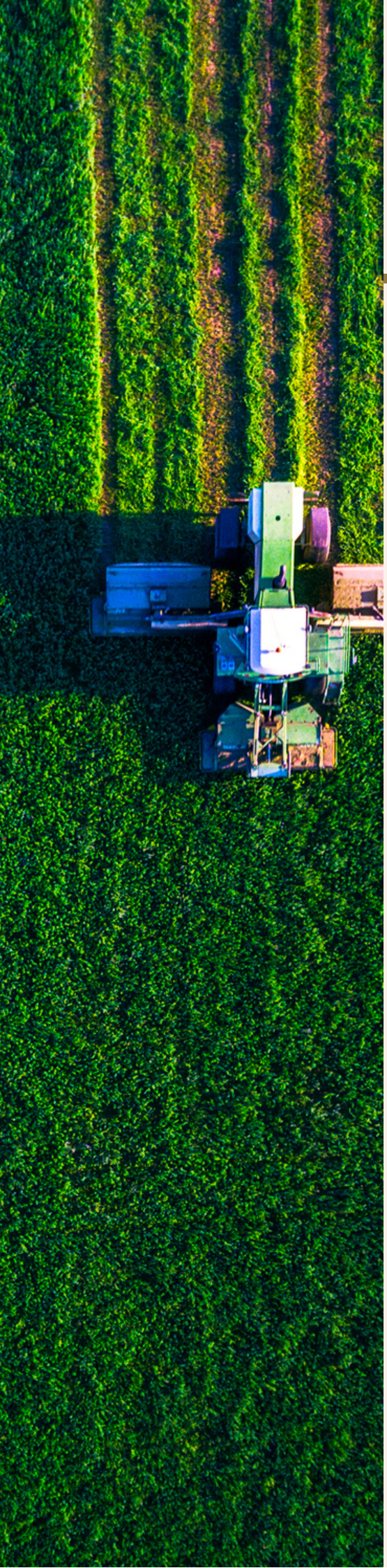
*Compendium of Best Practices of*

*Industry, NGOs & Agri Startups on*



# ENHANCING FARMERS' INCOME



# *Table of* CONTENTS

## Industry


ADM Agro Industries India Pvt. Ltd. 08

AVT McCormick Ingredients Pvt. Ltd. 11

Bayer Cropscience Ltd. 13

Centre for Microfinance 16

Coca-Cola India Pvt. Ltd. 17

Corteva Agriscience 19

EnzaZaden India Pvt Ltd 22

Gramin Vikas Trust 24

ITC Limited 26

JU Agrisciences Private Limited 28

Krushi Vikas Gramin Prashikshan Sanstha 29

Lawrencedale Agro Processing India Pvt. Ltd. 31

Mondelez India Foods Pte Ltd 33

Olam Agri India Pvt Ltd. 35

Organic India Private Limited 38

Participatory Rural Development Initiatives Society 40

Rivulis Irrigation India Pvt. Ltd. 42

Saga Seeds Company 45

Samunnati Financial Intermediation and Services Pvt Ltd 46

Seedworks International Private Limited 48

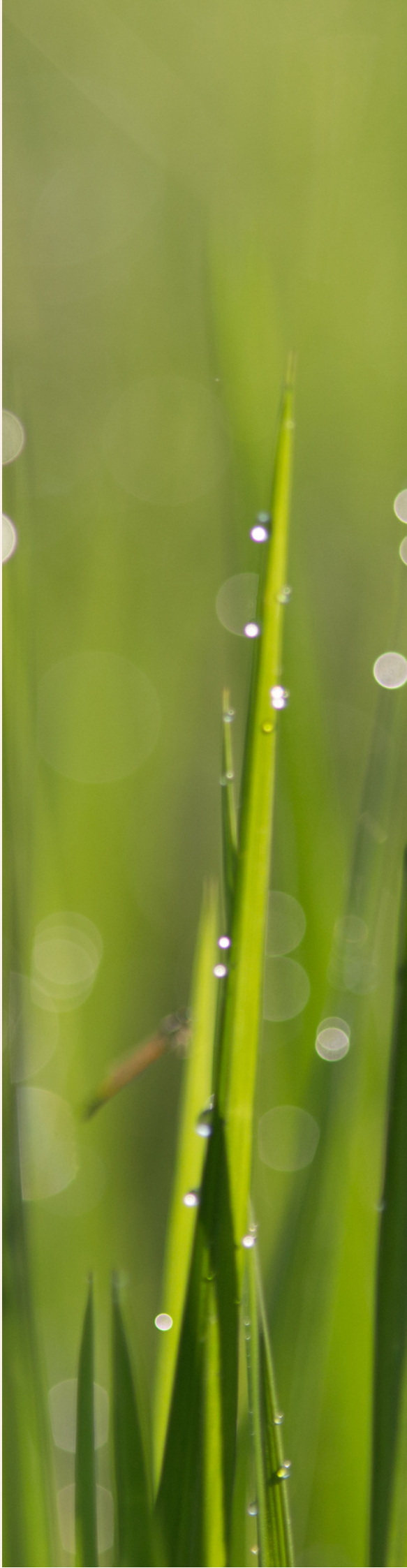
Syngenta Foundation India 50

TAFE 53

Yara Fertilisers India Pvt. Ltd. 56

# Start-ups


| | |
|---|---|
| AgriRain Agro Industries India Pvt. Ltd. | 59 |
| Agstack Technologies Pvt Ltd (Gramophone) | 61 |
| Aquaconnect (Coastal Aquaculture Research Institute Pvt. Ltd.) | 64 |
| BharatRohan Airborne Innovations Pvt. Ltd. | 66 |
| BioPrime Agrisolutions | 68 |
| Distinct Horizon Private Limited | 70 |
| EF Polymer Private Limited | 72 |
| Farms2fork Technologies Pvt. Ltd. (CULTYVATE) | 74 |
| FlyBird Farm Innovations Pvt. Ltd. | 76 |
| Krishitantra | 77 |
| Proximal Soilsens Technologies Pvt Ltd | 79 |
| YCook India Pvt. Ltd. | 81 |



# Message


अशोक दलवाई, भा.प्र.से.
मुख्य कार्यकारी अधिकारी
भारत सरकार,
कृषि एवं किसान कल्याण मंत्रालय
कृषि, सहकारिता एवं किसान कल्याण विभाग
राष्ट्रीय वर्षा सिंचित क्षेत्र प्राधिकरण

सत्यमेव जयते

ASHOK DALWAI, IAS
Chief Executive Officer
Government of India,
Ministry of Agriculture and Farmers Welfare
Department of Agriculture, Cooperation & Farmers Welfare
National Rainfed Area Authority (NRAA)


**Message**

The vision of 'Doubling Farmers Income by 2022' shared by the Hon'ble Prime Minister in February, 2016 came to be adopted as a Government commitment in the Union Budget, 2016. Following this, an Inter Ministerial Committee was set up to examine and recommend strategies for realising this vision. Given that, apropos Census 2011 as high as 54 per cent of the country's working population was dependent for its livelihood on agriculture, the income-centric approach to the primary sector was a much needed policy reorientation.

The DFI Committee recommended a paradigm shift in the approach to the practice of agriculture in the country. The three pillars of the new strategy are described as nutritional security of the consumers, income security of the farmers, and sustainable health of the ecology. In the opinion of DFI Committee India would need to continue its active engagement with agriculture sector in the twenty-first century, but encompassing not only its moral responsibity of securing adequate food for the country's growing population, but also attend to generation of gainful employment and profitable returns on investments as critical mandates. Further, the DFI Committee advocates partnership across the board and emphasizes on the critical contributions that the private sector can make to fulfill the nation's vision.

I am happy, that the Federation of Indian Chamber of Commerce and Industry (FICCI) has been evincing keen interest in promoting agriculture as an agri-business, reiterating the importance of enhancing farmers' income. It is highly appreciable, that FICCI has brought out a Compendium of Guidelines based on select case studies as also successful projects and interventions rolled out by various organizations, ones that have proved their efficacy in achieving higher crop productivity, resource use efficiency, cropping intensity and diversification towards high value agriculture. These are four of the seven sources of income identified by the DFI Committee, and strategies recommended linked to them.

I congratulate all the companies for carrying out impactful work at the ground level, which has demonstrated marked success in enhancing farmers' income. This Compendium consisting of best practices designed and adopted by the industries will be a useful document, for this can be expected to provide replicable templates in working for the doubling of farmers' income strategy. I am confident, that it will be used as reliable Guidebook by everyone committed to the cause of farmers' welfare, including the central & state government functionaries, voluntary organizations and private/corporate sector, apart from farmers themselves.

Kudos to FICCI for bringing out this valuable Compendium and, I place on record our appreciation for partnering with the Government in its efforts to realise the vision of Doubling Farmers Income.

A Dalwai

(**Ashok Dalwai**)
Chairman, DFI
Empowered Body

## Disclaimer

The comprehensive compendium of Doubling Farmers' Income is prepared by Federation of Indian Chambers of Commerce and Industry (FICCI). This report is a compilation of best practices received as part of the FICCI Awards organised separately for Industry and Agri Startups. The case studies of the awardees and few nominations are published in the report.

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Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies.

FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community.

## Team's Contribution to the Compendium

The entire process of development of the FICCI Compendium on Doubling Farmers' Income has been executed by the FICCI Agriculture Division- Ms. Jyoti Vij, Deputy Secretary General, FICCI; Ms. Sarita, Consultant - Agriculture, FICCI, Ms. Neha Mathur, Consultant, Agriculture Division, FICCI; Ms. Divya Chhabra, Senior Assistant Director, Agriculture Division

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# INDUSTRY

# ADM Agro Industries India Pvt. Ltd.



## BACKGROUND INFORMATION

- **Name of organization:** ADM Agro Industries India Private Limited
- **Name of program:** Building non-GMO organic supply chain in Maharashtra & Karnataka and Value chain development in oilseeds (Soybean/Sunflower) under PPP-IAD project in Karnataka.
- **Starting year of program:** 2019
- **Area of operation (States and districts):** Maharashtra: 3 (Latur, Osmanabad, Beed) ; Karnataka: 6 (Dharwad, Belgaum, Haveri, Bagalkot, Bidar, Gadag)

## EXPENDITURE ON PROGRAMME

- INR 376 lakh during 2020-21
- **In last five years -** 2018-19 - INR 161 lakh, 2019-20 - INR 202 lakh, 2020-21 - INR 376 lakh

## PROJECT DETAILS

- **Crops covered -** Soybean, Sunflower, Chana
- **Total area covered (ha) -** 33,740 ha
- **Average landholding of farmers under project -** 1.86 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Driving Sustainable Oilseeds Production in India
- **Number of farmers impacted -**18,186
- **Total value of income enhanced as compared to base year -** INR 893 lakh
- **Value of income enhanced/ha -** 2,075 INR/ha

## Description of Intervention/ Program

For nearly two decades, ADM has worked with smallholder farmers to develop a more sustainable value chain for oilseeds production particularly soybean, in the Indian states of Maharashtra and Karnataka. With over 250,000 small farmers registered with ADM as direct suppliers and 65% of soybeans that are processed by ADM sourced from local farmers, ADM leverages its influence to better inform the farmers who supply them so that they can be more self-reliant as well improve production, crop quality, and take care of their natural resources. In fact, ADM's efforts have delivered incredible results. Soybean acreage in the area increased from 7,000 hectares in 2001 to 400,000 hectares in 2020, while yields per hectare have grown by 50 percent. And it's meant a significant increase in income for farmers and an improvement in the quality of life for thousands.

