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INDIAN COUNCIL OF FOOD AND AGRICULTURE

SOUVENIR

11TH GLOBAL AGRICULTURE LEADERSHIP SUMMIT AND LEADERSHIP AWARDS 2018

Connecting Farmers to Market

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11TH GLOBAL AGRICULTURE LEADERSHIP SUMMIT AND LEADERSHIP AWARDS 2018

Connecting Farmers to Market

Even after decreased contribution to GDP, agriculture still continues as a major livelihood provider around the globe, especially in the developing world; and hence responsible for economic growth and social transformation. Mammoth work has been done in agriculture in the recent years on the part of the industry, NGOs, CGIAR bodies and institutions, supported by the Government and international organisations to transform the agriculture and allied sectors. The most significant development in the last one decade has been the emergence of large number of start-ups in food and agriculture, across the value chain spectrum, completing the chain from farm to fork. In India, the Government schemes like ACABC, Startup India,Standup India,Skilled India and launch of MUDRA Bank and such other initiatives have accelerated the value creation and entrepreneurship activities in the farm sector and connected the same to the markets and the consumers through innovative agribusiness models. Connecting farmers effectively with trade, markets and value added activity holds the key to their prosperity. In this context, Government of India has launched eNAM to help in marketing and also the program towards doubling farmers incomes by 2022. There is need for understanding and adopting successful global models and also fostering farmer industry-institution partnerships towards helping farmers gradually transforming from farmer to farm entrepreneurs. The 11th Global Agriculture Summit 2018 aimed to provide the platform towards facilitating farmers connect with the technologies, markets, industry, institutions and the Governmental programs. Indian Council of Food and Agriculture took the opportunity to discuss the constraints and opportunities for a global momentum towards making agriculture high-tech, market linked and value added for best returns to farmers and to all stake-holders across the food value chain. ICFA brought together eminent personalities of Indian and global agriculture, food and agribusiness sectors on one platform on the event of 11th Global Agriculture Summit 2018.This spectacle was combined with the presentation of 11th Global Leadership Awards and the launch of Agriculture Year Book 2018. Important individuals and institutions, who played pivotal role in building new faiths and ambitions in agriculture were by the Global Leadership Awards 2018. On this occasion, ICFA and Agriculture Today also released the Agriculture Year Book 2018 for an exhaustive appraisal of activities in food and agriculture round the year. The event observed the participation of everyone anyhow associated with food and agriculture via business, research, academics, media, farming, trade, development, policy making, implementation and any other medium across the globe.

SUMMIT DAY 1

Inaugural Ceremony

The 11th Global Agriculture Leadership Summit was inaugurated by Prof. MS Swaminathan by lighting the lamp with other dignitaries, Shri Sanjay Aggarwal, Secretary Agriculture, Ms Renu Swaroop Secretary DBT, Mr. Alok Sinha DG ICFA, Dr. Subbarao, South Asia Leader Corteva, Dr. Ruby Rabbinge, Food Secretary Netherlands and H.E. Phạm Sanh Châu Ambassador of Vietnam. An audio-visual film on Global Agriculture Leadership Summit showcasing the journey since its inception in 2008 was played.

Dr M J Khan, Chairman ICFA

We lcomed all the dignitaries and expressed deep gratitude to Prof Swaminathan for his blessing and continuous support for GALS since 2008.

Dr Khan expressed his concern over three major challenges to the Indian agriculture. Firstly, the food security poses a big challenge to Indian agriculture. As the resources are limited and population is rising it is essential to ensure sufficient food for all in this face of changing climate pattern. He stressed that providing sufficient food is important but ensuring quality of the food is equally important. So the second challenge discussed was malnutrition, Dr. Khan stated that one-fourth of our country's population is undernourished, which is an issue of deep concern.

The third issue highlighted by Dr. Khan was of farmers' income, he felt that the food producer in our country is the most meagre and trapped in vicious cycle of poverty. Our Honourable PM has envisioned to double farmers' incomes by 2022 and Dr. Khan stressed that all the stakeholders should come together and work to translate this vision into reality.

He further briefed the house about various activities of ICFA and informed about various initiatives already launched or to be launched during the summit, viz. Agriculture Knowledge Transformation Platform, Healthy food initiative, CEO'scouncil, Uttarakhand state agriculture council, Uttar Pradesh state agriculture council and various District agriculture councils.

He also underlined the changing pattern in agriculture sector and highlighted that people from non-agriculture are getting into the sector, which is changing the direction of future agriculture in the country. Although he also brought to notice that youth of the country is still not taking up agriculture actively and need to be inspired and motivated to take agriculture as an occupation.

Prof. Swaminathan

At the very outset of his remarks he underlined the increasing natural calamities due to increased human intervention. There are various environment changes and calamities taking place which are directly as well as indirectly affecting agriculture not only in our country but across the globe. Moreover, the problem of market is one big issues but largely remain unfelt by the farming community. Agriculture by its nature is a business operation but livelihood agriculture practised in the country is very different from the commercial agriculture.

Another area of concern pointed out by Prof. was problem of market pricing. In our country the farm commodities are low priced and he believed that situation would get better after implementation of recommendations of Farm committee for MSP.

He pointed that we should learn from country like Netherlands on how to effectively market the products. As in our country we have more small farmers, therefore we need to organize them for effective marketing and increased profits. He stressed that we need to work towards empowerment of women especially engaged in agriculture sector given the fact that they form a major part of the workforce engaged in the sector.

Further, Prof. Swaminathan stressed that as we are entering into new age with various technological advancements especially in the field of biotechnology. Gene editing is one such need to be put in to harness these opportunities to resolve various pressing problems while overcoming its negative impacts.

Moving forwards, he also accentuated the importance of value addition especially in horticulture, as it will not only increase the shelf life rather will significantly increase the income to the farmers. He quoted the case of Poland and Israel which have high farm income and progressive agriculture in-spite of water scarcity respectively. There are so many success stories in the world to learn from and to work in the right direction to overcome our challenges and convert them into our strengths for revolutionising agriculture. In the end he added that advancements in science and technology will pave new way for agriculture.

Shri Sanjay Aggarwal, Secretary Agriculture, Government of India

As PM visions of Doubling the farmers income in 2016, it requires good governance, good strategy, good thought of program and with this the International committee was born under the guidance Mr. Dalwai that submit the recommendations and today is the first day that minister is holding meetings with all the stakeholders to come up with strategy for doubling the farmer's income.

The ratio of farm income has changed from 60:40 to 70:30. To increase the income of farmers, investment of private sector and public sector both is required.

In e-nam, we have 585 mandies. There is an increase of 42% in numbers from last time and the exchange of information and services, commodity arrivals and prices, and buy and sell trade offers, has helped farmers bid for the best prices across markets.

Ms. Renu Swarup, Secretary, Department of Biotechnology (DBT), Govt. of India

The theme of the summit emphasize on connecting farmers to markets which is the very important component for any growth we wish to have in agriculture sector. Looking at the theme there are two very important components which are the drivers of agriculture i.e. technology and policy. Unless we have complete new technology development which is driving this and new policy makers which promote this, it is difficult for us to achieve what our vision is i.e. connecting farmers to markets. India is a country which has a long history of having its priorities correctly positioned which is both the components technology and policy and way back from green revolution which Prof.. Swaminathan achieved was a great example of policy and technology. From the green revolution till now we have seen tremendous advancements in the sector that gives us the confidence that we are correctly positioned to take this forward. If you see where we stand today in terms of developments, DST along with Ministries and stake holders, scientists has worked with International and National collaborations and one can see technology can be a huge enabler driving agriculture growth.

New technologies, cutting edge technologies of crop improvement, increased enhanced productivity which is new crop better returns, new varieties, genome technology, gene editing technology, Prof Swaminathan have brought better technologies addressing challenges of biotic and abiotic stress, nutrition in crops. Our Scientists are working on it and we have got excellent results. These are technology tools that exist and scientist are working on it.

We are looking at now facilitating that through not only the skill development in terms of human resource but also in terms of capacity building. If we look at where we are positioned today we do have the best state of art infrastructure

within the country. For various agriculture growth and new technology developments we are looking at different facilities across the country and here I would emphasize on partnership of private and public sector. Any growth which we wish to see in any sector has to be a combination of public and private sector and this brings how well do we connect all the stakeholders, researchers, scientist, entrepreneurs, academicians and the industry.

So, to achieve the government's vision of doubling farmers' income it is important to connect farmers with markets which focuses majorly on these components- New technology, bringing all stakeholders together, combination of technology and policy. In the agroclimatic zone models, the scientists are working closely with farmers, markets to understand the needs of famers and the market and vice-versa making the linkage strong.

The startups have a tremendous scope in agriculture sector. These startups are developing newer technologies which address the issues of farmers. It's time we bring in new polices for startups to increase the collaborations that are happening in the industry and drive the growth of sector.

Dr. K.V. Subbarao, South Asia Leader, Corteva Agriscience™, Agriculture Division of DowDuPont™

People living in rural areas are the most exposed to food insecurity, owing to limited access to food and financial resources. Poverty and climate change exacerbate the global challenge of food insecurity.

In the last decades, it seems there has been a shift from quality to quantity. We can see overall quality of food being consumed is decreased. It is not so important anymore how good the quality of something is, but how much you can produce and consume.

Global climate change can be measured by 3 points-

- Land deforestation
- Temperature increase
- Water depletion

As the world's population grows there will be greater demand for food, timber, fresh water, fuel and clothes. Agriculture and forestry will need to cater to these increasing demands but at the same time minimize it's environmental impact.

A number of technologies can play a role in addressing concerns related to agriculture. We need to develop hi tech

farms that control risk. New and existing technologies to combat biotic and abiotic stresses, raise crop and livestock productivity, improve soil fertility and make water available can potentially increase the amount of food produced. Storage, refrigeration, transport and agro-processing innovations can address the dimension of food accessibility. Science to produce high-nutrient staple crops can combat malnutrition, improving food utilization and use.

Dr. Rudy Rabbinge, Special Envoy Food Security, Government of Netherlands

As Prof. M.S. Swaminathan brought green revolution in India we are trying same for Africa. The world's population is set to grow considerably over the coming years, albeit at a slower rate than in the past, and with considerable differences across regions.

Growing hunger is the No. 1 problem which world is facing. Global estimates of undernourishment rose from 777 million in 2015 to 821 million in 2017. Approx 27.4% of the population in Africa was classified as severely food insecure in 2016 and we are working to eradicate these problems from Africa.

When we talk about food security, it is not only an issue of sufficient production but also about improving the quality of food. We need to make sure the availability of food in terms of quantity and quality to satisfy the dietary needs of individuals; and the physical and economic accessibility for everyone, including vulnerable groups, to adequate food, free from unsafe substances.

