED OUR PATHS

**N**avigating the remarkable life of Professor Swaminathan is no simple task, considering the myriad accomplishments and qualities he embodies. Hence, my choice to highlight his influence in this piece experiences that directly intersected with our personal and professional lives.

Looking back, even during our school days, Professor Swaminathan was nothing less than a national hero. His instrumental role in averting a potential Malthusian crisis for India cannot be overstated. The nation had found itself at a crossroads – providing food to our ever-growing population, especially with partition depriving India of key agricultural regions that were growing Rice and Wheat. Add to that was the pressure of the US PL-480 agreement. The US's attempt to use food aid as leverage due to disputes over Vietnam and our criticism of its interventions in Vietnam showcased the precarious position India was in.

It is very imaginable that if not for the early success of the Green Revolution, pioneered by Swaminathan, the nation could not have stood so strong against the United States during the 1971 India-Pakistan War. Imagine a scenario where India's reliance on PL-480 persisted during this conflict. It would have handed President Lyndon B. Johnson a potent tool against India, arguably more formidable than the deployment of the USS Enterprise. While the Soviets could counter the warship, little could have been done if millions of stomachs were still dependent on Western food aid. Thankfully, with India's newfound agricultural prowess, the nation stood strong and self-reliant.

My admiration for Dr. Swaminathan extended beyond his national contributions. His influence played a pivotal role in my decision to pursue agricultural sciences and subsequently enjoy an exciting two-decade career in Indian farming



**Shenoy Mathew**  
CSO, Arya.ag

and agribusiness.

Though I had always revered him, I never anticipated that I would correspond with this monumental figure. Yet, as luck would have it, I became one of the many students fortunate enough to exchange letters and emails with him. I had a habit of writing innovative ideas and thoughts down and sharing them with select people who influenced me. Believe it or not, most of the time, even those innocuous dabbles of a graduate student used to get a revert from Dr Swaminathan. Those were not the days when a mail communication could be sent to hundreds of people with the click of a 'reply all'. He responded to thousands like me, letters meticulously numbered and filed a rare and exceptional human quality. His willingness to engage with and respond to the thoughts of students, of course, showcases his humility. Not to forget, the excitement and motivation created by his personal touch have undoubtedly propelled countless talents in Indian agriculture.

Beyond his historical accomplishments, Professor Swaminathan's influence remains tangible. His passion for integrating women into mainstream agricultural business is especially noteworthy. While rural Indian women play crucial roles in farming, they often find themselves side-lined during key decisions, such as commodity pricing and marketing.

We have been collaborating with various development actors, and state and central government missions to help women earn their rightful place in activities and decisions in farm value chains. In all such efforts, Professor Swaminathan continues to act as a guiding light. In fact, the second chapter of the lapsed Women Farmers Entitlements Bill 2011, introduced in the Rajya Sabha by Professor Swaminathan has a provision for the creation of a 'Women Farmer Certificate', aimed to address these inequities. This would have helped women avail several entitlements which they miss as most of those require the cardholder to own land. Although there's a chorus pushing for national honours for Professor Swaminathan, actualising his vision, like the aforementioned certificate, would be the most fitting tribute.

As an avid reader of publications in agriculture, I was very interestingly going through the outcome of the Bayer Crop-Sciences global farmer voice survey. Mr Simon Wiebusch, Country head of the company also mentions that 60% of the smallholder farmers during the survey mentioned being hopeful of benefiting from access to digital technologies and modern crop protection – another arena connected to Professor Swaminathan. Even in his later years, he remained at the forefront of such technological revolutions and initiatives towards bridging the digital divide. . At Arya.ag, our several initiatives – taking farm services closer to the farm gate, pushing for the digitisation of farm services and ensuring they are accessible at the grassroots level – mirror his vision.

The legacy of Professor Swaminathan lives through several such initiatives which will power the nation towards a prosperous one - if I may take a leaf from the United Nations 2030 Agenda for Sustainable Development - leaving no one behind!





# TRANSFORMATIVE POWER OF SCIENCE AND DEDICATION

**D**r. Mankombu Sambasivan Swaminathan, affectionately known as the "Father of the Green Revolution in India," was a renowned agricultural scientist whose pioneering work has had a profound impact on Indian agriculture and food security. Born on August 7, 1925, in Kumbakonam, Tamil Nadu, Dr. Swaminathan's lifelong dedication to improving agricultural practices and ensuring food security for India's growing population has earned him numerous accolades and a place of honour in the annals of agricultural history.

## Background and Education

Dr. Swaminathan's passion for agriculture was cultivated from a young age, inspired by his family's farming background. He pursued his higher education in agricultural sciences, earning a bachelor's degree in Agricultural Science from the prestigious Indian Agricultural Research Institute (IARI) in New Delhi. He furthered his studies in genetics and plant breeding, completing his Ph.D. at the University of Cambridge, England.

## The Green Revolution

Dr. Swaminathan's most significant contribution to agriculture and India's development came through his pioneering work on the Green Revolution. In the 1960s and 1970s, India faced severe food shortages and was heavily dependent on food aid. Recognizing the urgent need to increase agricultural productivity, Dr. Swaminathan championed the introduction of high-yielding varieties of wheat and rice, which led to a significant increase in crop yields.

His efforts in promoting modern agricultural practices, including the use of improved seeds, fertilizers, and irrigation

**R K Goyal**  
Director, Business  
Verdesian Lifesciences

techniques, revolutionized Indian agriculture. This transformation not only ensured food security but also made India self-sufficient in food production, reducing its reliance on food imports.

## Contributions and Achievements

Dr. Swaminathan's contributions to agriculture and food security are multifaceted. His work in developing and promoting HYVs of wheat and rice played a pivotal role in increasing crop yields and transforming India into a food surplus nation.

Dr. Swaminathan has been a vocal advocate for sustainable and eco-friendly farming practices. He emphasized the importance of balancing increased production with environmental conservation and biodiversity preservation.