ADM has been involved in Public Private Partnership for Integrated Agricultural Development (PPP-IAD) for value chain development in soybean with Government of Maharashtra and Karnataka.



Under this program, ADM with its team of agriculture extension staff, state agriculture departments and state universities of agricultural sciences have come together to develop a sustainable value chain in soybean production across two states. The interventions to bring sustainability among small farmers were worked out jointly by state agriculture departments and ADM. Participating farmers received comprehensive training on sustainable farming practices, support from the local government and universities in sourcing quality seed stocks and financial assistance to produce their own planting materials.

In addition, they gained access to a sustainable credit provision from banks, which aimed to promote investment in environmentally responsible farming.

There is a well-defined institutional mechanism created both at the Government and at the company level to oversee the implementation and monitoring the progress of the project with periodic reporting and assessment across all levels. PPPIAD project has created a framework where the Government and the private company have worked in tandem, supporting the development of the back end supply chain along with providing the market linkage opportunities to the Soybean growing farmers. PPPIAD project not only aims at improving productivity of Soybean, but also undertakes allied initiatives to provide end to end solutions to farmers. The project combines operational efficiency of private sector and investment by public sector to bring fore noticeable changes in soybean value chain through an integrated approach.

Some of the activities driven by ADM include:

- Training the farmers in organic cultivation practices leading to production of certified organic products conforming to NPOP/NOP standards.
- Incentivizing the farmers during conversion period of initial 3 years by way of providing higher prices to compensate the drop in yields.
- Helping farmers improve the quality of their home-grown seeds, encouraging self-reliance and circular sourcing by participating in own seed production under seed certification program
- Formation of farmers groups and providing community-based sorting and grading equipment to realise better price on quality by enhancing efficiency and reducing operational costs.
- Reducing post-harvest losses via training on proper storage practices and providing storage protection material (tarpaulins) to store the harvested material.
- Provide an assured direct market linkage by ADM to farmers by setting up rural procurement centers closer to the farmer without any intermediaries.
- Training on environmentally responsible agricultural practices such as improving soil health, promoting water conservation techniques and maintaining ecological balance.
- More than 250,000 farmers in Maharashtra and Karnataka are now registered as vendors with ADM.

The company is also working directly with growers to support them through the process of certifying their farms for organic produce. This program aims at reducing the usage of agrochemicals resulting in better soil health and improving the livelihoods of small landholding farmers as their income increases due to better realizations on sale of organic products. ADM is ensuring that farmers get an assured premium price. ADM will purchase a bulk amount of certified Soy of up to 2000 metric tons per year through its centers. By paying the premium from the beginning of the conversion of soy crops, ADM is incentivizing farmers to continue their production of organic soy. Also, in this program ADM plans to implement digital solutions like Farmer App and Block Chain which supports in certification of organic produce and provide traceability to the customers thereby setting ADM apart from its competitors.

# AVT McCormick Ingredients Private Ltd.



## BACKGROUND INFORMATION

- **Name of organization:** AVT McCormick Ingredients Private Limited
- **Name of program:** Red Pepper Backward Integration Program
- **Starting year of program:** 1996
- **Area of operation (States and districts):** Telangana - 3, Andhra Pradesh - 2, Karnataka - 2, Tamil Nadu - 2

## EXPENDITURE ON PROGRAMME

- INR 1,473 lakh during 2020-21
- **In last five years -** 2016-17: INR 1,029.31 lakh, 2017-18: INR 777.22 lakh, 2018-19: INR 931.76 lakh, 2019-20: INR 708.82 lakh, 2020-21: INR 1,473.49 lakh

## PROJECT DETAILS

- **Crops covered -** Red Pepper
- **Total area covered (ha) -** 2,674 ha
- **Average landholding of farmers under project -** 2.54 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Sustainable sourcing of spices and providing a steady source of income to small holder farmers
- **Number of farmers impacted -**1,052
- **Total value of income enhanced as compared to base year -** INR 2,742 lakh
- **Value of income enhanced/ha -** 97,336 INR/ha

## Description of Intervention/ Program

AVT McCormick, established in 1993, is a 28-year Joint Venture between A.V. Thomas Group Companies, India and McCormick & Co. Inc., USA. The company is an export oriented business that processes spices into value added products.The company is a pioneer in Backward Integration program in spices. The program managed by a dedicated field team, is spread across Telangana, Andhra Pradesh, Tamil Nadu and Karnataka covering a total area of 2,674 Ha, in 2020-21.

The program aims to sustainably source the product and provide a steady source of income to the smallholder farmer group that forms the mainstay of its supply base.

The platform enables the farmer community to realize higher incomes by participating in a hybrid model that uses traditional wisdom and technology-enabled agricultural practices across the sowing-to-harvesting value chain. In addition, the company undertakes and implements social programs to support the standard of living and livelihood needs of its farmer community.

AVT McCormick creates added value for the farmers across four areas:

- **Consistent above-market revenues for meeting stringent export-ready standards** - This includes Regulatory standards compliance, Food Safe & Sustainably certified produce, Farm-gate procurement support, High - Value variant
- **Progressive reduction in cost of cultivation** through water usage optimization, Good Agricultural Practices IPM, Inputs cost reduction, Scientific advisory, Quick payments/reduced dependency on informal credit system.
- Livelihood support programs through community engagement
- **Deployment of Ag Tech Solutions:** The company makes extensive use of Ag Tech to drive innovation and transformative change in operational efficiency, farmer resilience and sustainability to impact the above value streams.

The Backward Integration team works closely with the farmers to design and implement several initiatives that support the above priority areas.



# Bayer Cropscience Ltd.



## BACKGROUND INFORMATION

- **Name of organization:** Bayer Cropscience Ltd.
- **Name of program:** Better Life Farming
- **Starting year of program:** 2016 onwards
- **Area of operation (States and districts):** India-14 states prominent being UP, Bihar, Jharkhand, Odisha, MP, Maharashtra

## EXPENDITURE ON PROGRAMME

- INR 20 Crores (2022)
- **In last five years -** 40 Crores (2018-2022)

## PROJECT DETAILS

- **Crops covered -** Paddy, Corn, Chili, Tomato, Sugarcane, Bengal Gram, Soyabean
- **Total area covered (ha) -** 1.5 lakh ha
- **Average landholding of farmers under project -** 2 Acres (0.84 Ha)

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** Increase Farmer Income through rural entrepreneurship leading to improved rural livelihood
- **Number of farmers impacted -** 3.5 lakhs farmers
- **Total value of income enhanced as compared to base year -** NA
- **Value of income enhanced/ha -** from Rs. 46000/ acre to Rs 244000/ acre in Chili crop.

## Description of Intervention/ Program

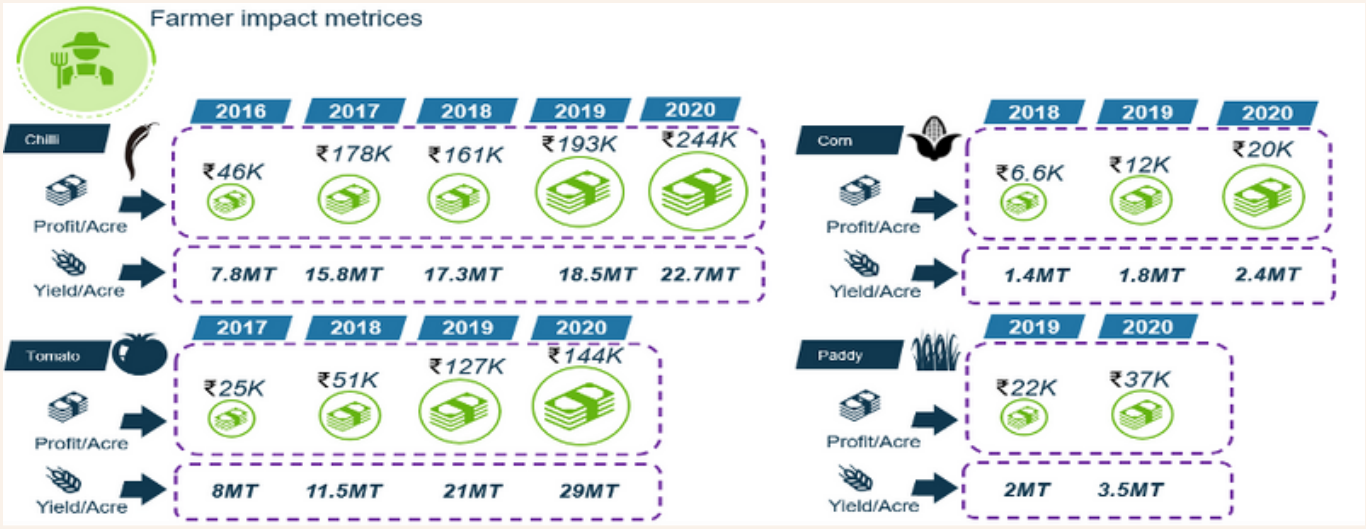
Enabling smallholders to unlock their true farming potential will increase food security in developing nations substantially, while reducing rural poverty and malnutrition. Since the challenges smallholders face are many-fold – such as a lack of access to high-quality agricultural inputs, market data and access, latest knowledge on Good Agricultural Practices (G.A.P.), and access to affordable financial services to name a few – holistic enabling solutions must address these multiple challenges simultaneously to be effective.

Better Lifer Farming (BLF) is an alliance consisting of private and public partners working together to improve the livelihoods of rural smallholders and their communities. It's activities are targeted to facilitate agricultural capacity building in rural areas. As such, BLF acts as last-mile delivery solution to provide rural farmers with access to high-quality agricultural inputs, services and trainings needed to enable farmers' capacity building.

By bridging the last mile into rural communities BLF creates an ecosystem connecting the farming community with the products and services local and global partners to enable smallholders to build commercially viable and sustainable farming businesses. BLF creates ecosystems that enable hundreds of thousands of smallholders to build commercially viable and sustainable farming businesses.

## Impact on farming and farmer income due to adoption of new approach

Model farm is the key component of ecosystem where we demonstrate all holistic good agriculture practices & showcase the impact. Below are the impacts of BLF approach in representative model farm




**Increase in Productivity and Income:** Our high engagement with farmer has shown increase in productivity by 1.5 times in paddy to 3 times in Chilli. This has also resulted in corresponding increase in profit/acre.

**Rural job creation:** Each BLF Center creates new rural employment with identification and appointment of the agri-entrepreneur. 1,100 agri-entrepreneurs across India (at the end of 2021), of which almost 5% are women, generate around 2,000 USD annual revenue per agri-entrepreneur, which is double the country's average rural farmer income.

**Promoting sustainable agriculture:** Aligned with UN sustainable development goals BLF promotes sustainable practices like Drip and sprinkler irrigation as irrigation practices, Direct seeded rice to decrease Greenhouse gas emissions, promotes sustainable and safe usage of pesticides and encouraging practices on Liquid fertiliser (Nano Urea etc) for creating efficient usage of resources.

**Including and empowering women:** An increasing number of women choosing to open BLF centers positively effect women empowerment and female farmer community building in rural areas. The centers, of which close to 5% are already run by women, are designed to create a gender-smart, balanced ecosystem, by onboarding women agronomists and agri-entrepreneurs, who can directly train women farmers and shape training schedules specifically designed to include female farmers in knowledge transfer and farming.




**Close ties with the community and crisis support:** Close ties to and established trusted relationships with the farming community allowed BLF to immediately support rural areas in reaction to the COVID-19 situation. BLF centers instantly adopted safety norms and educated farmers on hygiene concepts. BLF partners present on the ground ensured market linkages were upheld and both income to farmers, as well as food supply to the communities were maintained.