Alongwith ensuring the safe food to all, we must learn to produce food that does not harm nature. To feed the world

sustainably we need to produce more food with fewer resources. There is a need to combine high production agriculture in such a way that it pose less threat to climate change. Our goal must be to identify high production systems and adopt practices that are both more sustainable and more profitable. The agriculture yields are being affected by climate change and there is a need to increase agricultural production by developing high yielding varieties of climate resilient crops to feed the increasing population.

H.E. Phạm Sanh Châu, Ambassador of Vietnam

Vietnam is an agricultural country. 70% of population in Vietnam is dependent on agriculture. Vietnam has changed from a food importing to a food exporting country, exporting majority of commodities like rice, pepper, coffee, cashewnut. He emphasized on Global Summits being organized which serve as the best platform for deliberations and policies. He further added 40 delegations of Vietnam will be arriving in India to learn the food production, food processing, new technologies emerging which can be taken forward.

Session 1: Policy agenda for agricultural growth

Shri Tarun Shridhar, **Secretary - Animal Husbandry, Dairying & Fisheries**: Policy is vital component for the growth of food and agriculture at national as well as international level and also for welfare of farmers. Though, agriculture had green revolution in 1960s but economic revolution largely got confined to Industry and bypassed crucial sector of our economy i.e. agriculture. It has been recently realised and adequately stressed that economics is vital for agriculture and is in urgent need of reforms. Issue of Doubling farmers' income has recently being raised by honourable PM and various steps have been taken in this direction, but it need to be ensured that benefits are percolating to the farmers at ground level. While increasing productivity while minimising input cost is important,

equally essential is providing farmers with remunerative price for their produce.

Dr. Purvi Mehta, Bill and Melinda Gates Foundation: The farmer is largely dependent on two things the weather and the policy and this dependence is inversely proportional to the landholding size. Therefore policy interventions, become crucial for country like India where smaller farmers form fabric of its agriculture sector.Largely farmers and also other stakeholders have made India from an importer to exporter of food, with the humongous growth. India has showcased one of the fastest growing agricultural production system in the world Today India's agricultural export are almost worth 36 US billion dollars in an year. Indian agriculture sector is at cross roads as on one hand we have tremendously increased our production whereas on the other we have lacked in profitability until the recent stress. On production angle performance has been exemplary but this farm success story

needs to be converted to farmers' incomes. The increased farm production has not translated higher farmers' income and nutritional security of the country. The policies need to govern these aspects and focus to be shifted from “What” to

"How". Stressed the importance of diversification in agriculture with livestock, aquaculture, horticulture, which has the capability of enhancing income as well as satisfying nutritional needs. India has large extension system which until now has focused on information for improving agricultural production and productivity but can further utilized for percolating information about agricultural market in business. Digital technology in agriculture is revolutionizing and this people's initiative need to leveraged upon by government and developmental organisation.

Shri Rakesh Shrivasatava, Secretary, Ministry of Women and Child Development: India at one end suffers with the malnutrition and on other end struggles with lowering down the risk of lifestyle related disorders like obesity and cardio-vascular diseases. He also reported that prevalence of stunting, under-nutrition and waisting in India stands at 38.4% 35.7% 21% respectively. 1/3rd of children don't have muscle power to work about 8 hrs a day and 53 % women suffer from anaemia. All these pose a serious challenge to India's desire of surging ahead in industry and competing with China and other developed economies Sustainable Development Goal 2 lays emphasis on nutrition and eradicating hunger and malnutrition for transformation of agriculture and empowerment of rural people. He further informed the house that recently SDGs have beensurpassed, which, to his opinion, are very conservative.

Recently it has been felt that nutritional security is not a challenge to one ministry and there has to be convergence in action of different ministries to achieve the goal. With launch of Poshan Abhiyan on 8th march, 2018 "poshanmah" was observed and 11 ministries worked together and benefitted 25 crore people against a target of 10 crore people through 16 lakh activities.

Agri plays a key role in SDG2 and is central to SDG1. Indian farmers are vulnerable to environmental impact, water scarcity and land degradation. Further in India fragmentation

of holdings, extreme weather conditions, rising input costs and post harvest losses pose gigantic challenges to agri growth but the innovative technologies bring sustainable and scalable technology by bringing together agri, ICT, allied sectors which would play important role in increasing rural income and hence quality dietary intake.

True potential of agriculture is still to be tapped to improve nutrition and health and first critical step is to build knowledge on agriculture- nutrition health nexus. There exists a need to establish a knowledge base by investing in research, evaluation and education systems capable of integrating information from all the three. This knowledge can then be utilised to build strategies to minimize risk and maximize benefits of nutrition and health across value chain from producer to consumer.

Mr. Raju Kapoor, Director, FMC: stressed upon the three key issues in agriculture, firstly, the sustainability of agriculture, although agriculture production of India has increased manifold, still productivity continues to lie between 50-60% of world average. There exists a huge scope of increasing the productivity of soils. The second challenge that he discussed was remunerative price of produce to farmers. Considering the fact that agriculture land is rapidly converting into commercial, the pressure on land for more production is intenseand increasing productivity is only way out. He further advocated that technology has solution mostly for all the problems, however its application is governed by factors like its availability and quality.

The R&D in India is slow as well as engages very low

expenditure and the expenditure and pace need to be accelerated to reap on time benefits. Efforts need to be made for bringing technology to farmer from all the available

sources rather that innovating and developing all domestically to make them competent for international market. There is also need to work on regulatory framework in order to minimize the time gap between development and commercialisation of any new technology. Time gap between approval of technology at regulatory end and it being prescribed by the universities in POP is large and by the time farmers are informed, technology goes obsolete and benefits are not reaped. He suggested on working out a public private model for R&D and its transfer, each KVK to have technology partner for developing and promoting new technologies. Besides this, another critical issue is of quality of the technology/ products available in market, the below standard / spurious products available in market leave the farmers cheated, breaching their trust.

Nutritional security and food safety poses third major challenge. To ensure food security for all there is a need to move to technology which doesnot leave residue neither in soil nor in plant produce. Moreover transparency and traceability of food is crucial for safe food. He elaborated that quality of food system is dependent on how crops are fed; high dosage of N,P,K and negligible micro nutrient will result in deficiency of micronutrient throughout the food chain. The lesser organic matter and depleting micro-organisms in the soil imbalances the nutrients in the soil and restricts uptake by the plant.

He further pointed out to the dichotomy between state and centre in planning and execution of policy and programme for agriculture. He suggested having a serious policy and major action plan with time line for deliverables. There also exist need for a platform for unifying the concepts and ideas.

At the end he added that women make 50% of workforce in agriculture but have limited participation in decision making and profits, action need to be made to make their share concrete.

Points highlighted during interaction with audience:

1.Price of input to be reduced and stringent measures against frauds with farmers need to be implemented

2.Organic to be promoted and centres to be established in each village to provide practical knowledge about Organic agriculture

3.Farmers in India are mainly small and marginal and are struck in debt trap which transforms into death trap for most of them. The policy of loan waiver should be discontinued instead farmers should be provided with interest free loan to make them self sufficient.

4.Pension and medical services for farmers by government will make agriculture an attractive option for youth

At last **Mr. Alok Ranjan, Chairman- ICFA UP state council and Ex- Chief secretary UP**, summarised all the important points deliberated upon by different speakers of the session. And he stressed that since past so many decades the emphasis has been on inputs and providing the same to farmers, it is important but equally important is linking farmers to the market for maximising their returns. He concluded that diversifying agricultural and allied activities by farmers holds mammoth opportunities of increasing farmers' incomes.

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Session 2: Empowering farmers through trade, technologies and policies.

Ms. Mary Glackin, VP Weather Business Solutions, IBM, pointed out that the major challenge that lies ahead is feeding 2.2 Billion more people by 2050 with no new arable land. There is still scope of increasing yield for most of the crops, which is most promising solution to challenge aforesaid. This challenge is not for farmer or government its is for all those involved in food chain including input providers, finance providers and producers involved in supply chain. India's climate and emerging extreme climate events poses a unique challenge to its agriculture. With this bacjground in marketing she suggested a technology based solution i.e. Watson Decision Platform, which helps in making better decision resulting in improved quality as well as yield and hence profitability. The decision platform collects all the data related to farm, crop, soil, weather, crop protection and yield automatically. Further with Artificial intelligence the data is analysed and the decision support system provides with

unbiased and actionable information. All the data collected can be utilised for traceability of food, ensuring food safety. The system provides varied information about status of crops and suggest measures, with optional text service to the farmers.

Mr. Nitin Pradhan, VP ,Pepsico India Pvt. Ltd.: PepsiCo working with farmers since 1989 in different states across the country. He informed the house that PepsiCo introduced it's own researched 'process grade potato' varieties in India in late 1990's.It also has largest collaborative farming model for potato sourcing with 90 % retention of farmers and has mainly small and marginal farmers. He further informed about farm to fork ecosystem i.e. end to end self-reliant system from germplasm to child grade potato. Seeds, agronomic practices and storage form the three pillars for this ecosystem. PepsiCo's collaborative farming model encompasses 360 degree linkages with farmers, ensuring agri-inputs, insurance, loan, machinery and storage services

to them. Also extensive training is provided to farmers for better package of practices. Also work for water conservastion and have developed direct seeder for water efficient rice cultivation and promoted micro irrigation in potato cultivation. Besides this, PepsiCo also advocates sustainable practices in all environmental, social and economic dimensions.

Mr. Vijay Sardana, Chairman ICFA Working Group on Agri Trade: Indian farmers are mainly small and marginal and are unable to compete in the world market, there is a need to review our technologies, policies and system to support the marginalised section. The food requirement is going to increase to 1100Million ton by 2030 and to fulfil that we need to increase our production by 20 million ton every year. In case of inability to achieve this, customer will not be at loss, the interest of producer, processor and all the players in the value chain will be jeopardised, increasing exports into the country. In a typical value chain there are various players and interventions at every level is required, each and every minute aspect is to be addressed throughout the value chain. One of the most crucial point to be considered is that if any of the players in the value chain starts losing, whole of the value chain will be effected, it is mandatory that all the stakeholders in the chain should flourish for agri-system as a whole to grow. He also brought to light that today the pace of change has increased and every country is at different stage and trade is governed by the market requirement, to continue to be in

market the requirements need to be fulfilled. The technology is advancing rapidly and it needs to be brought to the Indian farmers. Technology holds the potential for wealth creation and farmers' being small and marginal need it the most to grow. Success today in world market is mainly driven by knowledge management, due attention, network and pace of movement. Further the power of partnership need to be leveraged upon to enhance the competitiveness of firms by increasing productivity and innovation.