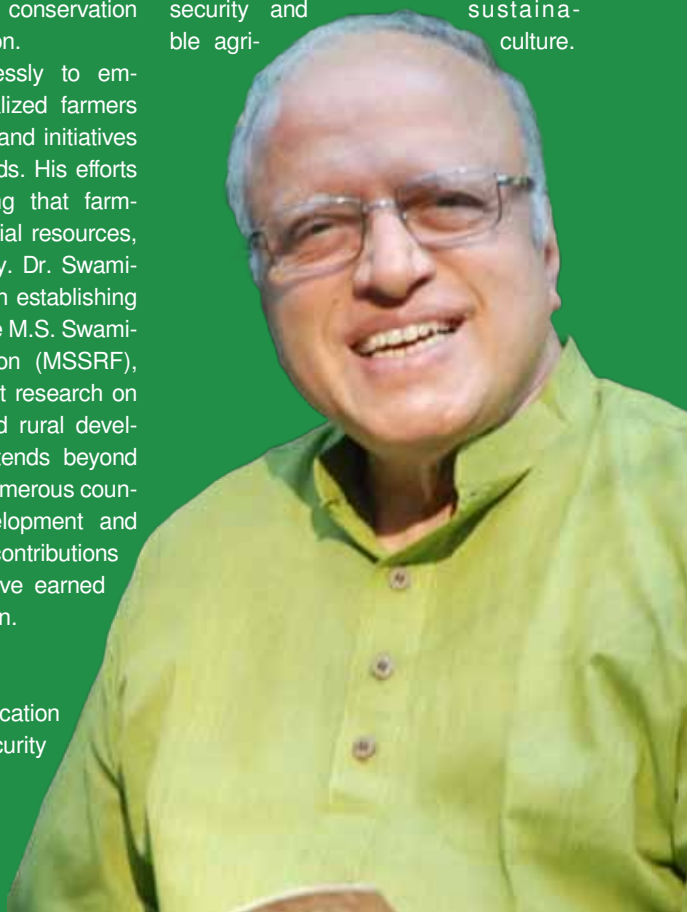
He has worked tirelessly to empower small and marginalized farmers by advocating for policies and initiatives that improve their livelihoods. His efforts have focused on ensuring that farmers have access to essential resources, knowledge, and technology. Dr. Swaminathan played a key role in establishing research institutions like the M.S. Swaminathan Research Foundation (MSSRF), which continues to conduct research on sustainable agriculture and rural development. His influence extends beyond India, as he has advised numerous countries on agricultural development and food security issues. His contributions to global food security have earned him international recognition.

## Awards and Honours

Dr. Swaminathan's dedication to agriculture and food security

has earned him numerous accolades and honours, including the World Food Prize (1987), the Albert Einstein World Award of Science (1988), and the Indira Gandhi Award for National Integration (1999). He is also a recipient of the Padma Bhushan and the Padma Vibhushan, two of India's highest civilian awards.

Dr. M.S. Swaminathan's lifelong commitment to improving agriculture and ensuring food security in India has left an indelible mark on the nation's history. His pioneering efforts in the Green Revolution and advocacy for sustainable farming practices continue to inspire generations of agricultural scientists and policymakers worldwide. Dr. Swaminathan's legacy serves as a reminder of the transformative power of science and dedication in addressing some of the world's most pressing challenges, such as food security and sustainable agriculture.





# THE FATHER OF THE GREEN REVOLUTION IN INDIA, AN ENRICHING ENCOUNTER

**D**r. M.S. Swaminathan, the "Father of the Green Revolution in India," was indeed a man whose visionary contributions revolutionized Indian agriculture and helped alleviate hunger and poverty in the country. Over the past 14 years, I have had the privilege of meeting Dr. Swaminathan on several occasions, and each interaction has been a truly enriching experience, shaping my understanding of sustainable agriculture and the importance of food security.

My first encounter with Dr. Swaminathan was during a conference in 2009 on sustainable agriculture. As he took the stage, his charismatic presence commanded attention. His deep knowledge and passion for the subject were evident as he eloquently articulated the significance of sustainable farming practices. I was captivated by his ability to blend scientific expertise with a genuine concern for the welfare of farmers and the environment.

Dr. Swaminathan's pioneering research in plant genetics and crop improvement played a pivotal role in the Green Revolution, a period of remarkable agricultural transformation in India. Through his work, he developed high-yielding crop varieties, such as the dwarf wheat and rice strains, which sig-



**Debabrata Sarkar**  
VP, Algaenergy

nificantly boosted agricultural productivity and helped feed the burgeoning population. His innovative techniques, including the use of hybrid seeds, modern farming practices, and the adoption of technology, transformed India from a food-deficient nation to one with surplus production.

During our interactions, it became apparent that Dr. Swaminathan's commitment to the welfare of farmers was unyielding. He firmly believed that agriculture should be a sustainable and profitable livelihood, and tirelessly advocated for the empowerment of small and marginal farmers. He emphasized the need for equitable access to resources, including land, credit, and technology, to ensure their economic well-being. His initiatives, such as the establishment of farmer-friendly policies, the promotion of organic farming, and the encouragement

of farmer cooperatives, have had a profound impact on rural communities.

Dr. Swaminathan's vision extended beyond increased agricultural productivity. He recognized the importance of environmental sustainability and the preservation of biodiversity. His advocacy for organic farming methods, conservation of natural resources, and the protection of ecosystems exemplifies his commitment to maintaining a harmonious balance between agriculture and the environment. His efforts have paved the way for sustainable agricultural practices that mitigate the adverse effects of climate change and ensure the long-term viability of farming.

## INSPIRATION AND LEGACY:

Interacting with Dr. Swaminathan over the years has been an immense source of inspiration. His unwavering dedication, humility, and genuine concern for the welfare of society continue to motivate countless individuals, including myself, to work towards a more sustainable and equitable future. His contributions have earned him numerous accolades, including the prestigious World Food Prize and the UNESCO Mahatma Gandhi Prize for the Advancement of Non-violence.

In conclusion, my encounters with Dr. M.S. Swaminathan, the Father of the Green Revolution in India, have been personally enriching and transformative. His pioneering scientific research, commitment to farmers, and advocacy for environmental sustainability have shaped my understanding of the profound impact that agriculture can have on society. Dr. Swaminathan's legacy serves as a constant reminder of the power of innovation, compassion, and perseverance in addressing the complex challenges of food security and sustainable development. He will always be an immense motivator in the core of my heart.