# Centre for microFinance



## BACKGROUND INFORMATION

- **Name of organization:** Centre for microFinance
- **Name of program:** Enhancing Food Security and Cash Incomes of 4,000 Women Small Holder Farmers in Tonk district, Rajasthan
- **Starting year of program:** 2020
- **Area of operation (States and districts):** Rajasthan - 1

## EXPENDITURE ON PROGRAMME

- INR 39.4 lakh during 2020-21
- **In last five years -** 2020-21- INR 39.40 lakh, 2021-22 INR 18 Lakh

## PROJECT DETAILS

- **Crops covered -** Groundnut, Blackgram, Pearlmillet, Mustard, Wheat, Vegetables (Tomato, Chilli, Lemon, Papaya, Guava)
- **Total area covered (ha) -** 1,432 ha
- **Average landholding of farmers under project -** 0.56 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Enhancing Food Security & Cash Incomes of 4,000 small & marginal women farmers in 50 rain-fed villages of Tonk district in Rajasthan, India
- **Number of farmers impacted -** 2,354
- **Total value of income enhanced as compared to base year -** INR 678 lakh
- **Value of income enhanced/ha -** 25,638 INR/ha

## Description of Intervention/ Program

In January 2020, the Louis Dreyfus Foundation(LDF) and Centre for Microfinance (CmF) embarked on a two-year program which aims to support 4,000 small & marginal women farmers of Tonk district in improved agriculture practices (IAPs) that can contribute to higher productivity and incomes.

**Major Objectives of Program-**

- Increasing the productivity of existing food and cash crops grown by 4,000 farmers by 35 to 60 percent against baseline which generates surplus food grains to meet food requirement of 3-4 months of household.
- Increasing the farmers' income by additional amount of INR 25,000 to INR 35,000 per annum through improved practices in major food crops.
- Promotion of INM & organic practices which will improve the soil health

# Coca-Cola India Pvt. Ltd.



## BACKGROUND INFORMATION

- **Name of organization:** Coca-Cola India Private Limited
- **Name of program:** Unnati Initiative (Fruit Circular Economy)
- **Starting year of program:** 2016
- **Area of operation (States and districts):** 12 States/UTs (Uttarakhand, Himachal Pradesh, Jammu, Kashmir, Uttar Pradesh, Maharashtra, Madhya Pradesh, Bihar, Tamil Nadu, Telangana, Andhra Pradesh, Karnataka)

## EXPENDITURE ON PROGRAMME

- Approximately 15 Crores
- **In last five years –** Approximately 125 Crores

## PROJECT DETAILS

- **Crops covered –** Mango, Orange, Apple, Grape, Litchi, Sugarcane
- **Total area covered (ha) –** Nearly 1 lac acres or 40,000 Ha
- **Average landholding of farmers under project –** 1.5 to 2 acres

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** Help in increasing productivity of horticulture farmers by adopting of hi-tech farming technologies along with promotion of sustainable agriculture practices leading to water and energy savings.
- **Number of farmers impacted –** 3.5 lakh
- **Total value of income enhanced as compared to base year –** Varies from one commodity to other. Enhanced the income upto 5 times in commodities like apple.
- **Value of income enhanced/ha –** Upto 20 lakhs per Ha.

## Description of Intervention/ Program

The Fruit Circular Economy (FCE) Initiative attempts to change the horticulture landscape of India by holistically addressing all the problems pertaining to agriculture, starting from low farm productivity, lower farmer income, inefficient water usage, lower quality of fruits, injudicious use of fertilizer and pesticide antagonising environment sustainability, low adoption of modern technology, and low access to market thereby leading to farm distress, migration of farmers to cities for alternate opportunities, suicides, and well as climate change.

Under FCE, the farmer-oriented activities are termed as Unnati initiatives. Coca-Cola has a strong juice portfolio and is incidentally one of the largest fruit buyers of the country. Before launching any Unnati Initiative, Coca-Cola works with its community partners and global experts to undertake gap analysis of Indian horticulture sector. It imports superior germplasm (varieties/rootstocks), does extensive productivity trials and market studies before introducing new technology in terms of cultivation practice (like ultra-high-density plantation), new varieties, rootstocks, and mechanisation.

**Unnati works on three aspects –**

- **Building Trust:** To build trust among the farmers, Coca-Cola establishes hi-tech demonstration orchards in its partner's land in the catchment area. Farmers are encouraged to visit these orchards that act as a college to impart practical education and thereby helps in building trust.

- **Building Capability:** Farmers are provided regular, in-depth, advanced level training through the field team. Mobile training units provide village level training to the farmers.

- **Building Enabling Infrastructure:** Nurseries for true-to-type varieties, tissue culture facilities, hardening centers, polyhouses, green-houses, training centers, soil and water testing facilities, digitization mechanisms, call-centers, IVRS infrastructure were created under the program.

**Impact on farming and farmer income due to adoption of new approach:**

FCE and Unnati Initiatives are making ultra-high-density plantation a new normal in case of farming. In terms of Impact, FCE has intervened in nearly 1,00,000 acres and has trained more than 3,50,000 farmers. In case of programs like Unnati Apple, it has led to 10X increase in plant population per acre, up-to 5X increase in productivity, nearly 8X increase in farm income. Increased quality, easy market linkage, lower farming risks are other benefits. It has also led to water conservation through drip leading to energy savings and environment sustainability

**Improvement in farmer income:** Under Unnati Apple, our farmers like Poonam Gaur, Aditya Rana, etc. have achieved a productivity of 10 tons/acre in the second year itself. They have sold the produce in the range of Rs 80 to Rs 125 per Kg which gives an average income of Rs 10 lacs/acre. If we compare it with traditional apple farming, average productivity of India is 8.1 tons per hectare which stands at nearly 3.5 tons/acre. Again, in traditional orchards, production starts after 5-7 years of plantation where as Unnati farmers have achieved it in second year. Average price for traditional apple farmers is nearly Rs 50-55 per kg. Taking all this into account, there is an 8 to 10X improvement in farmers' income.
Unnati initiative targets farmers who are currently growing potato and peas as subsistence agriculture where the income levels are way lower as compared to apple farming.

**Improvement in crop productivity:** 5X improvement in productivity. Plants under peak production (in 5th year) are expected to provide a yield of 20 tons/acre which is high than the current estimates.

**Any other:** The major impact is not in terms of productivity and income. The real impact is in terms of making the solution easily available to the farmers and stand behind them to support in their transition.
It has led to increase in livelihood where few qualitative changes that we can outline are -
-One of our farmers was able to arrange for her cancer treatment because of the returns from apple cultivation through Unnati.
-One of our Unnati farmers could fund her child's education by adopting hi-tech farming.
-Our Unnati Farmer, Vijendra Rana, who was a freedom fighter, around 90 years old, has found a new purpose in life by adopting apple farming and is trying to disseminate the same in his locality.

# Corteva Agriscience (Brand Pioneer)



## BACKGROUND INFORMATION

- **Name of organization:** Corteva Agriscience (Brand Pioneer)
- **Name of program:** Enhancing farmers' income by improving mustard productivity
- **Year of Execution:** 2014 - 2021
- **Area of operation (States and districts):** Mustard Growing areas of North India (Rajasthan, Haryana & Uttar Pradesh)
  Focus of this case study : Haryana

## EXPENDITURE ON PROGRAMME

- Approximately INR 15 crores
- **In last five years -** Approximately INR 60 crores

## PROJECT DETAILS

- **Crops covered -** Mustard
- **Total area covered (ha) -** 6.3 lakh ha of Haryana and 28 lakh ha all India
- **Average landholding of farmers under project -** 2.67 acres (1.08 ha)

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** Doubling of Mustard Farmer Income by Improving Productivity & Quality of Produce
- **Number of farmers engaged -** 4 Lakh farmers (Directly and Indirectly)
- **Total value of income enhanced as compared to base year -** Approximately Rs. 1430 Crore (in 2010) to Rs. 12482 Crore (2021)
- **Value of income enhanced/ha -** Approximately Rs. 28,700/ha (in 2010) to Rs. 1,68,000/ha (2021)
- **Value proposition in terms of better income for farmers:**
  - **Improvement in crop productivity -** Doubled farmers yield 1250 kg/ha to 2450 kg/ha and increased the oil content from 35% to 42%+ (adding additional Rs.450/ quintal to farmer's pocket or approx. Rs.11,000/ha additional income)
  - **If Haryana model can be replicate in Pan-India,** it can reduce edible oil imports by good 15%+ (without increasing area under production) which is roughly a saving of Rs. 1095 Cr in edible oil import.

## Description of Intervention/ Program

These areas being Rainfed, Mustard is the primary crop contributing to farmer's income. Though acreages were high, productivity was low 1490 kg/ha against 1980 kg per ha global productivity. India account for 19.8 % in total acreage but only 9.8% to the total production. Bringing Mustard acres in India to global yield levels of 1980 kg/ha, can reduce edible oil imports by good 15% (with same area).

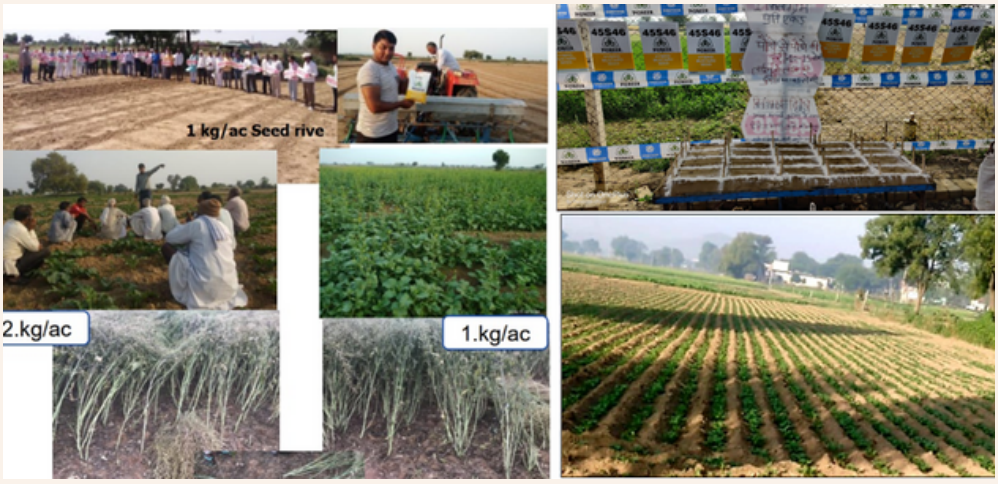
In 2010-11 avg yield that was 1250 kg/ha with 35-37% oil content, through CORTEVA initiative on Better Seed and Agronomy, covering 4 Lakh farmers, yields increased to 2450 kg/ha with oil content of 42%+, leading to doubling their income.

Corteva Agriscience is constantly working with farmers to understand their needs and problems to give them best solutions through technologically advanced new generation Hybrid seeds and soil & crop management education & training. Some of our on-ground initiatives are-

**Agronomy Center for excellence (ACE) -** In last 8 years, we have conducted 390 ACE and educated about 200000 farmers - A one of a kind of Farm School where Corteva educates the farmers on live crop in plots with required agronomy interventions like –

- **Sulphur application –** Till date Corteva has educated 74000 farmers, covering 340,000 mustard acres, on benefits of Sulphur as basal dose for improving the Oil content and application of Sulphur powder 80% WP for saving crop from frost.
- **1 Kg seed drive & mechanizations –** Generally because of poor germination, usually seed rate applied by farmers was more than 2- 3 kg/ac. This high population reduce yields and create issues like lodging. Corteva educated farmers on advantage of right plant population with seed rate of 1kg/ac. To save their hard-earned money and optimize the input cost while increasing the crop performance.