Dr. Amitabh Mohanty, Corteva Agriscience™, Agriculture Division of DowDuPont™: Agriculture needs to be viewed holistically, including all the aspects form inputs to market. Out agriculture is supply driven and not demand driven. There is a need to shift to diversified agriculture for ensuring profits, because mono-culture involves high risk. Although today technology has advanced to such an extent that not only weather but pest attacks can also be predicted. Also, the acceptance of the fact that technology creates job is required contrary to the general perception that technology replaces manpower and takes away job. The advance technologies are desperately required in Indian Agriculture to increase our productivity and production to feed the increasing population. He further revealed that they are trying to develop technology to increase shelf life of millet(s) flour. He confirmed the need to have connectivity amongst different stakeholders in the agriculture value chain and also of each of them to be well connected with market.

Points highlighted during interaction with audience:

1. New technologies do not reach farmers so village level seminars should be organised to educate farmers about the latest technological advancements, their application as well as adaptation.
2. The warehouses and processing units should be installed considering the major producing area of the raw input to minimise transportation and wastage in the same.

Atlast Mr. Sardana concluded the session and highlighted the need totake technologies to farmers and also appealed to the farmers to takeadvantage of internet technology which holds mammoth information andconnect with other stakeholders.

Session 3 & 4: Roles of States in Doubling Farmers' Incomes and Global Experiences in Sustainable Agriculture

Dr. Vijay Laxmi, Pr. Secretary, Department of Animal Husband, Bihar brought to light Bihar is third most populous state in the country and has a Population about 10.38 Crore. The state of Bihar is still predominantly rural and 88% of the population lives in villages. The State of Bihar is still predominantly rural and 88% of the population lives in villages. The government has launched multifaceted programmes of this sector which play important role in poverty reduction self employment and doubling farmers' incomes. The state has 6.43% and 1.75% of total population of livestock and poultry respectively of the country. She stressed that farmer may generate more income by adopting Animal Husbandry and Fisheries activities than by agriculture and animal husbandry activities may also be taken up in areas which are not suitable for agriculture. Also instead of providing free goats under scheme the state has established goat farms. She brought to light that the Bihar govt is focusing on increasing production under different schemes and also on vaccination to increase their rate of survival to minimize losses especially to the farmers. The state doesn't wait for release of funds from central government as it causes delay in the actions, so the fund is sanctioned from state plan and when the funds are released by central government the state funds are recuperated. The state has also started exporting fisheries to other states and also Nepal. The fisheries production has increase by more than 15% in 2017 over 2016. The state of Bihar has lot of potential for fisheries with large water resources and is open for new technologies to boost its growth. She briefed the house about various schemes of the state government for development of animal husbandry, poultry and fisheries sector. She also deliberated upon few of the constraints viz. annual recurrence natural calamities like –of flood/draught, poor marketing facilities, institutional support for entrepreneurship, awareness levels of the target group, less focus on healthcare, lack of storage facility and lack of adequate training.

Ms. Holly Little, Acadian Group, Canada, briefed about the Acadian plant health, which has presence in over 80 countries and has established subsidiaries in different countries to provide with products to meet grower needs and have one in India as well. Developed a new category of inputs i.e. bio-stimulants which is not a generally accepted product. In California, the term Bio stimulant is not to be used in relation with fertilizer. These are not pesticide and fertilizer and regulatory issues pose a major challenge. After identifying the needs of a market, the products are provided. Techologies are based on seaweeds and are harvested from wild belt with due consideration is given to the environment. Not only sustainability is considered in production of these products but also sustainability while increasing farm production as well as quality. He further discussed the platform called Acadian bio switch technology developed to describe the effects of seaweeds on plants and how they work. It is also helping in developing future products. The major challenge faced in Indian market for rice was that the product wasn't suitable neither could be applied due to lack of technology. So the granular product was developed for Indian market which is unique due to its soil application and not foliar application, which is further explored for other markets.

Mr. Garth Watson, Garden Village Group, Canada: regarded nature's resources viz. land water and air as environmental capital which includes all the biodiversity and resources there in. the natural soil is the most precious natural capital. Natural soil is micro biodynamic eco system, which is highly fertile and releases nutrients on demand. Today, globally 2/3rd of arable land is degraded, soil being a compass shows the direction in which agriculture is heading. He further deliberated upon the concept of "geoponix" i.e. regenerating natural soil, done through "biomimicry" which included regenerative agriculture and bio-diversity restoration inspired by nature. Geoponix holds the potential of doubling farmers income and discussed the model of engaging farmers as employees.

Mr. Berjus Taraporwala, Sr. Manager TATA tractors, India still today is largely dependent on agriculture and 60 % of families rely on agriculture for livelihood. With high degree of land fragmentation majority (70%) of farmers are small and marginal and are dependent on monsoon as well as have limited resources for practicing agriculture. Small and marginal farm families after harvesting their monsoon crop migrate in search of manual labor, in absence of sufficient resources for cultivation. Tata Trust has prioritized issues to uplift these marginal farmers and have taken various initiatives in this direction to provide quality life to this group. In agriculture focus has expanded from crop production and workingwith rural small and marginal farmers to development of community institutions, innovations, market and trade. Also support the SHGs, federations and producer companies, in establishing system, auditing finances, in developing scientific and ecological methods at looking at options in sustainable agriculture and finding market options for their produce. Further he gave an overview of multifaceted initiatives of Tata Trust for uplifting farmers across the country. Agriculture in India is float with risk especially due to erratic climate pattern so the trust is working on various innovative ideas with various technology institutes of the country to overcome these issues.

Mr. Anis Ansari, chariman- CARD, UP- chair summarized the concerns and points of all the speakers of the session. He stressed that meat industry forms an integral part Animal husbandry and complete value chain in the animal husbandry is to be considered. There is an urgent need to generate and promote employment in rural areas to maintain the rural-urban balance.

Points highlighted during interaction with audience:

1.Social audit of programmes and policies should also be undertaken while analysing the outcomes.

2.Vaccination in cattle's has to be undertaken very seriously all across the country to avoid recurrence of the diseases.

3.Fragmentation of land over the generations reduces the farmable land and also limiting farmers' capability for cultivation. Moreover faulty land use planning has also negatively impacted agriculture and animal husbandry in the country.

Session 5: Connecting farmers to market

Mr. PuneetThind North Zone Convenor- AIFA: In connecting farmers to the market there are two groups, firstly the farmers and the other is market, where market is highly organised while farmers the prime producers are largely unorganised and dependent on market for the price. There is an urgent need to organise the farmers and create crop based clusters to collate produce and create volume for market. Till now the focus has been on production, even the rewards are for high yield and not for high price. And on the other hand the companies are incentivised for lowest price for purchase. Nearly 40% sale is institutional and can be directed to farm producer companies for incentivization. Further infrastructure support at cluster level is necessary.

Dr. Maharaj Muthoo, Chairman Roman Forum, Rome: expressed his concern that farmers are not being recognised not only in India but many other countries across the globe.

He also expressed his concern over the fact that most number of hungry people are in India jeopardising the growth of the country. The surplus products of Indian agriculture are mostly wasted and are hardly exported. There has to be Private - Public - People Partnership in agriculture and quality assurance is required. Various of our products are not accepted in the global market, we need to have certification for standard accreditation. Certification is an effective tool to improve Sustainable Agriculture and Rural Development (SARD) and indicate a product originates from well-managed farming systems. It is able to address the causes and consequences of land and soil degradation, water pollution and other unsustainable practices. Given the global scenario, it is imperative to have a national policy mechanism for agribusiness and agriculture 'certification'.

Mr. Deepak Pareek, Co- founder My Crop: Making farmers productive in history, new stress in making them profitable. He further highlighted that there are some market centric problems resulting in inefficiency and inelasticity, viz. price, marketability, logistics, malpractices, infrastructure and standardization. Government of India launched an an online market (e-NAM) in 2016, which holds the promise of increasing the earnings of the farmers by connecting them directly to the buyers across the country. It is indeed a good initiative but is not sufficient. With the farmers registered currently, it will take another 8 years to cover 90% of the farmers, even then the 10%, who are most needy will be left out. Similarly with the present volume of trade through it in next 8 years only 19% of agri GDP could be traded through it. It is a great solution but needs to extend its reach. Incorporating few elements like village correspondents

customized financial products and private e- markets from business point of view and from technological aspect blockchain, geotraceability, uberisation and artificial intelligence integration can take the initiative to next level.

Mr. Madhavan Ganeshan, Reliance Retail : From business point of view when demand outstrips supply prices shoot, although this model is not to be followed but we are moving in this direction. The model required is comprehensive which allows three- four dimensions are managed simultaneously, the production as well as productivity increases to meet the demand and stabilize the price. There is need to ensure that income at farm gate increases and price to customer are not increases and is reasonable. Largest risk in the ecosystem is borne by the farmers, not by all the players in the value chain. Great work has been done in production, productivity, technology and other diversified areas but many of the initiatives are fragmented and many are not scalable. Business works with initiatives which are scalable and sustainable. Moreover, most of the innovations have been restricted to Tier 1 cities and have not penetrated to all. There is a need to work collectively by all the different stakeholders to build an ecosystem which goes grass-root to upward and build collective interfaces starting from farmers to consumer.

Points highlighted during interaction with audience:

1. Till date there is still a big role of commission agents in agricultural marketing which results in exploitation of farmers especially small and marginal.
2. In order to revitalize agriculture it needs to be restructured and needs to be viewed as a part of ecosystem.

Session 6: Special Policy Session

Mr. Rapollu, Former Member of Parliament : Congratulated ICFA and Dr. Khan for organising 11th GALS and incorporating critical issues of agriculture. Further he stated that not only agriculture is at crossroads but agrarian policies are also at crossroads and various vitalities need to be relooked to tap the potential.

Ms. KampambaMulengaChilumbaChewe, Hon'ble Minister ofLivestock & Fisheries, Zambia in thespecial policy session highlighted thepolicies of Ministry of Livestock andFisheries of Zambia. Ms. Chilumbasaid that the fisheries and livestockpolicies aimed at improving foodand nutrition security, increasingincome at household levels, reducingpoverty in rural set ups and reducingunemployment for youths." Forthe development in agriculture, thenational agricultural plan and thevision 2030 is in effect. The seventhnational development plan is also ineffect which has a broad spectrum.The key challenges in Zambia arethe low production and productivityin the fisheries and livestock sector.Adequate agriculture extensionofficers in the country are doingas much as possible to ensure thatwe address some of these issues,"the Minister said. Ms. Chilumbamentioned that fishery is one of theimportant areas of the Ministry. Thegovernment is doing everything toensure market linkages for the people."Limited access to finance andcredit, high post harvest losses, lowvalue addition, and low participationof private sector in agriculture aresome of the challenges.

Policymeasures are taken to increaseproduction and productivity in thesectors for example the generaloverview would be to improveefficiency and effectiveness for theexisting extension staff.We are alsotrying to strengthen our researchextension which is very vital andwe are also calling public privatepartnership in this area. We are alsotrying to implement communicationtechnology, ICT in agriculturewhich is a measure upcoming in ourcountry," she said.