# INDIA'S GREEN REVOLUTION: FROM FAMINE FEARS TO AGRI-FOOD SUPERPOWER

In a remarkable journey spanning just a few decades, Independent India has emerged as a global agri-food superpower, with agriculture exports reaching a historic high of USD 50 billion. This success story, however, was far from certain half a century ago when the nation faced the specter of acute food shortages and famine.

The 1950s and 60s witnessed India's population growth accelerating rapidly, coupled with escalating food demands. Unfortunately, recurrent droughts severely hampered agricultural production. This dire situation forced India to rely on food imports from developed nations. Yet, this was an unsustainable solution, and international media, governments, and organizations predicted a grim future for the world's largest democracy.

The stakes were high. No nation can maintain its democratic values in the face of famine and public disorder. With agriculture contributing half of the country's GDP, the pressure on this sector was immense. It seemed as though India was on the brink of disaster, with the basic human rights of its citizens, including access to food and shelter, at risk. However, as the ancient Greek philosopher Plato once said, "necessity is the mother of invention." India's salvation came in the form of the



**Kunal Prasad**

Co-Founder & COO, Cropin

Green Revolution. This transformational shift was made possible through the unwavering political will and the support of innovative minds.

At the forefront of this historic movement was the legendary Dr. MS Swaminathan, who recently left us. Dr. Swaminathan was not merely a visionary who conceptualized and led the Green Revolution; he was a savior who helped India navigate a perilous period in its history. Thanks to his efforts, India transitioned from a food-deficit nation to a food-surplus powerhouse. Today, India boasts the title of the world's largest sugar-producing country and holds the second position in rice production. It also ranks as the second-largest wheat producer and leads in the production of numerous other crops and grains.

It is a reminder that, even in the face of seemingly impossible challenges, a nation's determination and the brilliance

of its thinkers can lead to a brighter future. Dr. MS Swaminathan's legacy will forever be engraved in India's history as the man who helped the nation rise from the brink of famine to its current status as an agri-food superpower.

Just as Dr. Swaminathan's time called for a revolution in agriculture to combat starvation, today's food systems grapple with climate disasters, geopolitical tensions, food wastage, and supply chain disruptions that spare no nation. As we remember this visionary, let us pledge to confront and conquer these challenges in the years ahead. Every unique challenge requires tailored solutions, and now is the time for another profound transformation in our food systems. In this digital age, the world's oldest and most critical sector, agriculture, must embrace digitalization.

The agri-food transition, driven by necessity, has evolved from the Green Revolution to the White Revolution and is now poised for a Digital Revolution. This transformative phase simultaneously focuses on achieving precision, efficiency, and sustainability, marking a vital shift. In honor of the legacy of this great visionary, let us embark on a vital journey of digital transformation, ensuring that our actions today make future generations proud of the world we leave behind!



**Sahil Malik**

Secretary General

National Biostimulant Industry Forum (NBIF)

"Dr. M.S Swaminathan's incredible work on the Indian Green Revolution has had a profound impact on our nation's agricultural landscape. His dedication to improving food security and the livelihoods of countless farmers is truly inspiring.

His vision and contributions have paved the way for sustainable agriculture in India, and his legacy continues to thrive. Thank you for your unwavering commitment to our nation's growth and prosperity.



# A FRIEND TO FARMERS

**D**r. MS Swaminathan's recent passing on the 28th of September has left a profound void in the world of agriculture, but his legacy continues to inspire and guide not only farmers like me but also agri-tech startups across the nation, policy makers and agricultural scientists. He was an incredible person who made a big difference in Indian farming. His ideas and work have left a lasting impact on us.

Dr. Swaminathan was more than just a scientist and an agricultural expert; he was like a guiding star for farming community. He was a compassionate visionary who understood the intricate web of challenges that farmers faced. He believed that food security was the founda-



## Parikshit Sampat Sai

Founder & CEO – Pranam Kisan  
(Cofounder – Hello Farmers, Green Collar India and Cow Currency)

tion upon which the prosperity of a nation rested. His pioneering work in introducing high-yielding crop varieties, known as the Green Revolution, revolutionized Indian agriculture and helped us grow more food and become less dependent

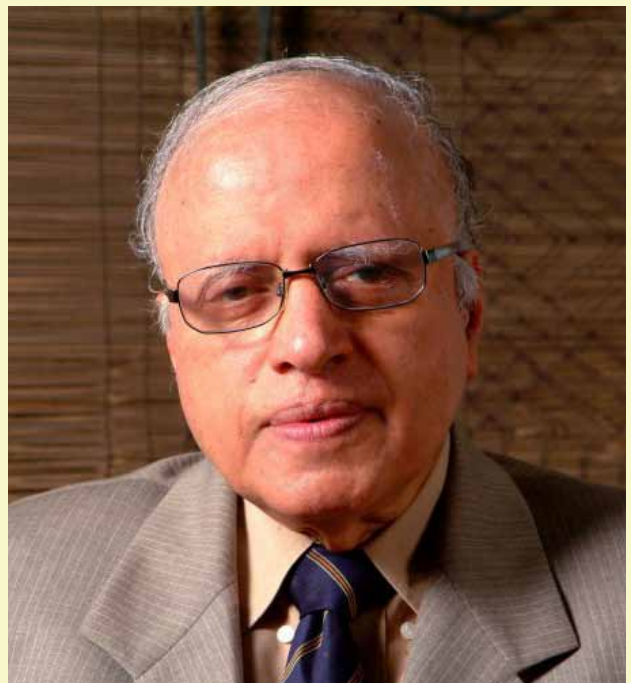
on others.

As a farmer, I can attest to the transformative impact of the Green Revolution. It wasn't just about increasing yields; it was about safeguarding our livelihoods, putting food on our tables, and giving us hope for a brighter future. Dr. Swaminathan's commitment to small and marginalized farmers was unwavering. He championed the cause of farmers' rights, emphasizing the need for equitable access to resources and technology.