Corteva also educated farmers on mechanizations to optimize plant spacing to get maximum yield.




**Crop protection from major diseases –** Corteva educate farmers on major mustard diseases like Sclerotinia stem rot & white rust and means to control it through right chemicals. We also timely remind farmers through SMS & Progressive Farmers Platform, of right recommendations to save their crop from damage.

**Weed management –** Work in progress at Corteva to develop New Generation Technology to help farmers to solve their biggest problem of weed, which may drop the mustard yield upto 60-70% .

**Proper & Balance fertilizers -** Team Corteva conducted hundreds of demonstration activities and educated thousands of farmers on right fertilizer application to improve yield levels.

- **Field Days at standing Crops -** In last 8 years, we conducted 2451 PDA activities and educated about 200,000 farmers on live standing crop to show them the benefit of right seed and agronomic practices.

**High yielding new generation Hybrid mustard seeds -** Corteva Agriscience research team developed highest yielding mustard hybrids with best oil content. We distributed free samples to thousands of farmers (approx. 21k). Our latest hybrid doubled farmers yield 1250 kg/ha to 2450 kg/ha and increased the oil content from 35% to 42%

## Impact on farming and farmer income due to adoption of new approach:

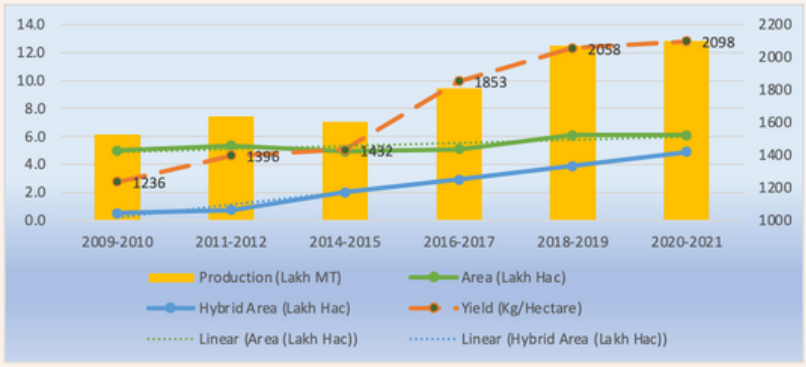



*Fig.1 - Total Area, Hybridised Area, Production & Productivity of Mustard in Haryana over the years [Data source : Govt. of India Agriculture report & Industry updates]*

Fig1. clearly shows how since 2014, with farmers adoption of hybrid mustard, yield/ hectare increased exponentially along with production volumes, despite of the fact that acreages under mustard production remain constant over years.

Hybrid Mustard farmers income doubled in last 6 years, with better yielding and high oil content variety of seed.

| Mustard growing states | Approx. % Hybridization | Production Area (in Hectare) | Avg. Yield kg/hac |
|---|---|---|---|
| Rajasthan | 27% | 2765251 | 1725 |
| Uttar Pradesh | 18% | 753181 | 1412 |
| Madhya Pradesh | 19% | 700437 | 1475 |
| Haryana | 85% | 606500 | 2098 |
| West Bengal | 3% | 605933 | 1200 |
| Bihar | 5% | 80586 | 1300 |
| **India** | | **612390** | **1511** |
| **World** | | | **1980** |

*Table1: Average Yield in Kg/Hac of key Mustard growing States vs World Average yield [Data Source: Govt. of India Agriculture reports]*

Table1 clearly reflects the impact of the work done with farmers of Haryana to enhance Hybrid seed adoption with best Agronomic practices, where average yield of mustard farmer has reached 2098 kg/hac vs world average of 1980 kg/hac.

Team at Corteva have also stared working with Rajasthan & Uttar Pradesh farmers to improve their productivity and there we can see drastic results in last 2-3 years. Similar work is going on in Bundelkhand by Corteva.

*If we can bring India to global yield levels of 1980 kg/ha in mustard, we can reduce edible oil imports by good 15%+ (without increasing area under production)*

# Enza Zaden India Pvt Ltd



## BACKGROUND INFORMATION

- **Name of organization:** Enza Zaden India Pvt Ltd
- **Name of program:** Pollen of Prosperity & Integrity
- **Starting year of program:** 2017
- **Area of operation (States and districts):** Maharashtra -1

## EXPENDITURE ON PROGRAMME

- INR 180 lakh during 2020-21
- **In last five years -** FY16 to FY21 - INR 390 Lakh

## PROJECT DETAILS

- **Crops covered -** Tomato, Sweet Pepper and Hot Pepper
- **Total area covered (ha) -** 50 ha
- **Average landholding of farmers under project -** 0.2 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Ensuring Income enhancement of seed producing farmers by providing alternate option of pollen production without losing IP of seed
- **Number of farmers impacted -** 150
- **Total value of income enhanced as compared to base year -** INR 133 lakh
- **Value of income enhanced/ha -** 150,000 INR/ha

## Description of Intervention/ Program

Companies always have a threat that their IP can be easily copied or stolen as companies do the production of seeds from growers and can't have security at growers' field round the clock. Situation is grim when the products are a blockbuster at national or global level. As the number of growers increases so is the threat.

The program objective is to ensure:

- **Higher yield for growers from same acreages**
- **IP Protection for companies**
- **Better profit sharing**
- **Sustainable profitable income growth for seed growers**

This program is aimed at creating an important step to improve the life of Vegetable seed-producing growers by providing them an alternate income enhancement source. By deploying an innovative approach of pollen production and bringing greater insights from global market, the company collaborated with growers to deliver the set objectives in Seed production sites with resulting impact on environmental and social aspects of sustainability.

## Existing Challenges

- The farmers were following traditional approaches to raise the crop like Poor net house infrastructure, out of window sowing, Poor agronomic practices (Improper staking to hold the plant, Unscientific ways of nutrient supply), scattered farms, post-harvest operations activities were carried out in farmers' fields
- The yield and quality results were not meeting as per company expectations and farmers did not able to make needed profit out of hybrid seed production program

**In 2016 Enza Zaden India started seed production activity in Deaulgaon Raja location which is 300 km away from Pune, Maharashtra India with an aim to improve the living standards of the seed production farmers by raising the seed yield and quality through innovative techniques/Mechanization. Following actions were taken to achieve this.**

- Shifting from traditional approach of seed production to novel method like scientific way of net house erection, planting on a raised bed, nutrient management depends on crop stage requirement, Input advance to the growers from company to purchase net house & chemicals
- Group farming Concept (bring 5-10 farmers to one place for production) help to effective monitor of fields improve the efficiency helps in the harmonization of process
- Frozen male pollen supply to farmers which help farmers to accommodate additional plants by which yield per unit has raised in same area.
- Seed extraction activity is carried through machines and seed treatment seed drying is in the designated Post-harvest operation facility help in raising the germination standards
- Seed cleaning through gravity separator machine which helps in ensuring to meet the physical purity standards

EZ India invested in all areas across our seed production supply chain, developing state-of-the-art products, programs, tools and services that enable farmers to do more with less and be the best stewards possible of the utilization of available resources. By delivering innovative solutions, empowering productive partnerships and leveraging the existing reach and scale, the company is advancing sustainability for the seed production growers in key geographies of Maharashtra.

# Gramin Vikas Trust



## BACKGROUND INFORMATION

- **Name of organization:** Gramin Vikas Trust
- **Name of program:** Natural Resource Management
- **Starting year of program:** 1999
- **Area of operation (States and districts):** Madhya Pradesh - 10, Odisha - 6, Chhatisgarh - 5, Jharkhand - 7, West Bengal - 7, Gujarat - 8, Rajasthan - 7, Uttar Pradesh - 5, Bihar - 6, Jammu and Kashmir - 2, Himachal Pradesh -1

## EXPENDITURE ON PROGRAMME

- INR 2,200 lakh during 2019-20
- **In last five years -** INR 7,900 lakh

## PROJECT DETAILS

- **Crops covered -** Maize (GM6), Pegionpea (Var.LRG-41) , Chickpea, Soya bean, Paddy, Barley RD-2035, Ashoka 200F (BVD 109), Ashoka 228 (BVD 110), Mustard, Mushroom, Fruit crop (Mango, Apple, Apricot, Guava, Papaya, Lemon), Sugarcane
- **Total area covered (ha) -** 218,159 ha
- **Average landholding of farmers under project -** 1.5 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Development of small fruit orchard and restoration of denuded land
- **Number of farmers impacted -**109,000
- **Total value of income enhanced as compared to base year -** INR 29,430 lakh
- **Value of income enhanced/ha -** 18,000 INR/ha

## Description of Intervention/ Program

Gramin Vikas Trust (GVT) nourishes participatory Natural Resource Management approach in instilling confidence and generating continuous improvements in socio-economic well-being. Gamin Vikas Trust has carried out extensive work on soil and water conservation, agricultural research and extension, diversified agriculture and capacity building programs. GVT interventions are spread over in 3,900 villages covering 94 districts in 25 states.

**WADI (Wasteland Area Development Initiative) –** The project focuses on the development of small fruit orchard and restoration of denuded land through ecological intervention and soil conservation measures.

Farmers who were only growing maize wheat and soybean in their farm were made aware about the WADI project and were brought into practice after several meetings about fruit plantation which included mango, pomegranate, lemon, etc.



Farmers were trained to prepare organic manure from the farm waste, whereas fertilizers and pesticides were provided at subsidized rates. Small irrigation systems were developed in which eligible farmers in convergence with the schemes of Agriculture Department were provided with the pipeline sets. Watershed development in various areas recharged the water levels and made the infertile lands fit for farming again. Village committees were provided with Higher Quality seeds and inputs for the cultivation of various climate resilient crops.

The trust has been guiding and supporting farmers through Agri-Dairy project interventions, which provided the farmers with a continuous flow of resources and income, resulting to increase in their annual income by 40%.

With its vast experience in Agriculture sector, the trust develops capacity of the Producer Groups of farmers, right form seed production through various demonstrations on field, thereafter through introduction of advanced technology of farming and finally post harvesting Mechanism, so that farmers can earn a decent livelihood by making their products potentially marketable.

# ITC Limited



## BACKGROUND INFORMATION

- **Name of organization:** ITC Limited
- **Name of program:** ITC Baareh Mahine Hariyali Programme
- **Starting year of program:** 2018

## PROJECT DETAILS

- **Crops covered -** Paddy/Rice, Wheat and Moong (Green Gram) and Horticultural crops such as Banana & Pink Guava
- **Area of operation (States and districts):** Uttar Pradesh - 4 districts

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Round the year engagement and interventions with appropriate agronomical practices for enhanced productivity, quality, and reduction in cost of cultivation, thereby improving farm profitability.
- **Number of farmers impacted till date -** Around 200,000 farmers
- **Total value of income enhanced -** Doubled Incomes of 35,000 farmers by adopting all the interventions and for the balance farmers the income improvement is in the range of 30% to 75%

## Description of Intervention/ Program

### Background:

**'Baareh Mahine Hariyali (BMH)'** is one of the several initiatives of ITC to help multiply farmer incomes in the country. It recognizes the need to find innovative approaches to significantly raise farmer incomes suiting the contexts of different crops and regions across the country. The Baareh Mahine Hariyali programme, active in four Uttar Pradesh districts – Chandauli, Ghazipur, Prayagraj and Varanasi – has already seen encouraging results.