Mr. Yudvir Singh, South Asia Director, International Farmers Alliance: while referring to Indian agriculture its size needs to be considered, 60 % of population is engaged in it. And Indian agri has its own model which is very different from all the countries across the world. Government need to note that successful models of other countries cannot be adopted and it needs to be customised prior to adopting any model or finalising the policies for Indian farmers. There is no scarcity of production, it has increased but purchasing power of Indian population has not increased; purchasing power of common people is to be built. The other major concern is of connecting farmers with the market. In India both the farmers and end consumers are exploited, neither the farmer is getting remunerative price for his produce nor the consumer is paying reasonable price. He further stressed that loan waiver and

Kisan credit card schemes are pushing farmers, especially small and marginal, into debt trap which turns into death trap. Instead of waving loans government should strengthen its policies for connecting farmers to the market.

Dr. Manjit Misra, Iowa State University: He highlighted that youth not entering in the field of agriculture is not only a problem in India but also in US and other parts of the world. He stressed that it needs to be perpetuated to the youth all across the world that agriculture is not a dirt job rather it brings life alive and is equally adventurous and challenging as any other occupation.

Mr. M Y Mayo, Pr. Secretary, department of Horticulture Nagaland highlighted that many of the north east states are largely organic and certified and have large bio-diversity and have uniques fruits, agri produce are abundant in nE states, Nagaland has got GI registration froGeogrophical Indication Registration for Naga Chilli the concept of Vegetable villages was introduced sometime back and has resulted in manifold increase of farmers' incomes. Different exotic crops have been introduced in nanagald and are giving good results. Nagaland is a land locked country and only 32 Kn is domestic border connecting it to main land rest is international border. Major problem faced by farmers is of credit, inspit of having different credit linked scheme by central and state government, the benefits could not be reaped because of land being non-trasnferable under Article 371 A and cannot be used as collateral.

Shri Chandramohan Reddy, Minister of Agriculture, Government of Andhra Pradesh highlighted various achievements of the state inthe field of Agriculture, Horticultureand Fisheries. Andhra Pradesh hasachieved 7.7% growth rate in theyear 2015-16, 14.9% in the year2016-17 and 17.9% growth rate inyear 2017-18 in the primary sector."This is indication of the inclusivedevelopment during the dynamicleadership of the Chief Minister. TheAP government has taken initiativethrough AP drought mitigationproject with an outlay of Rs. 1042croresbenefitting 1.3 Lakhs familiesin drought prone districts. The zerobudget natural farming is anotherinitiative of the government tocover 5.5 lakh farmers in 5 lakhacres by the end of 2018-19," heinformed. Dr. Reddy mentioned thatInternational organisations namelyUNEP and FAO have recognised theAP government efforts in using farmfriendly chemicals and fertilizersto increase farmers' income. Hesaid that the government hastaken a bold step and issued orderfor clearing Rs. 24,000 crorestowards debt redemption benefiting40 lakh farm families. Dr. Reddyalso pointed out that the state hasdistributed 40 lakh soil health cardsin the year 2016-17 and 34 lakhsoil health card distributed in thesecond phase so far. "The statehas made agreement with the Billand Mellinda Gates foundationfor soil health technology usingsatellite mapping. Our governmentis providing micronutrient to farmersfree of cost. The governmenthas taken the major initiative toestablish mega seed parks in thestate with the partnership of IowaState University to provide farmerswith the quality seeds. The stateis spending Rs. 450 crores everyyear in seed research and Rs. 452crore for farm mechanisation andallocated 12,200 tractors in 2018-19. The

state has also initiatedprogram for digitalisation of data forfarmers", he informed.Dr.Reddy alsomentioned that the state stood firstin the productivity of Maize, Jowarand soya bean. "We are taking allmeasures to stand first in productivityof different crops in the country bythe year 2020 and competing withworld productivity level by the Year2024. "In horticulture, our vision isto increase area under horticultureto 40 lakhs acres to one croreacres. During the current year itwas targeted to provide microirrigationto two lakh acres with thebudget of Rs.1380 crore. We haveincorporated cold chain productionin Andhra Pradesh to provide coldstorage facility and cold storage vanfor perishable horticultural products.In fisheries, Andhra Pradesh ranksnumber one in total production ofshrimps in the country. The seafoodexports from the state in the year2016-17 reached to Rs.17,000crores against the total export of Rs.37,000 crore of total of the country,which is about 45% share in India.The sector has achieved growth rate of 30%," he explained.

"Coming together is a beginning;
keeping together is progress;
working together is success"

Maha Shakti Milk Producer Co. Ltd., Alwar, Rajasthan

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SUMMIT DAY 2

SPECIAL SESSION ON BUILDING HUMAN RESOURCE FOR TOMORROW'S CHALLENGES & SESSION ON BUILDING GLOBAL SCALE FOOD AND AGRIBUSINESS COMPANIES FROM INDIA

Dr Villoo Patel, Founder and CMD Avesthagen Limited- opened the session stressing on the point that we as a community need to work together towards the challenge of climate change, recreating a new world. One of the key features influencing the use of new technology is the changing character of research and development and associated process of globalization. Many of the policies being pursued by countries and promoted by international organizations are based on outdated assumptions about global patterns of RNA. A better understanding of emerging RNA patterns arising from impact of globalization for the developed and developing world has to evolve. Avesthagen, the company I founded 18 years ago aspire to fill this niche bringing convergence of technology, a knowledge economy, cutting edge R&D, free pattern in relationships, and policies leading to a harmonized entry of the developing world into exciting global market. We built a platform that work together similar value based companies worldwide in alliance through partnering and co-development. This platform has resulted in an alternative new mindset and provided equitable socio economic role innovation through strategic alliances. The business model of avesthagen was successfully proved through an unconventional business model of convergence of multidisciplinary technology platforms with biodiversity of plants, human and bacteria to result in dramatic innovative pipeline of technologies and products, a combination of business of science and science of business. The magnet nature of the model intrigue and brought range of early strategic global partners Danone, Nestle, Godrej, TATA, Cipla. This intriguing derisked model also saw the interest from Taj Financial, institutions such as ICICI Ventures, Fidelity New York lIfe, GLG Partners who joined in the value creation. These strategic collaborations saw the company move towards its goal of bringing environment adjusted crops, preventive functional foods and new safe, affordable medicines faster to the world and delivery of its model of convergence of food pharma and population genetics leading to predictive, preventive personalized medicines and food security through its strategic partnerships. Bangalore during 92-2000 saw people coming in from all over to develop a new technology driven India. She threw light on her new Avesthagenome project which is driven from Zoroastrians parsi population to ultimately understand it and link it to food and to therapy, so final convergence and that is the new phase of company which is the dry lab and the phenomenon of the black swan that happened in Bangalore and that's why this kind of project is possible where hardcore big data is coming from sequencing of plants, humans and bacteria, will come together and deliver perspective where therapies and food for the new world could be delivered. She believes the time has

arrived to shift gears and work in consortia, working across the world and deliver what world really needs. If the world has to lead and succeed in this technology the world has to innovate. We need disparate disjointed events technologies and opportunities and place them together to create next wave of change. It requires institutions, government and entrepreneurs to come together and challenge and break existing dogma. So life sciences sector in india has traditionally not been able to attract significant early stage investments due to multitude of factors including risk perception, infrastaructure, lack of sustainable business models and deep domain activites. However, over the last few years, due to increase in government, industry and investors interest levels, the industry has seen some influx of capital. Relying on foreign investment and innovation, India has a daunting task ahead, implementing a pattern system to spur domestic innovation while at the same time, finding a way to provide inexpensive drugs to the vast majority of poor countires that are depending on it, what is needed is transparency and clarity.

She ended her talk mentioning that biotechnology will play a major role in the admant of new future, it is the economic possibility of time whether in dealing with global poverty, environmental changes, food shortage. The recombinant technology offer hope, the discovery of technology was a clairvoyant discovery by man and the intervention by the Gods in 60s to tackle the needs and essentials of troubled human overgrown world of today. Innovation concepts are not only for dreamers, they are reality and it is opportunity today to breakdown of certain myths. We have to act and take step forward to be true leaders of global world in technology and innovation and family culture. It is time for action in collective spirit to support each other in the world and form the sustainable, economic partnerships to bring environmental prosperity and escape from poverty for all the people in world and environment.

Mr. Raju, Director, FMC India Limited- Looking at the problems currently the world is facing or is expected to face on account of environmental changes or need for nutrition, this is the one model that you saw. In my opinion, India because we have mastered our capability in IT, India is a knowledge society by all means and that is what offers us this opportunity it creates as a self sustainable collaborative and for working with alliances which come out with solutions for tomorrow's world.

Dr. Nutan Kaushik, Director General, Amity Food and Agriculture Foundation: Commenced the session by introducing Amity University, Noida. Amity, at present enrolls 2600 students in Agri & Food Technology. She explained how they develop the students interest in that particular field. In schools, before 1st year, they go for Aspirational survey to understand the interest of students, if they wish to pursue family business, job, research etc. If a student shows interest in family business, they offer him to join their Entreprenuership course to provide him with knowledgeof he business know how's. Our university emphasize on entrepreneurship and they have incubating facility which offers handholding for 5 years. Now when we talk about the problems of people in agriculture sector as mentioned by previous speaker, technologies are going to play a very important key role, so for that matter we do provide environment where we encourage inter- disciplinary kind of research for the technology development. E.g.- IT team works with Agri Team jointly and they have successfully developed image based analysis system for

doing the extension services for the diagnostics, so they have developed chip based system where it can be loaded on the mobile phone and farmer can simply click the picture and can know what pest is it infected with, if it a biotic or abiotic disease and what is the solution for that. Talking about the extension part, we do provide digital extension. Lastly, she mentioned, those students who are coming out from different systems, there is a need to develop their skill sets to prepare agri leaders for tomorrow, by which they can sustain the future and nature also.

Mr. Raju Director, FMC India Limited- Business is changing very fast and if the human resource which is being fed into business is not aligned to the change and if it is not futuristic then we have a challenge at home. Every time you induct a person, he has to undergo a learning cycle which defeats the whole purpose and which kind of delays the speed to market for a business. Speaking to many VCs, one thing is clear, most of our education systems are trying to chase the market, and when you chase the market you're losing the battle for sure because you are not updating upto the market. He mentioned that in biotech we do not have the human resource as required by industry. It is important that industry and institutions connect and can cross fertilize so that the product that will come up is very interesting. We will be producing many more number of students than required in

India. The important aspect is infrastructure if we can provide to the students, the enabling environment so that the cream which leaves India, stays in India and work for it.