For agri-tech startups like ours, Dr. Swaminathan's contributions serve as a guiding light. His emphasis on sustainable agriculture resonates deeply with us. His advocacy for the conservation of agro-biodiversity and the promotion of organic farming principles aligns perfectly

Dr. MS Swaminathan, a renowned agricultural scientist, and visionary leader, has shared numerous insightful thoughts throughout his career.

- "The aim of sustainable agriculture is not only to safeguard the capacity of the land to produce quality food, fiber, and ecosystem services, but also to enhance the livelihoods of farmers and their communities."
- "Farming is not just a way of living; it is a way of life. The farmer is not just a producer of food; he is a producer of energy."
- "The best way to ensure food security is to empower the people who produce the food."
- "Hunger and malnutrition have no friends. They do not discriminate between young and old, men and women, rich and poor. We must make it a national and global mission to conquer hunger."
- "The Earth is the mother of all that exists, and preserving her health and well-being should be our foremost priority."
- "Agriculture is not just about farming; it is about nurturing life and preserving the planet's resources for future generations."
- "Technology is a powerful tool, but it must be used wisely and with a deep understanding of its impact on the environment and society."
- "In the journey towards sustainable agriculture, the road may be long and challenging, but the destination is a world where hunger is eradicated, and the Earth thrives."



- "Farmers are the custodians of our food security and environmental sustainability. Their knowledge and wisdom are treasures we must value and support."
- "The Green Revolution was a turning point in our agricultural history, but now we must focus on an 'Evergreen Revolution,' one that sustains us without harming our planet."



with our mission to develop technology that not only enhances productivity but also preserves the environment and respects our traditional farming practices. Dr. Swaminathan's vision of an "Evergreen Revolution" is something we believe in – it's about making farming better without hurting the planet.

One of Dr. Swaminathan's most remarkable contributions was his focus on empowering rural women. He recognized their pivotal role in agriculture and tirelessly worked to ensure that they received the recognition and support they deserved. As a farmer, I've witnessed firsthand the incredible resilience and dedication of our women farmers, and Dr. Swaminathan's efforts to amplify their voices and improve their access to resources have been instrumental in our agricultural progress.

In recent times, as an agri-tech startup, we've drawn inspiration from Dr. Swaminathan's call for harnessing technology to address the challenges of modern agriculture. His vision of an "Evergreen Revolution" emphasizes the importance of sustainable practices, which we are incorporating into our digital solutions. We are developing tools and platforms that help farmers like me make informed decisions, manage resources efficiently, and adapt to the changing climate, all in line with Dr. Swaminathan's principles.

Dr. Swaminathan's legacy is not confined to the annals of history; it lives on in every grain of rice, every stalk of wheat, and every innovation that empowers farmers across India. He was not just a scientist; he was a friend to farmers and a great thinker. We owe a debt of gratitude to this visionary leader who dedicated his life to transforming agriculture and improving the lives of millions. We will keep his ideas alive and continue to make farming better for everyone.

We, as farmers and agri-tech enthusiasts, are committed to carrying forward his vision and ensuring that Indian agriculture remains vibrant, sustainable, and farmer-centric. Dr. Swaminathan, you will be dearly missed, but your legacy will forever bloom in our fields and our hearts.

# A CHAMPION FOR THE UPLIFTMENT OF FARMERS

## Rajiv Mukhilan

A Humble Environmentalist

We at Trishul Biotech -Chennai are deeply saddened to hear about the passing of Dr. MS Swaminathan, a true luminary in the field of agriculture and a tireless advocate for the welfare of farmers. Dr. Swaminathan's departure marks the end of an era, but his legacy will continue to inspire generations to come.

Dr. Swaminathan's contributions to agriculture, particularly his pivotal role in the Green Revolution, have transformed the landscape of farming not only in India but also worldwide. His visionary ideas, innovative research, and unwavering dedication played a crucial part in significantly increasing food production and alleviating hunger and poverty in countless communities.

Beyond his groundbreaking scientific work, Dr. Swaminathan was a champion for the upliftment of farmers and Agriculture sustainability. He understood that the prosperity of a nation hinges on the well-being of its farming

communities. His advocacy for sustainable and equitable agricultural practices has left an indelible mark on the Indian agricultural sector, fostering a more inclusive and sustainable future for farmers.

As we mourn the loss of this remarkable scientist and humanitarian, let us also celebrate the extraordinary life and achievements of Dr. MS Swaminathan. His legacy will continue to guide us in our pursuit of a world where no one goes hungry, and where the toil of farmers is recognized and honored.

During this difficult time, our thoughts and prayers are with Dr. Swaminathan's family, friends, and colleagues. Please accept our deepest condolences, and may his soul rest in eternal peace.

With heartfelt sympathy

"Dr. M.S. Swaminathan's legacy in the Green Revolution goes beyond history. His visionary leadership not only shaped my educational alma mater, CCS Haryana Agricultural University, but also set a new paradigm for agricultural productivity and food security in India. As we navigate the path forward, the Plant Based Foods movement draws inspiration from his monumental contributions, charting a course for a sustainable and vibrant future."