ITC Limited – Agri Business Division through its decade long association with the farmers of Uttar Pradesh analyzed the issues or problems in the traditional method of farming to the depth and promoted various interventions/technologies. The 'Baareh Mahine Hariyali programme (BMH)' is founded on a 360 degree, multi-pronged model to raise farmer incomes. The fulcrums of the model are:

1. **Integrated Farming Model** – Cropping Intensity; Varietal Improvement & Productivity Enhancement; Sustainable Farming; Market Linkages.

- **Increased Cropping Intensity:** Interventions in Kharif-Paddy through short-duration varieties have enabled early harvest of Paddy and timely sowing of Wheat in Rabi, further aided by Zero-till and turbo happy seeder sowing of Wheat. This allows a third crop – Moong during summer – enhancing the cropping intensity generating additional income and improving soil fertility.

- **Productivity Enhancement:** Location specific improved seed varieties coupled with context specific agronomical practices like – seed treatment, balanced crop nutrition with leaf colour charts, irrigation scheduling during critical crop stages, terminal heat ameliorating sprays for improving wheat grain quality and prophylactic pest/ disease management are being demonstrated through Choupal Pradarshan Khets (on-farm demonstrations). These interventions have resulted in cost saving, improved yields, conserving natural resources.




- **Market linkages:** The above production interventions are aimed at 'producing the buy' (market/ demand based production). ITC provides market access through farm gate purchases at cluster level buying points wherein transparency in quality assessment, pricing & weighment are assured. ITC incentivizes quality produce, thereby aiding in improved adoption of best production practices.

2. **Crop Diversification and Value Addition –** Horticultural Crops; Perishable Cargo Centre

- **Horticulture Crops** - ITC in collaboration with Technico Agri Sciences limited & CISH, Lucknow started promoting the banana & pink guava plantation by providing seedlings prepared through banana tissue culture and Lalit variety of pink guava in Ghazipur and Chandauli districts.

- **Perishable Cargo Centre (PCC):** ITC is supporting Perishable Cargo Centre (PCC) in Ghazipur and Varanasi districts of Uttar Pradesh. The centre provides storage, chemical free ripening and market yard facilities to local farmers which helps in minimizing post-harvest losses by leveraging cold chain infrastructure and sell their produce to distant markets, thus enabling better price discovery. The center is involved in extension activities like crop development of vegetables, improved crop varieties and disseminating scientific know-how to local farmers comprising of best practices.

3. **Income Diversification:**

- **Agarbatti Rolling –** ITC is also focused on providing additional source of livelihood to women in rural areas and running Agarbatti manufacturing program in Chandauli district covering 11 villages.

# JU Agri Sciences Private Limited



## BACKGROUND INFORMATION

- **Name of organization:** JU Agri Sciences Private Limited
- **Name of program:** Sustainably increasing the farm income by improving crop yield and soil health
- **Starting year of program:** 2012
- **Area of operation (States and districts):** Haryana, Punjab, Uttar Pradesh, Uttarakhand, Rajasthan, Madhya Pradesh, Chhattisgarh, Bihar, Gujarat, West Bengal, Odisha, Andhra Pradesh, Maharashtra, Karnataka, Telangana. All districts of mentioned states

## EXPENDITURE ON PROGRAMME

- **Current year** – INR 800 Lakh during 2020-21
- **In last five years** – 4000 Lakh

## PROJECT DETAILS

- **Crops covered** – Paddy, Wheat, Cotton, G'Nut, Soybean, Potato, Chili, Sugarcane, Cumin, Chick Pea, Vegetables
- **Total area covered (ha)** – 275000 ha
- **Average landholding of farmers under project** – 1 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Reduction of chemical fertilizers usage and increase of yield
- **Number of farmers impacted** – 275,000
- **Total value of farmers' income enhanced as compared to base year** – INR 6,875 lakh
- **Value of income enhanced/ha** – 2,500 INR/ha

## Description of Intervention/ Program

JU Agri Sciences, a subsidiary of Jhaver Group has developed a range of Bio-fertilizers, namely Ecomax and Azomax which has proven to be especially helpful in not only enhancing farmers income by increasing both quality and quantity of the yield but is also helping address issue of degrading soil health and fertility. Both Azomax, which contains Azotobacter spp. a free-living Nitrogen fixing bacteria, and Ecomax, which is a Vesicular Arbuscular fungi-based Mycorrhiza, are highly effective new generation bio- fertilizers which helps in restoring the soil fertility that has been adversely impacted by the indiscriminate and imbalanced usage of chemical fertilizers in addition to also improving crop yield and quality without adding to input cost.

The company regularly conduct Farmer Training Programs across the country prior to, during and after crop season to emphasis on the importance of inclusion of Bio-fertilizers in the overall nutrient management schedule. In addition, retailer training programs are also conducted to emphasizes on use of bio-fertilizers. The entire program has resulted in improvement in productivity, reduction in the use of chemical fertilizers, reduction in production cost and better ROI.



# Krushi Vikas va Gramin Prashikshan Sanstha



## BACKGROUND INFORMATION

- **Name of organization:** Krushi Vikas va Gramin Prashikshan Sanstha
- **Name of program:** Jalsamruddhi - EATON India Foundation
- **Starting year of program:** 2019
- **Area of operation (States and districts):** Maharashtra - Ahmadnagar

## EXPENDITURE ON PROGRAMME

- INR 83 lakh
- **In last five years -** 2019-20 - INR 48 Lakh, 2020-2021 - INR 83 Lakh

## PROJECT DETAILS

- **Crops covered -** Onion, Green gram, Cotton & Horticulture etc.
- **Total area covered (ha) -** 2,500 ha
- **Average landholding of farmers under project -** 1.24 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** Jalsamruddhi aims to promote interventions to mitigate the impact of drought through systematic interventions via capacity building programmes and soil & water conservation measures in drought-affected 3 villages in Ahmednagar district. The ultimate objective of the project is to sustain the livelihoods and improve quality of life of communities living in the identified villages. Following objectives have been planned for the programme:
  - To prepare plan for complete soil water treatment along with livelihood promotion to mitigate the drought
  - To undertake soil and water conservation treatments on 2500 Ha. Land
  - To promote and strengthen CBOs like SHGs and FPO
  - To promote Agriculture, Animal Husbandry and other non-farm enterprises
  - To facilitate convergence for promotion of other activities for Socio-economic development of the Watershed Community
- **Number of farmers impacted -** 636 farmers
- **Total value of income enhanced as compared to base year -** Rs. 5,57,09,720 (94.43%)
- **Value of income enhanced/ha -**Rs. 62,633

## Description of Intervention/ Program

The project villages were suffering from the drought situation in year 2018 and therefore, interventions were to be proposed to overcome this situation to reduce the shocks from hazardous situation. Water scarcity was the major issue and uneven demographic structure of the topography made communities suffer a lot. In turn, communities could not also sustain the traditional methods of preserving water in this locality. As a result, communities were migrating and livelihood options were devastated in the region. The Jalsamruddhi programme conceptualised by EATON India Foundation and Krushi Vikas raised a ray of hope among the communities to regain the prosperous situation in their habitations.



**Strategy Used to overcome needs:**

- **Systematic approach:** Processes started from need assessment, village development plan, partnerships & execution and to the sustainability.
- **Capacity building:** A basic understanding of stakeholders upgraded to the level of collective action required for development initiative

- **Strengthening and diversification of Livelihoods:** A mare source of livelihood increased to widened scope of livelihood options like fisheries, poultry, dairy, goat, horticulture, climate-resilient cropping etc.
- **Social Cohesiveness:** Socially disadvantaged sections incorporated into collective initiatives leading to form a group action instead of individual actions like promotion of women farmer producer organizations, farmer groups, SHGs etc.
- **Natural Resource Management:** A community-owned actions led to overcoming challenges while strengthening dormant structures to create additional potential of water storage. Community ownership on such structures is helping structures maintain its potential in the long run.
- **Convergence in sync with Government programmes:** Identifying potential government schemes/programmes and linking them with the ongoing works helped converge additional works. Government planning incorporated strengthening of initiatives further ensured the sustainability.

**Any other impact on farming:**

Apart from achieving the project objectives, the project succeeded in doubling farmers' income & brought in social cohesiveness among communities. Some other impacts as mentioned below:

- Shift from conventional to modern practices led to increased productivity and so the income.
- Agri-allied enterprises fostered dairy, fisheries, and the like activities supporting additional support to agriculture.
- The regular impact of watershed activities is seen as far as agricultural operations are concerned.
- Promotion of farm ponds led to the availability of a perennial source of water for agriculture operations especially, horticulture and thereby to the allied livelihood options like fisheries & Dairy.

# Lawrencedale Agro Processing India Pvt. Ltd.



## BACKGROUND INFORMATION

- **Name of organization:** Lawrencedale Agro Processing India Private Limited
- **Name of program:** Livelihood improvement of marginalised and tribal small-hold farmers
- **Starting year of program:** 2016
- **Area of operation (States and districts):** Andhra Pradesh - 10, Tamil Nadu - 12, Karnataka- 12

## EXPENDITURE ON PROGRAMME

- INR 200 lakh during 2020-21
- **In last five years -** INR 10 crore

## PROJECT DETAILS

- **Crops covered -** Carrots, Beetroots, Okra (Ladies Finger), Broccoli plus other 50 varieties of fruits and vegetables, turmeric, coconut
- **Total area covered (acre) -** 2 lakh acres
- **Average landholding of farmers under project -** 1.5 acres

## VALUE PROPOSITION AND IMPACT

- **Program Objective: Tribal and marginalised small land-hold farmers livelihood enhancement by: Improving the quality of harvest, reducing the cost of cultivation,** Diversification into market relevant crops
- **Number of farmers impacted -** 500,000
- **Total value of income enhanced as compared to base year -** NA
- **Value of income enhanced/ha -** 150,000 INR/ha

## Description of Intervention/ Program

The Governments of Tamil Nadu, Andhra Pradesh and Karnataka have been putting in tremendous efforts to improve the livelihoods of the tribal and marginalised small land-hold farmers. It is in this larger scheme of things, India's premier agriculture services major Lawrencedale Agro Processing India (LEAF) signed a Public Private Partnership for Integrated Agriculture Development (PPP-IAD) during February 2016. With great support from Andhra Pradesh, Karnataka and Tamil Nadu Government's Horticulture Department and Tribal Welfare Department, there has been considerable improvement in the livelihoods of the marginalised & tribal farmers when LEAF Lambasingi Farmers Producer Company was incorporated.

Farmers are currently cultivating traditional varieties of vegetables, following conventional cultivation practices. Selection of the crops for the cultivation is either adopted since generations or by mutual consultation with other farmers. In the current scenario, customer preferences and consumption patterns of vegetables is changing fast with changing lifestyles. This changing and ever-growing need of the retail customer needs to be fulfilled.