Dr. HP Singh, Founder & Chairman, Confederation of Indian Horticulture and ICFA Working Group on Precision Agriculture initiated the talk with a Chinese saying that if your crop is spoiled you can correct it in a year, if your forest or horticulture is spoiled you can correct in 5-7yrs but if your education is spoiled it take generations to correct it. Agriculture education was thought off in 1880, when there was a Bengal famine and the britishers were

ruling, the committee said that if you want to rule India you need to bring rural development and if you want to do rural development, agriculture has to be focused and that was the reason first agriculture research and education was started in Bihar, that is currently called PUSA which is the Central University for agriculture. Real focus in agricultural education came when again we were hit by famine, the committee. Today's agriculture is very complex, there are plenty of varieties of one particular crop and the greatest challenge we are facing is the limited land available to us in which we have to double the produce for the increasing population. We have plenty of technologies like Artificial intelligence Nano technology but we don't have sufficient human resource. We have worked with biotechnological tools still we have to work more because the future agriculture is going to be the completey environment controlled agriculture because 20 yrs down the line event the crops will be produced by artificial light because we won't be having sufficient land. As agriculture is becoming complex, we require competent human resource. We have done a lot of work in agriculture sector but with the changing scenario, human resource and skills also need to be developed.

He then stressed on the importance of agriculture and how people were ignorant about it for long stating many examples. He then quoted- "People say that agriculture contributes 13-14% to the GDP, but people forget that it contributes 29% to the agribusiness and if we put both together, agribusiness plus this 13%, it will be the largest in this country which is not given attention it should get". 70% of transportation is engaged in agriculture which is the maximum as we have different sectors available in this. He stressed on the point that bigger companies must give attention to the agriculture sector, they must spend 5% than 2% on it and when agriculture grows it is not only the culture it is a business, if the purchasing capacity of rural people gets enhanced that becomes a market, this thought has to be there in Indian Industry then only agriculture will flourish.

He ended his talk saying that India is a leader in agriculture. The report by world bank 20 years back clearly mentioned how India has changed from Food scarce nation to Food surplus nation. Today our people are looking not only to market, they are going out and performing really well. Many times here we face different problems and we have to address them collectively. All the time government cannot do, we have to rise to the occasion, get hands together and definitely we can change India and work together towards the vision of PM.

Mr. Raju Director, FMC India Limited: As technology is changing, needs are changing there is a total transformation about to happen, essentially driven by extraneous factors like we are running out of resources, we are running out of land, water; so how we overcome this. So, there are new concepts coming up like precision agriculture, new technological advances for which we require skilled human resource to grow the sector. Secondly on having global scale business out of India, there is a huge possibility for this and IT sector for sure gives this hope and we will be having new leaders coming up.

Dr. Dinesh Chauhan, Director & CEO, International Agriculture Consulting Group: The education system of world needs radical change, and the way technology is moving ahead these all traditional degrees might become redundant in coming years. There is a strong need for specialized courses, because when we work in industry we require specialized expertise and we find even best B schools are not able to provide right kind of resource for right kind of profile and if we have the resources are less in number. I believe there will a time when one won't require a degree and this has started to happen and most of the industry is looking for people with expertise irrespective of the degree they have, they need the guy not the degree. One of the biggest area which will see disruption is education in coming times and the way artificial intelligence is working I think there will be no need to remember things. He majorly stressed on we can improve our human resources, indulging them in correct curriculum and developing a better methodology to teach to fulfil the requirement of industry and use the resources efficiently.

Coming to the second part, we as organization have been helping companies in India and globally. Giving some examples of organizations working with IACG, he stressed on the point if the foreign organizations are looking towards India it means that we have the potential. On one hand, we have a huge population to feed with food, on other hand there is a lot of opportunity within our country to feed this growing market the middle income group is increasing, consumer base is increasing, the need and awareness of consumers is increasing, so we have to fulfil those requirements and we don't do that all the global companies will come up and sell their products. Next is how we as a company can increase our export revenue by marketing our food products, marketing our technologies and improve our income and the trade balance on a whole. One this missing that we are not encouraging our students towards entrepreneurship, the students only think of getting jobs when they pass out from colleges. This need to change and it requires drastic changes in curriculum so that our students can develop interest in the agri sector. When talking about farmers income, we have seen e-commerece playing a great role in connecting with farmers and not only government many retail chains are indulging with farmers procuring directly from them and with the increase in the E-commerce sector the farmers income is also bound to increase.

Mr. Raju said that we got to leave the bristish legacy behind. The mechalis system has gripped our minds and we are only looking for jobs and we are all looking at plus jobs. As a society we need to be more risk tolerant of failures. Whichever society where innovation is grown has been very receptive to the idea that you are a failure. Failures were rewarded because society knew you have done something innovative, that's how one is respected. This is one element we need to introduce and second thing is where do you get the faculty. Is the faculty going along with the student's mindset. There needs to be self learning for them because unless they know the future they can't take people there. There are a lot of business coming up like in traceability, value adding food, reducing losses etc. but do we have human resources available for it. So we need to be very focused where are putting human resources according to that when we have our education system aligned to it.

Mr. Raj Seelam, Founder & Managing Director at Sresta Natural Bioproducts Pvt. Ltd introduced his company Sresta, the organic company, selling products under the name of 24 mantra. The aim of starting Sresta was first to create sustainable livelihoods for small farmers and second provide pure, uncontaminated food to people and we believe if we fulfil these things other things will follow. We chose to work directly with farmers so we can know what we are doing and give full traceability to our consumers. He stressed on the point that we need to build a domestic market to source all products available and it will impact the farmers also. He then explained that when we started exports, we started with few products and focused on most demanding costumers to learn what their requirement is and became the largest exporter. We continued expanding, partnering with other industries. The advantage Indians have is we have a huge Diaspora living across the world and they have adapted themselves according to that environment which helped us penetrate the foreign markets also because we could understand their needs along with market. We customized the products according to the markets- German, US. Being there in market helps you understand what is the requirement, trend. Like there's been trend in SuperFoods and we are working towards it. Like, small millets from India, are really superfoods but how do we communicate this value proposition to consumers in foreign markets, so we are working towards it. Lastly, he said I have learned that we need to have a vision and second we need to have one culture, one quality and then particularly the kind of challenge we have taken up requires lot of resources and building food business takes time and if your value proposition is strong

there is no need to hurry, you can build your brand in a sustainable manner.

Mr Raju Director, FMC India Limited-: The organic area is another sector where we can do branding, but we have to be careful for this sector on how to build this market because too much of people can kill this market. The model shared by Mr Seelam is one way to create brand focusing on the customer needs. This model looks how professionally you approach organic as market segment ibstaedof saying organic as a movement. We know organic as a movement has its own challenges but organic as a business segment where we can create a brand has a huge opportunity and we have to do it very scientifically, very assured processes which lead clear traceability, which lead a clear branding opportunity and differentiation for business to create margins which can absorb the cost of organic production and also the cost which consumer can pay.

Dr. BS Bisht, Director, Birla Institute of Applied Sciences and former VC, Pantnagar Agriculture University, commenced the session mentioning that agriculture education was realized utmost important in history and every student at the time has to undergo practical and theoretical sessions. But today, we have only 0.5 students getting enrolled in the agri universities which particularly is very small number seeing the growth of population and mouths to feed. Our food industry, hardly have food technologist. From 2000 food technologist we have only 1000 coming in the market which is a very small number looking to future requirements. Land is shrinking, population is growing up, so every plant has to be taken care, we cannot afford the way we are going today. Agriculture has to be Hi-Tech Agriculture, not traditional agriculture. In future GM foods will be a necessity to food the population. IOT, Nanotech, blockchain and many are technologies coming up, we need to integrate all the technologies. We have to integrate many of the systems in future. In future, precision agriculture will play very important role, every plant and every tree has be taken care for nutritent, harvesting requirements. In future, biotech have to be taken care for nutracueticals particulary because it is highly dependent on biotech. In farming systems, there will be joint farms in future, consolidation of farm holdings will be essential because farm size is decreasing and we have less interest of people in agri sector. Food processing industry will be playing very important role. Processing sector has to maintain that transparency to ensure nutrition and traceability. Quality of products will play very important role. He emphasized on zinc rich rice, corn which is the need. Food is one sector which will always remain young and growing. He stressed that we need to strengthen our education system, we need to put newer ideas, new faculties because understanding agriculture products, processing industry we need to have the expertise to deliver quality to people.

Mr. Raju, Director, FMC India Limited: We need to create convergence of technologies which needs to come in education level. It cannot come in industry has to be there in education level.

SWAMINATHAN GLOBAL DIALOGUE ON

CLIMATE CHANGE AND FOOD SECURITY

Prof. Rudy Rabbinge, Special Envoy – Food Security, Government of Netherlands opened the session mentioning that we have prepare ourselves for the climate change and how can we contribute to reduce the effects of climate change. He first listed the 5 major global challenges- first is food security and changing diet of people- with decreasing lands we have increasing population. There is also a change in the diet patterns of people. We see that consumption of animal protein is increasing among the people. Second is climate change- floods have enormous effects on sea lives also. We also have to try and try according to Paris Agreement to reduce green house gas emissions. Certainly, enormous challenge is food and health and at this moment many people are suffering from obesity, hunger and thus problem is increasing and we need to look how to overcome this. Next challenge is how to maintain the planet- environmental pollution, overuse of land. Last we are also looking to have bioactivities. Lot of our activities are based on petrochemical industry and we have to reduce those.

Dr. Purvi Mehta, Asia Head of Agriculture, Bill & Melinda Gates Foundation

Commenced the session mentioning this dialogue comes as a reminder on evergreen revolution and sustainability. Climate change and its interlinkages with agriculture is very important and more so in the country where we are living now care is to be taken - one is the agriecologically country has been positioned and the fabric of agriculture in this country. Maximum population is involved in agriculture and that population is the small holder farmers which are dependent on climate for their produce so climate change is of utmost importance in this country. For eg.in milk production if the temp goes from 16 to 38C the milk productivity in animal goes down by 50%. So, if we are talking about doubling farmers' income, we by increasing temperature are actually halving their income. On one hand we have crop burning going on, on other hand throughout the country we have approx 60% deficiency of green fodder, 40% deficiency of dry fodder. So, it is the question of logistics and how we manage it. Lastly, she said that in IFPRI report of 2016, 60% of investments in the world have only gone to diagnose the problem and not finding solutions to it and that percent still remains the same. So it is time now to shift that percentage and we need to realize the vulnerability of agriculture systems.

Ms Christine Daugherty, Pepsico, stated that climate change and sustainable farming goes hand in hand. Many of farmers are already smallholders and so basic skills are lacking. We need to work together to tackle these problems. BY 2030, we will have an absolute reduction in carbon emission by 20%. how do we make a global impact on reducing carbons yet local efforts to make that happen. We need to provide Education to our farmers- water management, soil health, business plans, these solutions will drive the challenge.