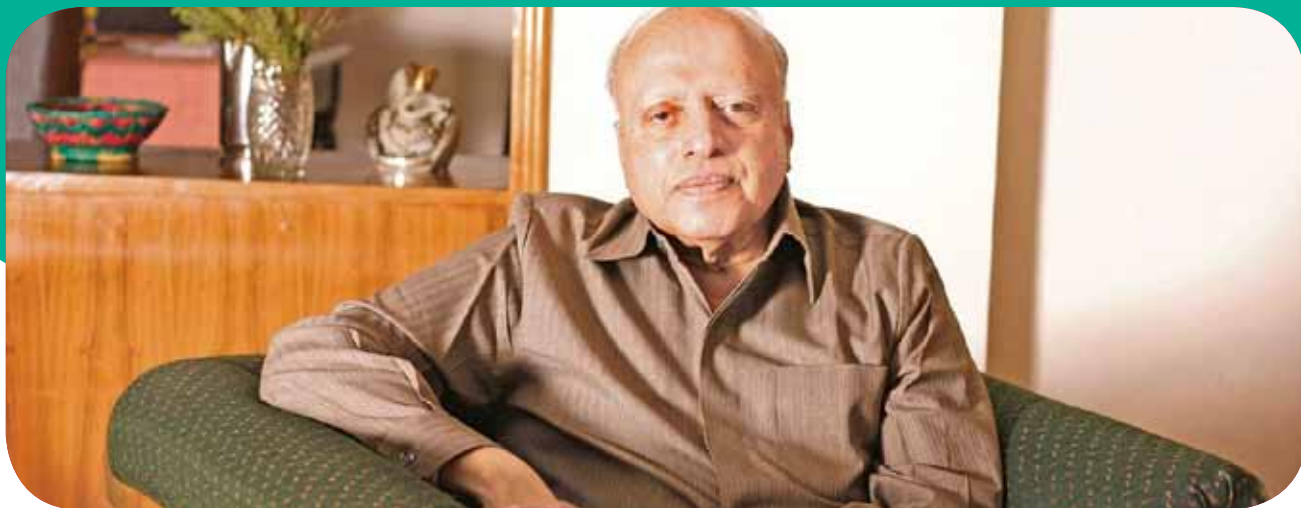
## Sanjay Sethi

Executive Director, Plant Based Foods Industry Association (PBFIA)





# Remembering DR. M.S. SWAMINATHAN



In the annals of history, there are individuals whose tireless efforts and unwavering dedication have left an indelible mark on society. Dr. M.S. Swaminathan is undoubtedly one of those remarkable individuals, whose lifelong commitment to agriculture, food security, and sustainable development has not only transformed India but has also inspired the world. My personal encounter with Dr. Swaminathan during his visit to the Gandhi Auditorium at GB Pant University of Agriculture and Technology in my second year of studies profoundly influenced my perspective on his role and impact.

Dr. Swaminathan's most notable contribution lies in spearheading the Green Revolution in India during the 1960s and 1970s. At a time when India was grappling with food shortages and famine, he championed the adoption of high-yielding crop varieties, modern farming techniques, and agricultural technology. The result was nothing short of miraculous—crop yields soared, food production increased exponentially, and India began its journey toward food self-sufficiency.

My first-hand experience with Dr. Swaminathan at the Pantnagar was noth-



**Rajat Vardhan**  
CEO, AGRONXT

ing short of awe-inspiring. After delivering a captivating speech, he didn't retreat backstage but instead, he came forward to interact with students like me. His passion for agriculture and food security was palpable as he posed intriguing questions, eager to know about our interests, passions, and knowledge of the subject. It was in that moment that I realized the depth of his commitment to inspiring the next generation of leaders in agriculture.

During that interaction, Dr. Swaminathan wasn't content with merely sharing his wisdom; he urged us to leave a larger impact on the world. His words resonated deeply as he encouraged us to be agents of change, to use our knowledge and passion to address the pressing issues of our time, particularly food security.

He reminded us that one person, armed with passion and dedication, can indeed make a difference in the world.

Dr. M.S. Swaminathan's legacy is a testament to the power of unwavering dedication and passion in addressing one of humanity's most pressing challenges—food security. His work continues to inspire generations of scientists, policymakers, and advocates, entrepreneurs including myself, to strive for a world where no one goes to bed hungry. The memory of his visit to Pantnagar 20 years ago and the passion he ignited in us as students serve as a constant reminder of the impact that a single individual can have on the world.

Dr. M.S. Swaminathan's relentless pursuit of food security, sustainable agriculture, and poverty alleviation has not only transformed India but has also inspired a global movement towards a more food-secure and equitable future. In a world where hunger and malnutrition persist, Dr. Swaminathan's legacy serves as a guiding light, reminding us all that positive change is possible when we are driven by a passion to make the world a better place for everyone, a lesson I carry with me every day while leading AgroNxt.

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# HATCHING HOPE FOR ECONOMIC SUSTAINABILITY OF SMALL HOLDER FARMERS

## Inaugural Session

Hatching hope for economic sustainability of small holder farmers' - a summit focussed on enhancing the livelihood opportunities of shareholder farmers was conducted on October 18 2023 at Holiday Inn, Aerocity New Delhi. Dr. Abhijit Mitra (Animal Husbandry Commissioner), Sanjeev Kumar Gautam- (Director, Small Farmer Agribusiness Consortium), Ms. Rina Soni( Executive director, Heifer India), Mr Nishant Gupta ( Social and environmental Impact advisor to Walmart Foundation), Dr. Dipanwita Chakraborty, (Regional Director, Corporate Responsibility & Sustainable Development, Asia Pacific, Cargill) and Dr MJ Khan (Chairman, Indian chamber of food & agriculture) lighted the ceremonial lamp and set in motion the events for the day.

While welcoming the audience Ms Rina Soni reiterated the commitment of Heifer International towards small holder farmers and their communities and their resolve in uncovering opportunities for locally-driven, sustainable solutions.

Mr. Sanjeev Kumar Gautam shared the relevance of the government's flag-



ship programme of promoting formation of 10,000 FPOs and the progress achieved so far. He said that the Cluster Based Business Organizations were supposed to help in the formation of FPOs. He said that we should work for few problems that FPOs face like lack of logistics, right place to market the produce and packaging.

Dr. Abhijit Mitra, talked about Women empowerment. He observed that 70% of the total agriculture work force is com-

prised of women and 1/3rd of whole poultry industry is backyard poultry. He suggested that the organizations Instead of working on the same area should divide it and work on it differently. He also pointed out the relevance of biosecurity and the need to create market for linkages.

Mr Nishant Gupta stressed on the role of Walmart in creating impact in the small holder farmers ecosystem. He opined that FPOs are a great instrument and are becoming the bridges between the smallholder farmers and the market. He shared that they have committed to reaching about a million farmers by 2028.

According to Dr MJ Khan, FPOs are very powerful institutions created at the village level. He pointed out that have proved that smallholder farmers are more productive by unit of land and we can empower them with technologies. He also pointed out the need to enable farmers with the new developments.