The potential for growing such vegetables exists in Lambasingi and can be harnessed by bringing in the necessary awareness, providing market support and through technical intervention

**Detailed list of activities undertaken by LEAF**



- Understanding the soil strength
- Improving the soil strength
- Advice on selection of better seeds/seedling and varieties
- Innovative cultivation practices and methods for improving product quality
- On farm technical support to deal with various day to day cultivation related issues
- Developing necessary post-harvest and logistic infrastructure
- Technical Training
- Source of irrigation - Assisted in farm pond creation, free diesel pump sets to the farmers with the assistance of Dept of Horticulture
- Training in cultivation of exotic vegetables, nursery management, harvesting, grading and storage at The Nilgiris district in TamilNadu
- Introduced better varieties of Broccoli, Zucchini, Turnips, European Carrots, Iceberg, Chinese cabbage, Round Cabbage, Red Cabbage, Leeks, Celery, Red Radish, Beetroot
- Introduction of high yielding varieties of other traditional crops like Tomatoes, Brinjal, okra, Beans etc.
- Building of shade net nursery in the agency area for raising seedlings of exotic vegetables with the assistance of Dept of Horticulture

LEAF engaged in capacity building for marginalised & tribal farmers using method demonstration, Exposure visits with in the states and front line demonstration. The training on a regular basis includes various methods of modern techniques used in agriculture including integrated pest management, new crop, market intelligence, Grading, sorting information and methods. The exposure visits help the farmers to have hand on experience and help them to learn the techniques and what the other group of farmers do to improve their livelihoods.

**Key benefits/achievements brought through the intervention:**

- Farmers' income increased as they are cultivating round the year various crops
- Stability in the rates of the produce
- High value crops will be grown and it will fetch more income
- Farmers need not to go out for marketing or bother about the finance
- Adaption of new techniques will help the farmers to increase the yield many folds
- Cultivation of new and non-conventional vegetables will have the added advantage
- Varietal intervention- Varieties suitable for Retail industry introduced, fetching higher returns to the farmer
- Increased yield - Yield increment owing to better crop management and soil testing services

# Mondelez India Foods Pvt. Ltd



## BACKGROUND INFORMATION

- **Name of organization:** Mondelez India Foods Pvt Ltd (Formerly Cadbury India Ltd)
- **Name of program:** COCOA Life Program (CL)
- **Starting year of program:** 2010
- **Area of operation (States and districts):** Andhra Pradesh -9 districts, Kerala -12 districts, Tamil Nadu - 9 districts. Karnataka - 3 districts, Total - 33 districts

## PROJECT DETAILS

- **Crops covered -** Cocoa
- **Total area covered (ha) -** 52,000 ha
- **Average landholding of farmers under project -** 0.54 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Enhancing the sustainability of the cocoa supply chain and enabling additional revenue for cocoa farmers.
- **Number of farmers impacted -** Average over 4000 farmers per year
- **Total value of farmers' income enhanced as compared to base year -** by 43%
- **Acreage involved -** 2160 hectares average per year

## Description of Intervention/ Program

Cocoa Life India is an initiative by MDLZ aimed at enhancing the sustainability of the cocoa supply chain. The Cocoa Life journey in India began in 1965. Cocoa not being native to India, an experimental cocoa farm was set up by the company. After proving its viability, commercial cultivation expanded in India allowing diversification beyond coconut trees. It is a unique model of cocoa planting which is promoted by Cocoa Life in India, as an intercropping and mixed cropping model. Huge tracks of land cultivated with Coconut, Arecanut, Oil Palm and Rubber exists in the Southern part of India where Cocoa Life is spearheading the cultivation of cocoa as intercrop, benefiting the farmer to earn additional income from the same piece of land.

Cocoa Life program in India focuses on the holistic development of cocoa farming community in which it operates and addresses five key areas of Farming, Community, Livelihood, Youth and Environment. The Cocoa Life program in India supplies quality planting materials through its widespread network of cocoa nurseries to farmers and provides technical guidance, encouraging economic development, which in turn builds prosperity in this region.

The program in India reaches nearly 100,000 cocoa farmers and adds >4,000 new cocoa farmers every year through an exclusive cocoa extension program with a specialized cocoa technical team on the ground.

Cocoa Life supports the cocoa farmers by training them on Good Agriculture Practices (GAP) through the dedicated technical team undertaking individual and group interactions at farm level. An exclusive Cocoa Manual which includes all the scientific cultivation methods for cocoa growing is prepared in local languages and circulated to the farming communities by Cocoa Life. Cocoa extension team reaches out to through educational materials, Audio-visual media and Digital platforms.



These programs in local languages ensure all relevant information on scientific cultivation methods for cocoa growing are circulated to the farming communities by Cocoa Life. These interventions have helped in India achieving the highest per plant productivity among the cocoa growing countries in the world, thereby enhancing the income of the Indian cocoa farmer.

Mondelēz does the procurement of cocoa directly from the farmers through our network of third party operators, and the farmers get the benefit of best farm gate price thereby avoiding middlemen and traders. Farmers are also trained on the correct methods of primary processing of cocoa beans so that value addition happens at the farm level and thereby ensuring best price for their produce. The program is also exploring to adopt new innovative technologies for farmer reach and communication program and to create a mutually beneficial ecosystem of increasing productivity, quality and thereby improved income.

Cocoa Life initiatives ensures socio-economic and environmental sustainability for the cocoa produced in India. CL conducts exclusive Women-centric programs which focuses on Empowerment, better health and hygiene and financial independence. Marginalised Tribal communities are enrolled into cocoa life program and its impacts are visible in the communities. Focus on basic infrastructure of the rural schools over the last few years has benefitted more than 3000 students from economically challenged back-ground. These initiatives in cocoa growing regions go a long way in creating a greater bondage with farming community, community leaders, academicians, scientists and Government officials for the Sustainable development of Agriculture.
MDLZ was actively involved for Covid 19 related programs for cocoa workers and procured cocoa during peak Covid lock-down adhering to all protocols and sourcing from cocoa farmers thereby providing much needed economic support even during pandemic.
From being a net importer of cocoa, Mondelez India today sources more than one-third of its current cocoa requirements locally, making it the single largest corporate organization to nurture and promote cocoa cultivation at scale in India.

# Olam Agri India Private Limited



## BACKGROUND INFORMATION

- **Name of organization:** Olam Agri India Private Limited
- **Name of program:** Pehla Kadam Desh Ki Muskaan (PKDM)-Climate Smart Sustainable Rice cultivation project India
- **Starting year of program:** 2019
- **Area of operation (States and districts):** Haryana- 2 Districts–i. Fatehabad (blocks: Ratia ) ii. Panipat (block: Mad Lauda)

## EXPENDITURE ON PROGRAMME

- INR 70 lakhs
- **In last five years –** ~ INR 1.5 Cr (in the last 2 years)

## PROJECT DETAILS

- **Crops covered –** Rice
- **Total area covered (ha) –** ~4000 Ha
- **Average landholding of farmers under project –** ~ 3-5 Ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Catalysing farmers' behaviour to adopt sustainable climate smart & resilient rice production
- **Number of farmers impacted –** ~3000 farmers
- **Total value of income enhanced as compared to base year –** INR ~21 Cr
- **Value of income enhanced/ha –** INR 80,000 per Ha

## Description of Intervention/ Program

2020 COP26 in UK squarely put the spotlight on the role and contribution of food and agriculture systems in global climate-change – both as a contributor and as a victim. In the global effort for climate-change mitigation and adaptation, rice is by far the most important agriculture commodity (after livestock) in terms of GHG emissions (>10% man-made methane emissions), land-use (15% global wetlands), water-usage (40% global freshwater), and livelihood for millions of smallholders (earning USD2-7/day) in Asia and Africa. In India ,Rice is one of the largest staple crops grown in India for consumption by over 500 million people and also a crop which is exported several countries across the globe. The project aims to promote climate smart sustainable rice cultivation with smallholders covering more than 5,000 farmers and>10,000 Ha of land in next 3 years. Few of the key challenges (mentioned below) affecting sustainable rice production in the project sites are related to resource availability, resource use efficiency and degradation. The project is built on key on-ground partnerships with international agencies such as International Financial Corporation (IFC) for capacity building and technical inputs, public sector agencies such as National Rural Livelihood mission for promotion of women empowerment, private partnerships with Bayer Crop Science for safe pesticide usage, Netafim for improved irrigation technologies & TraceX Technologies for end-to-end digital traceability.

**The project addresses following concerns:**

- Growing scarcity of water due to over-exploitation and monsoon vagaries due to climate-change experienced in the project geographies posing risk for rice farming
- GHG emission due to rice cultivation. As Rice is a major source of methane, a Green House Gas which is 72 times more potent than CO2.
- High pesticide (MRL) residue level in the rice cultivated resulting in export rejections.

In collaboration with International Finance Corporation (World Bank Group member organisation) , the following interventions to save water as well as reduce GHG emissions, have been introduced in the project areas :

- Project has facilitated demonstration of laser land-leveling, Direct seeded Rice and Alternate Wetting and Drying Techniques (AWD). Demonstrations together with trainings have encouraged, motivated farmers on significant scale up of AWD which was historically flood irrigation.
- Regular trainings and field demonstrations on benefits of adopting climate smart sustainable practices/techniques will encourage and lead to wider scale of adoption by farmers.
- Project has conducted a detailed water footprint assessment for farms growing sustainable rice and compare it with conventional rice cultivation as follows:
- Project has also conducted a detailed carbon footprint assessment for farms growing sustainable rice and compare it with conventional rice cultivation using IPCC Calculation.

Training and Capacity Building of Rice Smallholders on Climate-Smart, Sustainable Rice Cultivation Practices, with support from IFC:

- Development of e-learning modules for farmer training and capacity building on climate-smart, sustainable rice cultivation practices aligned with Sustainable Rice Platform (SRP)
- Promoting financial literacy program in agribusiness focused on improving financial literacy and awareness for smallholders.
- Gender smart training and extension: Basis the findings from the gender assessment, project has developed gender-smart training tools and programs

Overall, the project is working achieve the following i. Shatter the myth that rice cannot be grown sustainably by smallholders ii. Involving women smallholders as equal decision-makers in rice cultivation; iii. Facilitating partnerships including convergence of the State; iv. Leveraging technology to leapfrog farm extension and quality assurance

**Any other impact on farming:**

**Improvement in crop productivity:**

- Project farmers' yield increased by 8-10 percent as compared to non-project farmers
- Cost of production was reduced by at least 15 percent
- Net income of farmers increased by at least 20 percent
- 80 % of total rice production in Residue free paddy production; 10,000 t of paddy production



Digital App training

**Any other:**

- Environmental Benefits:
- Water-use avoided/water savings is ~5 billion liters in two year due to >30% water savings due to AWD adoptions
- Over 1,000 hectares of land under one or more climate-smart agri-water and smart land-use practices

**Social Benefits:**

- Training/capacity building of > 1,000 smallholders on adoption of climate-smart rice cultivation
- >10 Krishi Sakhis have acted as extension agents cum women entrepreneurs and have trained at least 200 women farmers in the last two years

# Organic India Pvt Ltd



## BACKGROUND INFORMATION

- **Name of organization:** Organic India Private Limited
- **Name of program:** Promoting Healthy Conscious Living
- **Starting year of program:** 1997
- **Area of operation (States and districts):** Uttar Pradesh -5, Madhya Pradesh-2, Rajasthan-2, Uttarakhand -1, J&K -1

## EXPENDITURE ON PROGRAMME

- INR 50 lakh during 2019-20
- **In last five years -** INR 250 lakh

## PROJECT DETAILS

- **Crops covered -** More than 90 crops covered under this program perineal, Kharif and Rabi. Out of these, 35 new crops cultivation introduced by the company.
- **Total area covered (ha) -** 4,040 ha
- **Average landholding of farmers under project -** 1.81 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Diversification to high value crops cultivation for income enhancement of farmers
- **Number of farmers impacted -**2,232
- **Total value of income enhanced as compared to base year -** INR 60 lakh
- **Value of income enhanced/ha -** 10,000-15,000 INR/ha

## Description of Intervention/ Program

Organic India started the organic Tulsi leaves cultivations as pilot with three farmers in 1997 at Azamgarh. Many years of experiments led to establishment of commercial cultivation method of Tulsi. Initially it was a great challenge to motivate farmers to start commercial cultivation of Tulsi on a large scale as they were mostly growing the traditional crops like Finger millet, Maize, Paddy etc. The great effort by farmers with the support/ guidance of Organic India to adopt cultivation of Organic Tulsi with guaranteed buy-back system was a life changing initiative for the farmers. With cultivation of Tulsi and other herbs, farmer's income increased many folds as compared to the other traditional crops cultivations. At present the company is working with 2,232 farmers with more than 10,000 acre area in 121villages in different states of India with moto of holistic sustainable approach.