Prof MS Swaminathan: talked about food security. There are 3 important aspects- food availability, food accessibility and absorption of food which is the function on safe drinking water and hygiene. As said, it is not important to diagnose the problem, more important is to find the solution. Every 1 degree increase in temp will reduce wheat yield in Punjab, so we have to focus on reducing temp also. We have to safeguards our production systems also. He concluded by saying, In India we have very long coastline, there are many people living near the coast so if sea level rises it can be a serious threat. Lot of diagnosis has been done to show climate change is posing major threat and most affected areas will be according to IPCC will be Sub Saharan Africa and South Asia, both of them are rich in population and agriculture is very important source of income and employment.

Dr. Lyonpo Kinzang Dorji, Hon'ble former Prime Minister

of Bhutan said that Bhutan is not only closest neighbour of India but Bhutan is the closest friend and ally of India. "As Prof. Swaminathan said the coastline is going to be the forefront of the impact of climate change, as we know we experience every year more of hurricane, typhoons, floods and uneven rainfall patterns but Bhutan being in the mountains is also bearing the brunt of climate change. Although our glaciers are melting faster but it has slight positive impact in reference to the Bhutan. We have places about 2500 m above sealevel where our farmers could not grow rice. Being rice eater every Bhutanese farmer's aspiration is to grow rice on their small holdings. Since about 15 years, we have been growing rice in Bumthang which is 2500 m above sea levels. Growing wheat, barley and livestock are their mainstay but since about 15 years because of the wonder of new technology, agriculture development in

Bumthang has been able to grow rice. Similarly, we could not grow chilies but now Bumthang is one of the best chilli grown regions in Bhutan. There is positive side to climate change but we know that negative impact far outweighs the positive impact. The climate change impact on the food security and food production is something entire world is challenged with. We need to work together to elevate the impact of climate change. Climate smart agriculture is something that we should all be working towards. Agriculture has to be sustainable and agriculture should take into account the landscape approach not just a farm, the surrounding environment is important, he said.

H.E. Mr. P. Sathasivam, Hon'ble Governor of Kerala pointed out the stark reality of malnutrition existing in the world. He observed how India has achieved certain level of food security through great effort's like the green revolution in food production led by stalwarts like Professor MS

Swaminathan which strengthened India's capability to fight against hunger and malnutrition. He also pointed at the post harvest losses and the effect of climate change on agriculture.

He emphasised on using new varieties of crops and seeds which requires lesser amount of water. Pointing at the ill effects of soil erosion, he suggested a change from our current form of agriculture to sustainable means of farming with a little harm to our environment. Lastly, he emphasized that the agriculture of future must realise on environmentally sound practises to negate the effect of climate change. "Agriculture must also use technologies that depend on ecologically sound and responsive principles. While talking about the adoption of technology we also cannot ignore the need to encourage entrepreneurship in agriculture

through skill development. We could raise army of agripreneurs who would make agriculture profitable," he said.

Shri Suresh Prabhu, Commerce Minister of India channeled his thoughts on the inevitability of climate change

on today's world. "Today we have a serious challenge posed by climate change on agriculture of the world. Some parts of the world will benefit from climate change. But most part of the world is going to face serious challenges in agriculture

and are under serious threat. Warming going beyond 2-3°C would put most of our staple crops, including wheat, under serious threat. Therefore, we have to now seriously think about how to deal with it. Water is also one of the serious casualties of the climate change. This is going to be major challenge for the world but also more for India because 17% of the world population is in India and we hardly have any water. Only 4% of the fresh water of the world is in India and most of the groundwater after Green Revolution, particularly in the Green Revolution belt, has been lost. And most importantly the Himalaya, which is providing water to 70% of the population to south Asia and on the other side to south-east Asia and China, and therefore we have a big problem we need to work on it seriously. Food security is a challenge which cannot be dealt with unless we deal with agriculture, and agriculture is a function of nature," he observed. Mr. Prabhu further pointed out that we don't know the status of Paris agreement and we don't have a global framework to deal with climate change globally. "We have a real challenge on hand and we should take the leadership of Prof. Swaminathan to lead the battle and succeed as we succeeded in the Green Revolution," he concluded.

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Rice Solution

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We at PI, are constantly in search of new answers. For more than 60 years, our line of products for rice crop such as Foratox®, Biovita®, Nominee Gold, Osheen®, Vibrant® Kitazin®, Fluton®, Sanipeb, Bunker® etc. have been aiding farmers in improving their crop quality, increasing productivity and protecting their crops from insects, weeds and fungi. Today, we are helping to feed millions of hungry mouths while improving the farm income. Our comprehensive solution to enable the adoption of Direct Seeded Rice (DSR) has helped increase the farm income, conserving the precious natural resource, water. It is this technology that is helping us in building a better tomorrow.

PI Industries Ltd

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Eleventh Global Agriculture

Leadership Awards 2018

The 11th Global Agriculture leadership Summit 2018 provided the much needed platform for global dialogue on the constraints and opportunities faced by today's agriculture. The event also recognized important individuals and institutions, who played pivotal role in building new faiths and ambitions in agriculture by bestowing them with the coveted Global Leadership Awards 2018. The awards across different categories went to

International Leadership Award

Prof. Dr. Ir. Rudy Rabbinge, Special Envoy – Food Security, Government of Netherlands

Prof. Dr. Ir. Rudy Rabbinge, the University Professor Emeritus in Sustainable Development and Food Security at Wageningen University in the Netherlands and a Special Envoy for Food Security in the Netherlands, Ministry of Economic Affairs and Foreign Affairs, has played a leadership role in sustainable development. A veteran specialist, the Professor recently led a 60 million Euro program on transition of agriculture land use and agribusiness.Rabbinge was also the Chair of the Inter-Academy Panel on Food Security and Agricultural Productivity in Africa and member of the Board of Directors of the Alliance for a Green Revolution in Africa (AGRA). With degrees in phytopathology, entomology, theoretical production ecology and philosophy of science from Wageningen University, he has served in different responsibilities. He was Chairman, Science Council of the CGIAR , member of boards of five centers, Chair of the Board of Trustees of IRRI from 1996 until 2001and leader of the change program of the CGIAR in 2008 as Chair of the independent Science Council . His works have also earned him many honours and distinctions such as Knight of the order of Oranje-Nassau, Honorary professor Chinese Academy of Agricultural Sciences, Knight of the order of the Dutch Lion , Honorary member Academy of Sciences Georgia and Distinguished scientist, State Victoria, Australia.

Research & Development Leadership Award

National Research Development Corporation (NRDC)

National Research Development Corporation (NRDC) has played a leadership role in promoting, developing and commercializing the technologies, know-how, inventions, patents and processes emanating from various national R&D institutions. During the six decades of its existence, NRDC has forged strong links with the scientific and industrial community in India and abroad and played a lead role in the commercialization of Intellectual Properties and know-hows developed in their laboratories. Recognized as a large repository of wide range of technologies, NRDC has licensed the indigenous technologies to about 5000 entrepreneurs, filed over 1800 Patents and helped to establish a large number of small and medium scale industries in India and abroad . Out of 5000 technologies licensed, about 42 % of the technologies licensed are in the area of food and agriculture sector. Besides being the torch bearer in the field of technology transfer, NRDC also undertakes number of value addition activities. NRDC has also successfully exported technologies and services to 24 developed as well as the developing countries. During the last four years under the able leadership of Dr H Purushotham, Chairman& Managing Director, NRDC has registered an exponential growth of about 380% and has become a more vibrant, visible and sustainable organization and the organization has been put on the growth path.

Academic Leadership Award

Indian Institute of Management, Ahmedabad

Indian Institute of Management, Ahmedabad, a beacon in the field of management studies has been in the forefront of realizing the need for management support to the under-managed but socially important sector such as agriculture. The Centre for Management in Agriculture (CMA), established in 1971 addresses the process of modernization of the agri-food sector, by using concepts of management science. CMA has also performed significant amount of research in the areas of agri-food policy, procurement, marketing, and processing of agro-based commodities, farm input systems, irrigation and water management, agricultural and rural finance, investment and subsidies, livestock, fisheries, forestry, agricultural trade, food retailing, commodity trading, rural innovations, intellectual property rights, biodiversity conservation, biotechnology, GMOs and food safety issues. The CMA faculty has been actively engaged in policy planning and implementation at national and State levels. CMA has provided help in institution building and played a key role in setting up national level

institutes like Indian Institute of Forest Management, National Institute of Agricultural Marketing, and National Institute of Cooperative Management. CMA has undertaken research studies for the Ministry on various facets of agricultural and allied sectors and provides policy advice to the Union Government. The academic institution has played a crucial role in providing the agriculture sector with the able professionals to steer the sector ahead.

Livelihood Leadership Award

Mr. Shailendra Chaudhary, MD, NERCORMP, Shillong

Dr Shailendra Chaudhari, the Managing Director of a very important rural livelihood project in North East India popularly known as "NERCORMP", has been a dynamic leader influencing the lives of poor & marginalized rural communities throughout his career. With more than 26 years of long working experience in the North Eastern Region of India, Dr. Chaudhari has put in sincere efforts in bringing positive and fruitful results in augmenting the livelihood opportunities of the most sidelined sections of the community. The organization, under his leadership has played pivotal role in management of resource base in a way that has contributed to the preservation and restoration of the environment. His organization has reached out to 2532 villages benefitting more than one lakh and nineteen thousand households transforming the lives of more than six lakh fifty three thousand poor people till date. A total number of eight thousand two hundred & sixty two Self Help Groups have been formed women empowerment. Their intervention of NRDC with the economic and social activities and

infrastructure with predominant thrust on income generating activities has helped in achieving economic transformation of the target groups.

Farming Leadership Award

Shri. Satishbabu Gadde, Andhra Pradesh

Satishbabu Gadde, proponent and practitioner of organic farming, stands tall as an excellent example for the fact that sustainable agriculture can also be a financial success. This idealistic farmer has been following the traditional agricultural practices of his forefathers that shuns environmentally destructive methods. With 22 hectares of land under farming, Mr. Gadde maintains 47 cattle, the milk of which is largely used to nourish the calves which in turn develops into healthy and sturdy cattle and are put up for sale. His method of farming is economically remunerative as he has brought down the cost of cultivation by making his farms zero tolerant to chemicals and pesticides. Practising organic farming in eight hectares of land, his farm propagates the agenda of sustainable models. This progressive farmer uses seeds and manures derived from his own farm. His unique model of farming allows cattle to graze stress free in the fields which increases the productivity of the crops and cattle.

Dependent only on botanicals for pest management Mr. Gadde's farm has so far remained strong against any biotic or abiotic stress. A certified organic farmer, Mr. Gadde obtains premium prices for his farm products. Recipient of many recognition, this farmer continues to inspire the fellow farmers by regularly conducting discussions and seminars.

Global Agri Business Leadership Award

Shri Mukund Daga, Managing Director and Shri Shrikanth Rathi, Director, M/S Nagarjuna Agro Chemicals Pvt Ltd, Hyderabad, Dr A K Patra, Director, ICAR – IISS Bhopal and Shri Sanjeev Kumar Chadha, Managing Director, NAFED, New Delhi.