## Valedictory Session

Sh. Purushottam Rupala ji, Hon'ble Union Minister of fisheries, Animal Husbandry and dairy, Govt. Of India was the chief chief guest of Valedictory Function. Ms Rina Soni (Executive Director, Heifer India), Mr Prabhakaran Rajarathinam (Programme Director, Heifer India and Ms. Dipanwita Chakraborty (Regional Director, Corporate Responsibility & Sustainability Development, Asia Pacific, Cargill) were also present.

Mr. Prabhakaran Rajarathinam- Programme Director, Heifer India elaborated on the Accelerated Income Project, a groundbreaking initiative that addresses the challenges faced by small and mar-





## THE SESSIONS CONDUCTED DURING THE EVENT WERE

Session 1: "Leveraging poultry power in women entrepreneurship". The session panellists were Mr. Amit Kumar Patjoshi -CEO, Palladium; Mr. Suresh Chitturi-MD, Srinivas Farms; Mr Saikesh Goud-Co-founder & CEO, Country Chicken; Ms M Mahitha-Additional Director, SERP, Andhra Pradesh and Dr. Chandrasekhar -Manager- Marketing, Kemin Industries. The session moderator was Ms Dipanwita Chakroborty, Regional Director, Corporate Responsibility & Sustainable Development, Asia Pacific, Cargill

Session 2 - "Stories of success and struggle of FPOs". The session panelists were Mr D Ramesh- Deputy CEO, Andhra Pradesh Food Processing Society; Mr Rajshekhar- Small holder farmer & BOD, Rytu Nestam, FPO, Narpala; Ms Singaramma-Tribal CAVE- Rampachodavam FPO; Ms Rajeshwari- BOD, Pamidi FPO and Ms Maheshwari -BOD of Peddavaduguru FPO & MSME Entrepreneur. The session moderator was Anand Naik- Senior Program Officer - Business Development, Heifer India.

Session 3 – "Scaling up farmer producer companies and building sustainable ecosystem for FPOs". Panellists were Mr Nishant Gupta- social & environmental Impact advisor to Walmart Foundation; Mr Subhash Kiran, Deputy CEO, Andhra Pradesh Food Processing Society, Govt of Andhra Pradesh; Dr Dinesh Chauhan- Vice President, Dehaat; Mr Anil Pareek- Chief Strategy Office, Lead Connect Services Pvt Ltd and Mr. Anand Chandra- Co-founder, Arya Ag. The session moderator was Dr SK Malhotra- Director DKMA, ICAR.

Session 4 - " Role of corporate sector in building sustainable livelihoods for small holder farmers". Panelists were Mr Ravinder Grover -Regional Coordinator -Asia, harvestplus- IFPRI; Mr Gaurav Sharma- Global Agribusiness Research Lead, Agriculture; Mr Ajeet Chahal- Head Commercial Key Accounts & Community Lead Smallholder Initiative, India, Bangladesh and Sri-Lanka, Bayer; Mr Subhash Thakur- National Sales Head, IPL Biologicals and Mr Dhananjay M Edakhe- National Business Head, Inera. Mr Abhimanyu Sahu- Director, Schneider Electric was the moderator.

Session 5 - "Microfinance and beyond: Exploring Financial Solutions for Smallholders and Leveraging Technology to reach rural farmers". Panelists were Ashudeep Garg -Senior President, Inera; Mr Neelam Gupta- Head Agriculture , JB Boda Group; Ms Meenakshi Meena-AGM, NABARD; Mr Abhishek Shah- Digital Inclusion+South Asia, Mastercard and Ms Megha Desai -Lead-National Farmer's Forum Network, Sewa International. The session moderator by Mr Mashar Velapuratha-Managing Director, AFC India Ltd.

ginalized farmers in other countries. He remarked that the project has improved various aspects such as feeding practices 89%, shelter and poor construction adoption 92%, etiquette management and vaccination usage 77% and waste management practices 63%. He also said that a majority of FPO members have adopted breeding methods, improved egg collection and implemented biosphere methods. The project has also created employment and entrepreneurship opportunities.

Unveiling the special report by Heifer India on Hatching hope- Acceleration Income Sh. Parshottam Rupala ji- stated that, "All over the world, workers are paid hourly. But only our Indian farmers work throughout rigorously even after facing several losses. Such type of farmers can be found only in India and at no other place. Organisations should focus on how their company will benefit the small holder farmers." He also said that it is good to know that now poultry is also becoming organic with products like organic eggs and organic chicken.

### FPOS PARTICIPATED INCLUDE

- Rampachodavaram Agriculture & Allied Producers Mutually Aided Cooperative Society Limited
- Gangavaram Agriculture & Allied Producers Mutually Aided Cooperative Society
- Addateegala Agriculture & Allied Producers Mutually Aided Cooperative Society
- Narpala Rythu Nestham FPCL
- Tanakallu Chaitanya FPCL
- Rolla Kamdhenu FPCL
- Pamidi Mahila Rithu Paraspara Sahayaka Sangam Ltd
- Peddavadugurumahila Riithu Paraspara Sahayaka Ltd
- Dulal Farmer Producer Company Limited
- Thakurmunda Farmer Producer Company Limited
- Maa Durgadevi Producer Company Limited

"Small farmers need technologies to link their products with the industries and we should focus and work on that. Farmers



are worried about their product's value. Organisations should work on solving this problem and if they need any help from Government, we are ready to provide that. Among all the high value crops like rice and maize, dairy itself produces the maximum profit. India itself produces approx 10lakh tonnes of milk and is the first one in terms of production and also in per capita availability."

He also facilitated the 10 FPOs from the states of Andhra Pradesh and Odisha working in the filed of poultry and goat-ery.



# GLOBAL ICON

In the current socio-political situation, considering particularly the agrarian challenges of the last few years, the passing away of Prof M S Swaminathan, is the end of an era that calls for a serious introspection.

If the country today is in a position to provide eighty percent of its subjects monthly 'ration', free of costs, its seed were sown in early sixties, when Dr Swaminathan and his team toiled day in day out - not only in the experimental fields of IARI, Pusa, but also in the spirit they had taken up a mission against all odds. Today, the world, of course, knows it as the Green Revolution.

## A NATION WITH DIMINISHED FOOD STOCKS

Today's generation may not have any idea that a day came in the life of this nation, in the early nineteen-sixties, within less than one and half decade after India's independence, that the her food stocks were left for only fifteen days worth of supply .