Every year through this program the company is procuring 700 to 1,000 MT dry tulsi leaves, creating livelihood in villages not only for farmers but for farm workers for continuous six months right from nursery raising to transplanting, interculture operations, harvesting and post-harvest cleaning, drying and packing, leading to about 150,000 man days employment generated at farmers field. Apart from Tulsi cultivation the company also introduced many other herbs to give option to farmers for other season high value crops like Rose, Quinoa, Chamomile, Hibiscus, Chia seed, Moringa, Brahmi, peppermint, spearmint, Chicory, Ashwagandha, Bhumiamalaki (in total 35 type of herbs).

**Some of the initiatives taken under this program are listed below:**



- Organized many capacity building training, demonstrations, sustainable cropping pattern, methods of ploughing, sowing and promoted farm-based input preparation i.e., Farm waste manure, efficient uses of cow dungs and urine, heap compost, different liquid fertilizers like Jeevamrit, Beejamrit, liquid manure, vermi compost, green manure, vermi wash etc.
- Offering of high value crop for cultivation
- Premium price from market rate confirmed in written before planting the crop
- Facilitation for organic certification
- 24x7 support by Agriculture expert team
- Establishment of Procurement/ processing centres at middle of project area for convenient and easy approach to farmer to sell their products to Organic India
- Support in term of supply of sheet for drying and packaging material before harvesting
- Free of cost seed provided to farmers and few crop seeds at no profit not loss basis
- All the herbs environment friendly, can be cultivated with very less irrigation water
- Easy handling for harvesting and post-harvest management
- Security of production in any case high rain fall or low rain fall. Majority of herbs like tulsi, chamomile, lemon grass, Brahmi, peppermint are not grazed by stray animals and is a major beneficial aspect to farmers to cultivate these herbs.
- On time payment and direct transfer in farmers bank account
- Organic India organizes annual farmers meet every year as “Kisan Samman Smaroh”.
- In addition, **Project ‘Paani Shakti’** is an initiative of the CSR (corporate social responsibility) arm of Organic India to support groundwater regeneration and ecological resilience in rural parts of Bundelkhand, one of the driest and drought prone regions of India, in a phased and systematic manner. We aspire to create a replicable and sustainable model for the implementation of rainwater harvesting, groundwater regeneration and water conservation measures in rural parts of India focusing on farming areas of Bundelkhand, empowering the communities who live in these areas to tend to, enhance and care for their groundwater reserves in a lasting way.

# Participatory Rural Development Initiatives Society



## BACKGROUND INFORMATION

- **Name of organization:** Participatory Rural Development Initiatives Society (PRDIS)
- **Name of program:** Better Cotton Initiative Program & Sustainable Spices Initiative
- **Starting year of program:** 2011
- **Area of operation (States and districts):** Telangana-8; Andhra Pradesh-2

## EXPENDITURE ON PROGRAMME

- **Current year** -INR 99 lakh during 2019-20
- **In last five years -** FY 2015- INR 127 lakh; 2016- INR 208 lakh; 2017- INR 131 lakh; 2018- INR 159 lakh; 2019- INR 99 lakh.

## PROJECT DETAILS

- **Crops covered -** Cotton, Chillies
- **Total area covered (ha) -** 33,768 ha
- **Average landholding of farmers under project -** 1 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Productivity enhancement with eco-friendly technologies and supply chain management of crops
- **Number of farmers impacted -** 46,750
- **Total value of income enhanced as compared to base year -** INR 9,200 lakh
- **Value of income enhanced/ha -** 20,000 INR/ha

## Description of Intervention/ Program

PRDIS since its inception has been focusing its attention on Sustainable Agricultural Development programmes majorly on Productivity, income enhancement Initiatives with eco-friendly technologies in different crops operating in different states in India and also in African countries, benefitting about 2 lakhs directly and about 10 lakhs farm families indirectly.

The organization has been implementing a productivity enhancement programme in cotton with IPM and INM technologies using Farmer Field Schools (FFS) approach since 2002 with support from FAO, Solidaridad, Syngenta Foundation and state governments.

Better Cotton Initiative Programme is currently being operated with about 28,000 farmers. Interventions were undertaken for reducing cost of cultivation through efficient seed usage, fertilizer management, pesticide management and following best practices of water management, plant population, and fibre quality for getting higher yields.



BCI programme has contributed to sustainable agricultural development and income enhancement by reduction in costs and increasing the yield besides adoption of eco-friendly agricultural practices by the farmers to get additional net income of Rs 20,000 on an average per hector in rainfed areas and much more income (30000 per hector) in wetland areas in addition farmers who have also practiced intercropping also got additional income.

# Rivulis Irrigation India Pvt Ltd.



## BACKGROUND INFORMATION

- **Name of organization:** Rivulis Irrigation India Pvt Ltd.
- **Name of program:** Navraswadi Lift Irrigation Scheme for Vasantadada Irrigators and agro producer company Ltd
- **Starting year of program:** 2019
- **Area of operation (States and districts):** Sangli, Maharashtra

## PROJECT DETAILS

- **Crops covered -** Sugarcane
- **Total area covered (acre) -** 400 acres
- **Average landholding of farmers under project -** 0.40 Acre

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** A Large Scale Centrally controlled Automated Community Drip Irrigation Project of Sugarcane
- **Number of farmers impacted -** 215 Farmers
- **Total value of income enhanced as compared to base year -** 50-60%

## Description of Intervention/ Program

Drip irrigation is one such technology which ensures high water-use efficiency by reducing conveyance loss, evaporation from soil and continuous maintenance of available soil moisture. On the other hand, drip fertigation ensures judicious use of fertilizers by enhancing fertilizer use efficiency and reducing environmental pollution. The drip irrigation and fertigation methods also result in less weed infestation.

The average sugar production from utilizing drip irrigationhas reached around 80-100 tons/acre, whereas maximum sugar production possible from conventional irrigation only accounts for 50- 60 tons/acre.

The Navraswadi Community Drip Irrigation Project was designed to address uneven water distribution and water wastage with flood irrigation. In this scheme water being lifted from Krishna river was pumped to the farmers field after every 2-3 weeks through surface irrigation and were traditionally irrigating the fields with flood irrigation. The intervention of lifting water from centrally located storage tank by a network of pipelines and optimally distributing the water to each and every Sugarcane farm with last mile connectivity with Micro Irrigation has extensively changed the economic landscape of the regions. This project was a taken as a Community Initiative to improve the water access to approx. 215 Sugarcane farmers covering 400 acres.

These farmers are shareholders of the Vasantadada Sugar Factory situated at Sangli, Maharashtra. The overall project was designed with advanced tools & software hence ensuring the accuracy with minimum possible errors. The industry's most competitive drip irrigation Products & Services were offered. Rivulis also provided after sale technical services (ASTS) after the installation to ensure the smooth functioning of the systems & client satisfaction. With the intervention of drip irrigation, the entire project was designed for daily irrigation as per the crop water requirement ensuring better & optimal irrigation planning.

**The key features of the project is its automated and operated with least Intervention as below :**

1. The Centralized Irrigation Controller starts the pumps and automated electric valves as per Irrigation schedules of each growers
2. The Self Cleaning Automatic Filtration System ensures seamless operation of the system.
3. The system operates on Wireless control mechanism with the centralized controller instructions being communicated to operate the system through the Remote Terminal Units(RTU) located in the farms.
4. The Irrigation scheduling advisory is provided with Remote Sensing based Water Management Manna Irrigation Intelligence Software which advises on application of water as per crop growth stage using hyper local weather data and information to the growers on when to irrigate and how much to irrigate.
5. Centrally monitored and hassle free irrigation control systems.

**Key benefits proven by using drip irrigation technology for Sugarcane crop are demonstrated below:**

| S.No. | Particulars | Units | Conventional Irrigation | Drip Irrigation | Average Gains |
|---|---|---|---|---|---|
| 1 | Water Use per Hectar | MM/year | 2138 | 1150 | 46 (%) |
| 2 | Average yield of Sugarcane | Tons/ acre | 67 | 100 | 50(%) |
| 3 | Average Sugar recovery | Percent | 10 - 11 % | 12-13 % | 1 ( %) |



## Impact on farming and farmer income due to adoption of a new approach

The Increase in farmer's income with Increase in Productivity has tangible impact on the income of the growers. Apart from these economic benefits, other advantages with Drip Irrigation were:

- Equitable distribution of water to all the growers
- Uniform & High Germination
- 40 to 70 % Water Saving ensuring proper balance of Water and air in Soil resulting in luxuriant growth of cane
- Higher tillers in the cane
- Increase in yield of Cane
- Application of Water Soluble Fertilizers through Irrigation helps in increase in yield and wastage
- Precision Irrigation ensures proper aeration resulting in lower Diseases & Pest infestations.
- Saving labour and Fertilizers leading to considerable input cost savings
- Reduced pumping hours and thereby electricity charges to the growers.

# Saga Seeds Company



## BACKGROUND INFORMATION

- **Name of organization:** Saga Seeds Company
- **Name of program:** Enhancements of farmers income through new verity adoption in intercrop/ relay Crop / mix crop and as sole crop cultivation in Rainfed and Irrigated area of Gujarat
- **Starting year of program:** 2017
- **Area of operation (States and districts):** Gujarat - 25

## EXPENDITURE ON PROGRAMME

- INR 8 lakh during 2020-21
- **In last five years -** 2016-17: INR 4 lakh, 2017-18: INR 5 lakh, 2018-19: INR 7 lakh, 2019-20: INR 9 lakh, 2020-21: INR 8 lakh

## PROJECT DETAILS

- **Crops covered -** Urad (Black Gram) cultivation with Cotton, Castor, Arhar
- **Total area covered (ha) -** 19,000 ha
- **Average landholding of farmers under project -** 1.5 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** Promotion of Intercropping with Black gram SAGA 11 for farmer income enhancement
- **Number of farmers impacted -** 12,500
- **Total value of income enhanced as compared to base year -** INR 3,990 lakh
- **Value of income enhanced/ha -** 21,000 INR/ha

## Description of Intervention/ Program

The company is promoting intercropping of BLACK GRAM (URAD) SAGA 11 with pigeon pea, castor, desi cotton and hybrid cotton. BLACK GRAM (URAD) SAGA 11 is 15% higher yielding variety than other varieties. Due to its ability to survive even during heavy rains and its ability to give moderate yield even in times of low rainfall and humidity, the farmer's crop does not fail completely. Adoption in intercropping is due to various properties such as vertical growth, early maturity, nearby protruding branches, flowering starting from the base, rupture and falling of mature pods is reduced. Due to which farmers do not have a negative impact on the yield of the main crop and do not have to reduce the area under the main crop.