M/S Nagarjuna Agro Chemicals Pvt. Ltd is a leading player in developing and propagating soil testing minilab technologies for over one and half decades. The efforts of NACPL bore fruits in developing Mridaparikshak Minilab in joint collaboration with ICAR – Indian Institute of Soil Science, Bhopal. The Mridaparikshak minilab as developed under flagship programme of Make in India professed by Hon'ble Prime Minister of India. The MRIDAPARIKSHAK is a digital, mobile, quantitative rapid, affordable and easy to operate mini laboratory, first of its kind in the world, for the estimation of soil health parameters, fertilizer recommendations, and generation of soil health cards. It gives quantitative results of the soil health parameters that can be disseminated on real time basis to the farmer's mobile through Short Message Service (SMS). The results include, in addition to soil test parameters, the advisory on nutrient recommendations, specific to crop and soil. The results can also be stored in memory and the output can be saved in some external storage device such as pen drive or compact disc (CD). The primary advantage of this Minilab is by getting Quantitative results and accordingly advocating fertilizers recommendations conveniently paves for doubling the income of farmers. This Minilab being portable in nature can be taken to the Farmers doorstep for establishing soil testing

facility at village level as envisaged by Government of India for empowering all the farmers with Soil Health cards. This Minilab attend prominence to the Country and also globally. The prototype of the Minilab was demonstrated to Dr S. Ayappan, Hon'ble Director General, ICAR on February 14, 2015. The Mini Lab was formally released by Shri Radha Mohan Singh, Hon'ble Union Minister of Agriculture, Govt. of India during 86 th Annual General Meeting of ICAR on Feb 18, 2015. Hon'ble Prime Minister Shri Narendra Modi distributed Mridaparikshak Minilab to Farmer on July 25, 2015 during 87thFoundation Day of ICAR and ICAR Award Ceremony at Patna.

Industry Leadership Award

Sonalika International Tractors Ltd.

Sonalika International Tractors Ltd., a well known name in Domestic and International market, stands strong as the third largest tractor manufacturing company in the country with the bestselling tractors ranging from 20HP-120 HP. A formidable player, the company has over 8 lakh patrons in more than 100 countries across the globe. The World's No.1 largest integrated tractor manufacturing plant with a production capacity of 3 lakh tractors annually, Sonalika envisions to become the world's leading tractor manufacturing and farm mechanization company. The global recognition of ITL's growth is evident by the strategic investment into the group by leading international brands like Yanmar of Japan. With the World's No.1 largest integrated tractor manufacturing facility, a well-equipped research and development center, a robust dealership network, consistency in the quality of products and services, Sonalika ITL's has been serving the

farming community with passion and commitment to quality. Through new products and innovations, Sonalika ITL has been committed to its core values of serving the farming community.

Global Business Leadership Award

The Weather Company

The Weather Company, a weather forecasting and information technology company that owns and operates weather.com, intellicast.com, and Weather Underground, has been on the forefront of delivering personalized, actionable insights to consumers and businesses across the globe by combining the world's most accurate weather data with industry-leading AI, Internet of Things (IoT), and analytics technologies. A subsidiary of the Watson & Cloud Platform business unit of IBM, their solutions provide newscasters, pilots, energy traders, insurance agents, state employees, retail managers, and more, with insight into weather's impact on their businesses, helping them make smarter decisions to improve safety, reduce costs, and drive revenue. With its varying climate regions, abundance of agriculture, and drastic seasonal weather shifts, creating a weather offering in India that is locally relevant and backed by scientifically validated raw data is of critical importance. The Weather

Company, has been the leader globally in the area of offering the most accurate, personalized and actionable weather data. Its products include a top weather app on all major mobile platforms globally, a network of 250,000 personal weather stations, a top-20 U.S. website, one of the world's largest IoT data platforms, and industry-leading business solutions.

Technology Leadership Award

Tirth Agro Technology Private Limited

Tirth Agro Technology Private Limited's Shaktiman, the market leader in India, has helped bring Farm Tech Prosperity to the Indian farmer with technologically superior affordable solutions. Shaktiman has been the pioneer in introducing many equipment in Indian agriculture. They introduced the first indigenously developed cane harvester with unique performance parameters like Reduced trash content, auto cleaning technology in cooling system, GPS & GPRS based tracking system, Air Conditioner & ergonomic cabin. In just 4 years, this world class product has gained market leadership in India, Fiji, Philippines, Vietnam and Sri Lanka. Another success story is the Protektor 600 – a self-propelled high clearance boom sprayer with technologically advanced features which has been the marquee for providing a kick start to technology revolution brewing up in crop protection methods in India. With the ambition of becoming complete farming solution provider, Shaktiman has been on a fast track path of launching technologically advanced products which are not only solving the burning issues in agricultural practices but is also paving a path which will be leading Indian agriculture to better productivity, efficiency and making agriculture more economical.

Corporate Sustainability Award

PepsiCo India

PepsiCo India, one of the largest MNC food and beverage businesses in the country, is guided by the company's philosophy of Performance with Purpose. PepsiCo has pioneered and established a model of partnership with farmers, and now works with over 24,000 farmers across nine states providing 360-degree support to farmers through assured buy back of their produce at pre-agreed prices. The association with PepsiCo India has not only raised the incomes of small and marginal farmers, but also their social standing. Since 2009, PepsiCo India has achieved significant milestones, saving more water than is consumed through a multipronged approach focused on water replenishment & conservation, including rain water harvesting within the plants, driving sustainable water resource development & management programs for communities & promoting sustainable initiatives in agriculture like Direct Seeding of Rice (DSR) & drip irrigation. In 2017, PepsiCo India's water saving was 17.6 billion liters, more than it consumed in its manufacturing operations. As a responsible leader, the company is also focused on reducing its carbon footprint, and in 2017, PepsiCo's India's Food as well as Beverage plants had a 79% and 55% share respectively, from renewable energy sources. PepsiCo has thus matched its corporate ambitions with sustainable and responsible business growth.

Life Time Achievement Award

Padmashree Dr. Keki Hormusji Gharda

Padmashree Dr. Keki Hormusji Gharda, Scientist, Entreprenuer, Philanthropist and "Father of the Indian Agro-Chemical Industry", believes in the philosophy of Karmayoga, using Knowledge converted to products to wealth for the benefit of Society. His contribution to India's Green Revolution is unmatched as he gave India its 1st Indigenous Technology for Wheat Herbicide and Pyrethroids and decided not to patent it to enable farmers benefit the Competition. His Industrial R&D doctrine practiced stands for generation & application of new knowledge, into new products and processes, creating new markets and providing support services for commercialization. He broke the monopoly by taking on International giants such as Sandoz, Dow, Rhone Poulenc, Bayer and produced Anilophos (Rice), Isoproturon (Wheat), Pyrethroids, Quinalphos and Deltamethrin with his own processes. Dr. Gharda who pioneered the Agro-Chem industry in India with Gharda Chemicals Ltd., heads Gujarat Insecticides Ltd., Gharda Foundation (Charitable Trust), Gharda Scientific Research Foundation &Gharda Medical & Advanced Technologies

Foundation, not for profit companies dedicated to Scientific Research in Basic Technologies. At 89, Dr. Gharda continues as the Chairman & Managing Director of Gharda Chemicals Ltd., the turnover today of which is over $ 400 million with an export of over $ 220 million. Recipient of many awards and honours, Dr. Gharda, is an icon of home grown knowledge based entrepreneurship. A true icon of 'Maker In India' slogan

Policy Leadership Award

Shri Nara Chandrababu Naidu, the Hon'ble Chief Minister of Andhra Pradesh

Shri Nara Chandrababu Naidu, the Hon'ble Chief Minister of Andhra Pradesh, who made Hyderabad the IT hub of the country with strength in determination and commitment in decisions has introduced many market-based reforms, while at the same time formulating many populist schemes which none of his predecessors ever launched. He brought about revolutionary changes in solving people's problems and always relied on technologies to address the same. Agriculture has been kept high up in the agenda by the Chief Minister. The government under his strong leadership has been promoting technology services in agriculture using drones, robotic applications and digital classes.A strong proponent of Zero-Budget Natural Farming to reduce cost and risks in farming, produce safe food with nutritious values, reverse migration to villages and enhance soil health, Mr. Naidu is bringing about sweeping changes in the agriculture sector of the state. The Vision 2020 propelled by him roots for the allround development of the state. Mr. Naidu has been

instrumental in making significant contributions to agriculture and allied sectors through formulation and introduction of pathbreaking policies proactively which made substantial difference in the lives of the farmers and farming community.

Program Leadership Award

The Department of Horticulture, Government of Haryana

Fast emerging as one of the leading States in Horticulture sector, Haryana has made significant achievements in this sector with 6.79% area under horticultural crops and contributing about 9% of GSDP within crop husbandry. With the launching of National Horticulture Mission, Haryana had made some significant achievements in horticulture development. Poly houses, Centres of Excellence, water resources, area expansion of horticulture crops, mushroom projects, post-harvest management, pollination support through bee keeping, mechanization and human resource development are the major components covered under this. The total area under horticulture which was 2.77 lakh hectare during 2005-06, has been increased to 4.90 lakh hectare during 2017-18 recording an excellent 56.53% increase in 12 years. The state has 707.12 hectares under poly houses and 47 mushroom projects. Under postharvest management, 722 units of cold storage, ripening chamber and pack houses have been set up by the state. Four Centres of Excellence are fully functional under Indo Israel bilateral agreement. Haryana

stands first in the Country in subsidy disbursal through 'HORTNET' payment gateway system. A total of 21,065 farmers against a target of 20,000 beneficiaries have availed the benefit. Through perceptible policy changes and committed leadership, Haryana has achieved important milestones in the area of horticulture development and is well on the way to become a number one state in horticulture.

Best Animal Husbandry State

The State of Bihar

Bihar, a success story in Animal husbandry, has displayed remarkable progress in the last two years. The state has recorded 11.50%, 21.60%, 13.68% and 15.81% incremental growth in production of milk, meat, egg and fish respectively. The significant enhancement in production of these products became possible due to various initiatives taken by the Department of Animal and Fisheries Resources. Effective implementation of different schemes under dairy, animal husbandry and fisheries sectors where subsidies were provided to the eligible farmers, have helped Bihar in augmenting its livestock resources. The state has also performed superbly in Livestock Health and Disease Control. Mass vaccination against PPR and Brucellosis was conducted in the state of Bihar for the first time during 2017-18. Various measures were taken for Veterinary Hospital Strengthening and Management. Besides this, the department is aggressively expanding the reach of the livestock health services to the farmers with the help of 50 well equipped Mobile Veterinary Clinics. The state has witnessed

considerable growth in milk procurement, processing,and marketing by COMFED during the last two years. The Department, under the able leadership of Dr.N.VijayaLakshmi, IAS, has achieved splendid results. Bihar undoubtedly has created an incredible impression with its impressive programmes and commitment towards the same.