The then Minister of Agriculture, C. Subramaniam, called an urgent meeting of all his officials, in his headquarters in Krishi Bhawan. It was decided that an immediate request be made to the American President to help divert ships carrying food grains towards India, if the countries they were originally headed for can wait for a few days more.

Situation was so grim that the ships were even unloaded mid-sea, because of non-availability of berths at the Kandla port, with the help of trawlers and rushed by road and rails to the needy areas.

Having landed in Delhi, during the days of extreme political turmoil, his first exposure to the newly christened capital of the country, New Delhi, was scars of major communal clashes scattered all the way from New Delhi station to the

## Dinesh Lakanpal

Argora Films & Media Inc./Lakanpal Productions

destination he was heading for.

Coming from a family of great nationalistic roots, as a young man, he got selected to be an IPS officer too, but destiny had something else for him, and for the emerging nation too.

A lot of firsts go to his credit, as he grew in his career and a lot more has been written about him, too.

## MEETING JAWAHAR LAL NEHRU

But having interacted with him, over nearly one and half decade, and having worked with him on five documentary films, I feel singularly fortunate to have often spent quality time with the giant of a human being he was and want to share some very exciting moments of his early life he has shared with me.

In 1961, he became the second agricultural scientist to get Shanti Swaroop Bhatnagar Award. Dr Toppur Seethapa-

**Nehru had just one question and asked straight - "Young man, the other day, I have given you an award. Can you explain to me what it was for?"**

thy Sadasivan, was the first one to get in 1960, in Biological Sciences.

The award function was honored by the then Prime Minister of India, Pt Jawahar Lal Nehru.

However, it so happened that within a fortnight of the award function, Dr B P Pal, the then Director, IARI received a call.

The call was made on behalf of Prime Minister Nehru, who wanted to meet the young agriculture scientist, he himself had given the award to, a few days ago.

The boss, Dr B P Pal could have opted to accompany, but those were different days. He just provided his official car to the young scientist, on the designated day and time to go and meet the PM.

While he was seated, in the waiting area for Nehru to come, Indira Gandhi, entered first and personally served the tea and snacks.

And the agenda got revealed only when the three got seated in a silent and serene corner of the erstwhile Teen Murti Bhawan, the official residence of the then PM, that has now been rechristened the Prime Ministers Museum and Library Society by the current dispensation.

Nehru had just one question and asked straight - "Young man, the other day, I have given you an award. Can you explain to me what it was for?"

There is a lot more, than what Nehru wanted to know, that the country must also, about people like Prof Swaminathan. There are not very many.

## RECLAIMING GLOBAL IDENTITY

In the efforts behind the Green Revolution, led by Swaminathan and his team, lies the basic authority of an independent country, that turned the nation from begging bowl to a food surplus one within less than a decade. The power and the positioning



thus gained, brought a lot of moral courage also for not only every Indian, but predominantly for its leadership, that led to a drastic change in the global conceptions about India.

Had that not happened, we would have remained a demoralised nation, in the wake of humiliating defeat in 1962 China attack.

It can be said that neither Shastri could have led with exemplary leadership to keep moral spirits of Indian armed forces high that defeated Pakistan in 1965, nor Indira Gandhi would have the fundamental courage to change the global map by helping Bangladesh, emerge as a new nation. And of course, our nuclear and ISRO related achievements would have gone wanting.

### **HONOURING SWAMINATHAN**

Those who have honored sportsmen or musicians or even some, allegedly ignored names by the earlier or present political dispensations and as a retaliatory move, confer such awards selectively, to settle some strange political scores, none of them, unfortunately, ever found Swaminathan worthy for Bharatratna for the reason they may be knowing best. C. Subramaniam, the then minister, of course, did get one.

It is also believed that there was a possibility of having his name getting clubbed for the Nobel Prize, along with Dr Norman Borlaug, the only agricultural scientist to have been honored with it, for his global contributions to try end world-hunger, in the name of peace, as the agriculture domain still didn't have any.

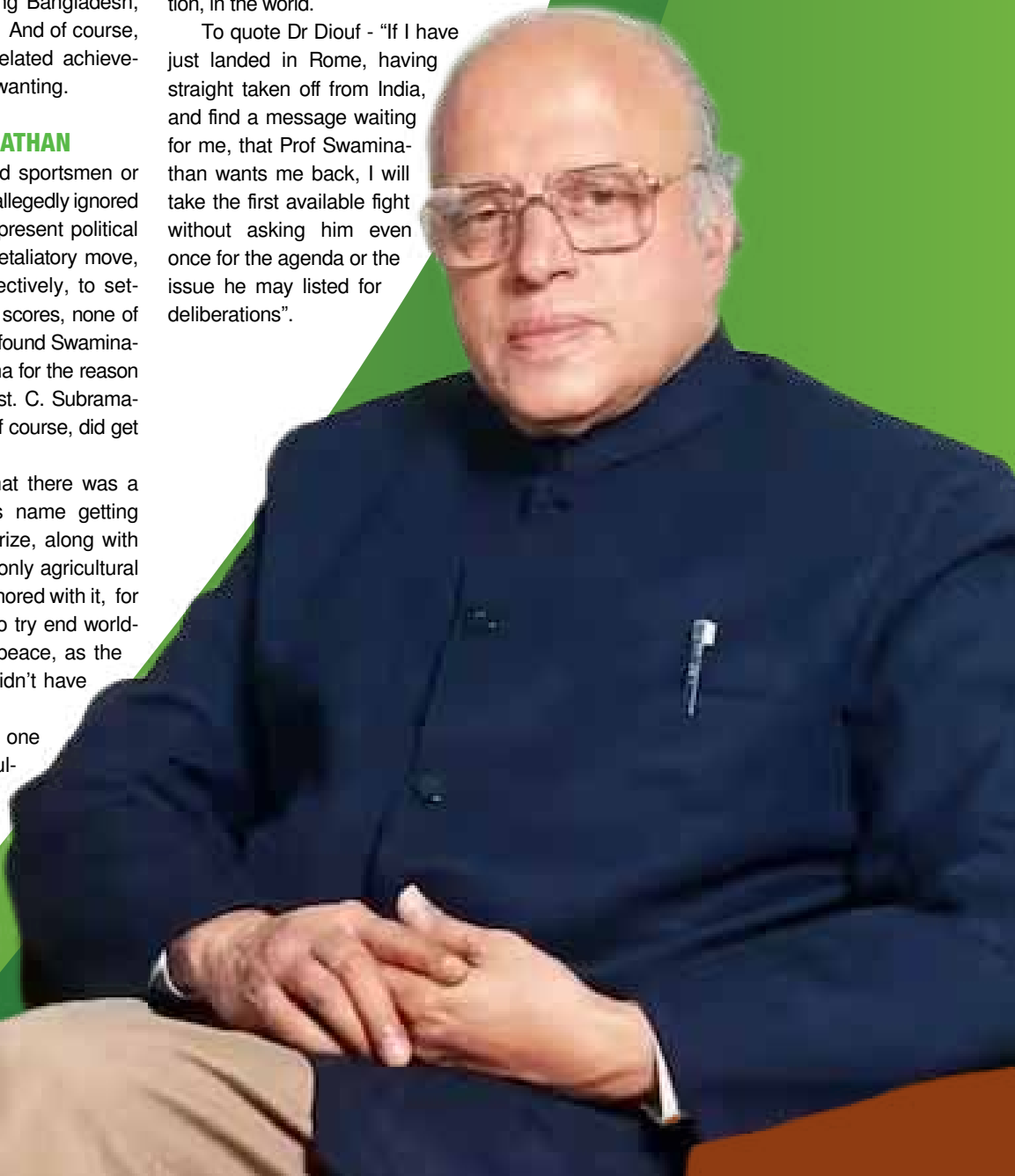
Borlaug tried to get one established in the agriculture domain also, but the Nobel committee did not accept his ar-