Best Horticulture State

The State of Nagaland

Nagaland, a global hotspot of biodiversity, is gaining grounds in horticulture segment and is carving a niche for itself. The Department of Horticulture had made strategic efforts and has enabled the State to achieve the GI Registration of "Naga Mircha" and "Naga Tree Tomato" and managed to achieve the Branding of "Naga Pineapple", the only crop to be given a brand status from the whole of North-East India. Besides mobilizing farmers into commodity specific groups, the department has also made rapid strides in Organic cultivation and has so far been able to certify 4750 Ha as organic. For improving the market linkages for the horticultural farmers, Nagaland has established the first Local Horticultural Products Daily Market. Vegetable Villages, another important contribution of state has at present 800 ha area in all the 11 districts. The Department has been instrumental in the introduction of Dragon fruit in Nagaland, an exotic fruit which is gaining popularity across the country. Horticulture has become an attractive alternative to Jhum Cultivation and more than 5000 Jhum farmers have shifted to permanent

horticulture cultivation over the last few years. Nagaland has identified horticulture as its important strength and is in the process of becoming to one of the most "Horticultural advanced States of the Country".

Best Agriculture State

The State of Gujarat

Gujarat, a vibrant state with a diversified agricultural economy has witnessed spectacular growth in agriculture sphere in recent years. With a significant share in the production of major crops in the country, Gujarat has fared well in the production of cereals, pulses, oilseeds and cotton. Horticulture economy, another success story, has been gaining momentum as the area under fruit crops, vegetables, spices and floriculture has increased. Gujarat is one of the largest processors of milk in India and AMUL is among 10 largest dairy brand in the world. Major expansion and interventions in agriculture sector has been one of the strengths of Gujarat. Intensive extension activities under Krishi Mahotsav programme, irrigation, water management, implementation of micro-irrigation, Kisan Credit Cards and Soil Health Cards for farmers, area expansion of high value crops, post-harvest management, digital agriculture etc. led economy towards inclusive growth. Integrated approach in Pink Boll Worm management in Cotton and Use of Remote sensing are the notable initiatives in recent years. Satellite

imageries and its use in agriculture sector for multiple factors which adopted by state is surely classic example of technological scalability and the state is well on its path towards a better and sustainable agriculture sector.

Special Life Time Achievement Awards

Prof. Panjab Singh

Prof. Panjab Singh, Chancellor, Rani LaxmiBai Central Agricultural University, Jhansi and President of the prestigious National Academy of Agricultural Sciences (NAAS), has made significant scientific contributions in the fields of water management, crop production and agro-forestry management systems. Providing illustrious leadership in shaping up of national and state level education and research institutions and Universities, Prof. Singh initiated the establishment of a new south campus of Banaras Hindu University at Barkachha in Mirzapur district. Starting his career as an Assistant Professor, the veteran academician rose to the position of Secretary, Department of Agriculture Research and Education (DARE), GOI and Director General, Indian Council of Agricultural Research (ICAR). Prof. Singh's academic and scientific excellence elected him as Fellows of Six Scientific Societies, President of Six and Vice President of five Scientific Academies/ Societies and the Chairman of various National and International Scientific Bodies. He is also decorated with D.Sc. (HonorisCausa) from seven universities, and life time achievement and distinguished Alumnus awards from four institutions and scientific societies. An alumnus of IIT, Kharagpur, Prof. had served in many responsible positions such as Assistant Director General of ICAR; Director, IGFRI; Director of IARI; Vice-Chancellor of Jawaharlal Nehru Agricultural University; founder Director, School of Agriculture in Indira Gandhi National Open University (IGNOU) and Vice-Chancellor of Banaras Hindu University. He also served in the F.A.O. as Regional Plant Production and Protection Officer for Asia and the Pacific. His unparalleled leadership and stellar research prowess spanning over several decades helped further the agricultural potential of the country.

Media Leadership Award

Mr. Ammar Zaidi, National Business Editor, PTI

Mr. Ammar Zaidi, the National Business Editor and Chief of Economic Bureau at The Press Trust of India, has over two decades of experience in journalism. Associated with PTI which is India's largest news agency subscribed by nearly 500 English language newspapers and publications, Zaidi has always encouraged healthy journalism. With a Masters degree in Business Management, Mr Zaidi has risen from within the ranks in PTI where he joined in 1999 and now heads a team of young and energetic journalists, covering policy, regulatory and corporate news. Leading the business section of PTI, Mr. Zaidi is well connected and makes it a point to personally interact with concerned authorities to file the stories of national and international interest. A well known personality in media fraternity, he is easily accessible and constantly motivates his team members by working day in and day out. He had taken special interest in giving adequate coverage to news related to agriculture. With extensive experience and knowledge of agriculture industry, Mr. Zaidi has brought reasonable and positive change in the field of journalism.

Development Leadership Award

Dr. Pramod K. Joshi, the Director for South Asia, International Food Policy Research Institute, New Delhi

Dr. Pramod K. Joshi, the Director for South Asia, International Food Policy Research Institute, New Delhi, is a prominent academician, researcher and administrator. With wide areas of research such as technology policy, market, and institutional economics, he has held many key positions in reputed organizations. He was the director of the National Academy of Agricultural Research Management and the director of the National Centre for Agricultural Economics and Policy Research. His expertise over the subject matter earned him important positions such as the South Asia Coordinator at the International Food Policy Research Institute and senior economist at the International Crops Research Institute for the Semi-Arid Tropics. Dr. Joshi has also been recognized by many awards and honours such as Dr. MS Randhawa Memorial Award of the National Academy of Agricultural Sciences, Dr RC Agarwal Life Time Achievement Award of the Indian Society of Agricultural Economics, DK Desai Award of the Indian Society of Agricultural Economics, and RT Doshi Foundation Award of the Agricultural Economics Research Association for outstanding contribution in social science and agricultural economics research. Being the head of many reputed organizations responsible for policy change, Dr. Joshi made noticeable contribution for the growth of agriculture economics.

SUCCESS STORY OF TRACTOR TYCOON

Mr. L. D. MITTAL
Chairman, Sonalika Group

Q. Your firm has created a new record sale of 1 lakh tractors (100,194) in just 10 months(Jan-Oct'18), while beating your previous record. Tell us about your journey so far?

A. "Sapne voh nahi hote jo neend me aate hain, sapne voh hote hain jo sone nahi dete".

We established Sonalika with a core principle to serve & empower the agriculture sector by providing complete agriculture solutions to farmers globally.

We believe that farmers across the globe growing different crops have different needs. In order to cater these requirements, we offer crop centric solutions & have developed 1000+ variants in the widest product range from 20-120HP. This approach of providing crop centric solutions has helped us not only to increase our footprints to over 100 countries but also be No.1 tractor Brand in 4 countries.

Believing in not only in the concept of 'Make In India' but also make quality products in India, we have built the World's No.1 largest integrated tractor manufacturing plant at Hoshiarpur, Punjab. The plant is fully equipped to manufacture from sheet metal to the whole tractor under one roof leading to supreme quality & been trusted by over 9 lakh farmers globally.

All these clubbed with the teams passion has led us to surpass our milestone and register 1 lakh tractor sales (100,194) in just 10 months (Jan-Oct'18).

Q. Your journey towards success is very interesting, & recently your auto-biography has been published. Please share some major highlight points of your journey?

A. "Main akela hi chala tha janib-e-manzil magar, log saath aate gaye aur karvan banta gaya"

This book is not just an auto-biography but a sheer experience of my life from being a gold medalist of Punjab University to an insurance agent and now being fondly known as a tractor tycoon. This is a success story which might inspire people to never stop dreaming.

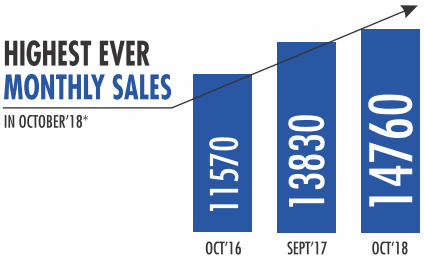
The major highlights of my journey are :

- 1st Sonalika Tractor roll out in 1996
- Being awarded with the most prestigious award "Pride of the Nation" in 1999
- 1st Tractor Export to France in 2000
- Ernst & Young Entrepreneur Award in 2006
- World's No.1 Largest Integrated Tractor Manufacturing Plant inaugurated by Capt. Amarinder Singh in 2017
- Record Sales of 1 lakh tractors in one year (FY18)

Q. You have recently been awarded with Global Agriculture Leadership Award, please tell us more about this?

A. "Kisan ka beta jab khud Kisan Banne ka Soche tab Bharat ko taraqi karne se koi nahi rok sakta"

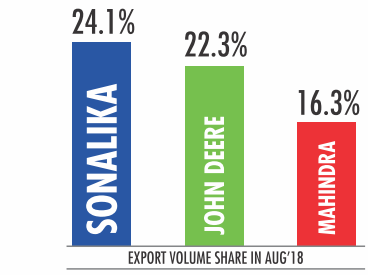
Being a customer centric brand and while providing crop centric solutions to farmers globally has led us to be a proud recipient of the Global Agriculture Leadership Award'18. It was a great moment of pride to receive the award from Hon'ble Home Minister Shri Rajnath Singh. Our core belief of providing superior technology to farmers globally has also been a reason to be chosen by Govt. of India to be a part of NITI Aayog for doubling farmer's income by 2022.

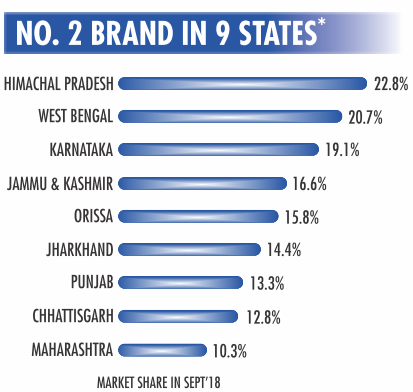


Our R&D team which is one of the biggest in the tractor industry conducts detailed market surveys to understand the evolving needs of farmers & provide best possible solutions. Our focus has led us to continuously invest in bringing the latest technologies following which we have set-up the new innovation center in Delhi NCR to provide technologically advanced tractors.

Q. Beyond providing best tractor, How Sonalika is helping society?

A. We at Sonalika, believe in the concept of growing together. Following which we have set up more than 54 skill development centers across India to provide training to farmers on different topics. While touching million hearts, we have uncompromisingly catered towards the development of the society & inspired farmers to excel in their fields. Initiatives like Udaan for women empowerment, Clean & Green for environmental protection, Swach Dhara for water sanitation etc. are in line with the growth of society. We are extensively working on scalable solutions to curb crop residue burning and air pollution and in line with the same we have adopted 25 villages in Haryana to implement this project.





*SOURCE: TMA

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