guments. That led him to establish the World Food Prize and the first person he found most deserving to be honored with that was none other than Dr. M S Swaminathan. Can we call it poetic justice and the same award today is considered no less than a Nobel Prize.

### **GLOBAL AURA**

Nevertheless, his global stature was beyond borders or any political affiliation. To quote just one incident, the writer of this tribute has been privy to a humble submission by Late Dr Jacques Diouf, former Director General, Food and Agriculture Association, FAO, Rome, the top global agricultural organisation, in the world.

To quote Dr Diouf - "If I have just landed in Rome, having straight taken off from India, and find a message waiting for me, that Prof Swaminathan wants me back, I will take the first available flight without asking him even once for the agenda or the issue he may listed for deliberations".







**W**it was heart breaking news that Professor M.S. Swaminathan recently passed away at the age of 98 years. He had contributed a lot to the agricultural sciences. He is known as "Father of Green Revolution in India". He first recognized the potential of the Mexican dwarfs wheat; which made possible Green Revolution in the country. He was committed to eliminating hunger in India and the world. Dr. Swaminathan worked very close with many former Prime Ministers of India for the success of the Green Revolution in India and paved the way for quantum jump in food production.

His advocacy of sustainable agriculture makes him an acknowledged world leader in the field of sustainable food security. He also worked closely with Norman E. Borlaug, an American scientist and 1970 Nobel Laureate on developing high yielding wheat varieties. Prof. M. S. Swaminathan was an eminent plant



**Prof. N. P. Singh**

Vice Chancellor  
BUAT, Banda

geneticist and also Founder Chairman and Chief Mentor of a non profitable organization named as M. S. Swaminathan Research Foundation, Chennai, actively engaged in research for sustainable agriculture, of the move from the 'green' to an 'evergreen revolution' to ensure food and nutrition security for all.

He also has served as the Chairman/ President of many committees like Gov-

ernment of India's National Commission on Farmers, Pugwash Conferences on Science and World Affairs, High-Level Panel of Experts (HLPE) of the World Committee on Food Security (CFS), Member of the Indian Parliament (Rajya Sabha), Former Director General of Indian Council of Agricultural Research and International Rice Research Institute, etc. He was the recipient of the first World Food Prize for his leadership in India's Green Revolution and the and numerous other national and international awards including Padma Vibushan, Ramon Mag-saysay award. I got opportunity to meet with him a number of times when I was the student at Division of Genetics, IARI, New Delhi and also take guidance when I joined as ARS scientist at ICAR. His guidance and blessings had made me what I am today. I salute him for his great contributions to the society. May Almighty God rest in peace" to his holy soul."

**P**rof. M.S. Swaminathan, a great Cytogenetist, Global leader of Green Revolution and a social ecologist transformed India through his research in rice and wheat, from the mouth to ship state to a food surplus country through his sheer commitment, intelligent planning and execution. For ICAR-Sugarcane Breeding Institute, one of the oldest Agricultural Institutions in India, he was a mentor, advisor and a well-wisher. He visited this Institute often during his service at ICAR and subsequently saw the Institute releasing wonder varieties from time to time which transformed India as the 2nd powerful country in sugarcane and sugar production. He commented "SBI at Coimbatore has an enviable world record of achieving a very high rate of return from the small investment made in the Institute". His guidance and blessings



**Dr. G. Hemaprabha**

Director  
ICAR-Sugarcane Breeding Institute  
Coimbatore

were always there for ICAR-SBI; during the Centenary in 2012 as well as in the International Symposium to commemorate 100 years of release of the first commercial variety in 2017, he blessed the Institute and gave his words of wisdom, which gave the required momentum to

the Institute's continued contribution to the nation. At present, the Institute's varieties cover over 80% area in the country for which the Institute bows before this Legendary Leader. He had acclaimed sugarcane as a symbol of green power of the Tropics about 70 years back and his words have come true today when sugarcane has transformed into a wonder plant with multi-uses including sugar, bioethanol, electricity etc. contributing to country's sugar and energy self-reliance.

He was a true patriot who made transformational changes for the country's food security and he continued his Mission through an evergreen revolution to battle climate change while maintaining the ecological balance, women empowerment and has left a big legacy not only for India but to the World to be a beautiful place rid of hunger and poverty.



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# Announcement

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For Participation, Please Contact

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