Farmers also have choice to cultivate this variety in semi rabi and summer season. Also, crop management require less effort and ultimately farmer get bumper yield with low cost. Reaching the farmer's farm and holding talks and meetings, the company encouraged them to guide the intercrop and increase the source of income through its cultivation. The company is also focussing to increase the seed replacement ratio and to encourage farmers to plant first generation treated seeds instead of home-grown seeds. As this variety of fodder is also used, it gives additional benefits to the farmers. Being a legume, it improves the soil and adds nitrogen to the soil.

# Samunnati



## BACKGROUND INFORMATION

- **Name of organization:** Samunnati Financial Intermediation and Services Pvt Ltd
- **Name of program:** FPO's promotion & capacity building - Avantika FPO
- **Starting year of program:** 2018 - Ongoing
- **Area of operation (States and districts):** Agar Malwa district, Madhya Pradesh

## EXPENDITURE ON PROGRAMME

This is not a time-bound project by Samunnati but a part of its ongoing business engagement providing financial & non-financial support to the FPO

## PROJECT DETAILS

- **Crops covered -** Soybean, Wheat, Chana
- **Total area covered (ha) -** 3940 ha
- **Average landholding of farmers under project -** About 1.5 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** To support the FPO for direct procurement from the farmers and to become a self-sustaining and profitable business enterprise
- **Number of farmers impacted -** 1230
- **Total value of income enhanced as compared to base year -** INR 1500 per Quintal (Soybean)
- **Value of income enhanced/ha -** INR 22000/ ha

## Description of Intervention/ Program

Avantika is a Farmer Producer Organization having over 4,600 members from 32 villages across 2 blocks in Agar Malwa district, Madhya Pradesh. It was promoted by Reliance Foundation. Avantika works with the soybean farmers since 2010 and has sold produce worth ₹4.6 crores to a large-scale soybean processor and exporter. The FPO sold around 1500 tonnes of soybean to the exporter every year. But there existed a huge potential to double the volumes, for which lack of adequate working capital proved to be a huge challenge as the payment from the exporter takes a minimum of 10-15 days after the goods are supplied.

Farmers were also facing financial constraints and always demand payments immediately to manage their domestic expenses. In the two financial years (2019-20 and 2020-21) owing to the Covid19 pandemic, its business almost came to a grinding halt. The FPO approached several financial institutions including Samunnati for bridging its working capital gap and for procurement loan, which would help it double the volumes and ultimately, help their member farmers realize better returns.

Samunnati holistically evaluated the true potential of the FPO based on its proprietary due diligence processes, strength of the buyer-seller relationship, strong cash flows and future (trade) commitments.

Initially, Samunnati sanctioned a loan of ₹50 lakhs as procurement loan in September 2018. The timely intervention encouraged Avantika to procure more volumes directly from nearly 400 farmers and the FPO was able to increase the procurement by an additional 800 tonnes. It borrowed Rs. 2 Crores in multiple loan cycles and has repaid Rs. 1.5 Crores by November 2018. Samunnati continues to support the FPO with its AMLA (Aggregation, Market Linkage and Advisory services) approach and provide customized financial and non-financial solutions tailor-made to its needs.



## Impact on farming and farmer income due to adoption of new approach

In 2018-19, Avantika's turnover was Rs. 6.4 Crores from handling around 1800 tonnes of soybean. As the Covid19 pandemic wreaked havoc in the subsequent two years, the FPO's operations almost ceased. But with Samunnati's support, in 2021-22, Avantika witnessed a resurgence and its turnover touched Rs. 6.1 Crore while working with about 1550 farmers. With Samunnati's continued support, in just 2 months of the current financial year (2022-23), Avantika FPO's volumes surpassed the previous full year (FY2021-22) numbers and crossed 1000 tonnes benefitting nearly 1100 farmers. This had a multitude of positive impacts throughout the soy value chain. For the farmers, pre-procurement quality checks and aggregation of produce were done at their doorsteps while they received better prices without incurring any additional costs getting their payment credited directly in their bank accounts almost immediately. Avantika FPO was able to increase its volumes, get better rates, enhanced negotiating power, and leverage in the soy value chain. For the exporter, procurement linkage with the farmers aggregated through the FPO proved beneficial at comparatively lower prices than open market mandi-sourced produce.

### Measurable outcomes

| | Turnover (Rs. Lakhs) | Volumes (MT) | No. of farmer involved |
|---|---|---|---|
| **FY2018-19** | 648.71 | 1800 | 2600 |
| **FY2019-20** | 70.8 | 50 | 240 |
| **FY2020-21** | 20 | 10 | |
| **FY2021-22** | 617.55 | 916 | 1550 |
| **FY2022-23 (Apr-May)** | 255.43 | 1086.8 | 1080 |

# SeedWorks International Private Limited



## BACKGROUND INFORMATION

- **Name of organization:** SeedWorks International Private Limited
- **Name of program:** Sustainable farmer income enhancement program - Better Cotton Initiative (BCI) @SeedWorks
- **Starting year of program:** 2014
- **Area of operation (States and districts):** Gujarat - 10 districts, Rajasthan- 2 districts

## EXPENDITURE ON PROGRAMME

- INR 363 lakh during 2020-21
- **In last five years -** 2019-20- INR 227 lakh , 2020-21 -INR 363 lakh

## PROJECT DETAILS

- **Crops covered -** Cotton Seeds
- **Total area covered (ha) -** 3411 ha
- **Average landholding of farmers under project -** 0.2 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** Reducing the environmental impact of cottonseed production and improving livelihoods of small holder farmers
- **Number of farmers impacted -** 2019-2020: 15788; 2020-2021: 19308
- **Total value of income enhanced as compared to base year -** INR 1668 lakh
- **Value of income enhanced/ha -** 112,181 INR/ha

## Description of Intervention/ Program

The SW-better Cotton Initiative is a holistic approach to sustainable cotton production which covers all the pillars of sustainability: Environmental, Social, Governess and Economic. The BCI @ SeedWorks program aims to reduce the environmental impact of cotton seed production and to improve the livelihoods of small holder farmers through the production of better crop, farmers to adopt practices consistent with SeedWorks-BCI Principles and Criteria.

Besides, Gender mainstreaming is also a key component of the program and SeedWorks believed in transforming women's strength to efficiency by focusing on Women empowerment through social, educational, economic, parameters in the supply chains wherever they operate and the result is 20% of these marginal farmers are women.

**Key components of the programs are listed below:**

- Empowering Small and marginal farmers and their prosperity is a key component of the program. It involves farmers and organizers/Strong cohorts participating in a continuous cycle of learning and improvement and is the central mechanism for enabling farmers considered to be a better seed production farmer.

- Farms are differentiated into three categories (Submarginal, Marginal Farms and small Farms) recognizing the differences in production methods and workforces they use. To be considered for Seed Production farmers must first comply with all Core Indicators in the SW-BCI Principles including having a clear and time-bound Continuous Improvement Plan.
- The Core Indicators ensure that our farmers meet clearly defined standards for pesticide use, water management, decent work, record-keeping, training and other factors. To be an SW- Seed production Farmer, growers are required, regardless of their Initial level, to commit to adopting even more sustainable practices over time.

Learning and knowledge transfer among farmers, SeedWorks Agronomy teams, and SeedWorks scientists ensure the development and application of innovative ideas which are crucial for sustainable growth in farmers productivity and prosperity.











# Syngenta Foundation India



## BACKGROUND INFORMATION

- **Name of organization:** Syngenta Foundation India
- **Name of program:** AGRI-ENTREPRENEURSHIP PROGRAM - Enhancing farmer incomes and employability of rural youth
- **Year of Execution:** 2014 onwards till date
- **Area of operation (States and districts):** 15 states & 135 districts

## EXPENDITURE ON PROGRAMME

- Approximately 15 Crores
- **In last five years -** ~76 Crore

## PROJECT DETAILS

- **Crops covered -** Cereals, Pulses, Fruits and Vegetables & Field crops
- **Total area covered (ha) -** 5,52,756 ha
- **Average landholding of farmers under project -** 1 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** Transforming agricultural ecosystem and fueling rural livelihoods through Agriculture Entrepreneurship
- **Number of farmers engaged -** 7,84,000 till date
- **Total value of income enhanced as compared to base year -** INR 22,405
- **Value of income enhanced/ha --**INR 22,000/ha

## Description of Intervention/ Program

India has witnessed a silent revolution evolving from food deficient and import dependent nation to a global agricultural powerhouse today and is the largest employer of workforce. It accounted for 18.8% (2021-22) in Gross Value Added (GVA) of India. However, its vast number of smallholders (126 million) still struggle to earn decent incomes due to multiple challenges such as low productivity, inefficient markets, unable to access credit on time, ineffective risk management and climate vagaries. These farmers can benefit from many existing technologies and innovations but lack the 'first mile access' to them results in they being stuck in the vicious cycle of inefficiencies.

It is in this context that the Agri-Entrepreneurship program has had significant impact on not only increasing farmer incomes but also creating sustainable livelihoods for young village entrepreneurs. Launched in 2014 by Syngenta Foundation India, this flagship program trains and incubates village-level Agriculture Entrepreneurs (AEs) who provide end-to-end value chain services, including providing financial linkages and digital banking services to smallholder farmers. Through this program, local youth are selected and trained, each of whom subsequently provide products and services to 100-150 smallholders in two to three villages.

The AE network replaces conventional and inadequate 'point solutions' with one holistic hyper-local service provider on market linkages, access to high-quality input and crop advisory. Certification from national level government institutes such as National Institute of Agriculture Marketing, CCS NIAM etc. makes the AE eligible to avail necessary seed and fertilizer licenses.
This program therefore empowers and anchors self-sustaining AEs to provide agriculture services to small holder farmers and enhance their incomes. Along with improving the income of small holder farmers, this program also benefits rural youth through creation of livelihood opportunities.

**Impact on farming and farmer income due to adoption of new approach:**

The AE Program addresses eight Sustainable Development Goals (SDGs) and the AE Network addresses key issues such as access to high-quality inputs, regenerative agriculture know-how, irrigation services, digital literacy, financial solutions andmarket linkages, thus positively impacting yield and income of small farmers. Through this program, a SHF experiences a per annum income enhancement of 15-20% through increased awareness on optimum input usage and adoption of climate smart initiatives. The income enhancement contributes to better nutrition, health, education and improvement in housing amenities for the SHF.

**Case Study 1 - Improvement in crop productivity and income**

Mangala Sathone from Wardha provides Agri-input services to around 200 farmers who are associated with her. She guides the small holder farmers through her Krishi Seva Kendra Mangala and provides services such as provisioning of high quality seeds, fertilizers and doorstep crop advisory services. Mangala has also started a low cost nursery and now supplies ~2 lakh seedlings in a season to the farmers. With her advisory support and regular monitoring of the crop, farmers have been able to reduce the input cost up to 11% and increased the production by around 12-15%. This has ultimately helped the small holder farmers getting better income as well as reduction in the cost of cultivation as well. This has enabled Mangala to be self-sufficient and be a role model for the women in that region.






**Case Study 2 - When tomatoes can transform lives - Smallholder Rita starts quality seed production**

First-hand experience of your customers' problems is a business advantage. Trust comes more easily if your customers know you have lived their lives and faced their struggles, and you can advise on products and processes that work.

Rita Devi struggled to feed her family from the proceeds of her quarter-acre farm and her husband's erratic wages from laboring. She understands small farmers in Jharkhand in eastern India. "There is terrible hardship and anxiety trying to support a family on INR 3,000 per month" she says. "We wanted to change our lives, but were limited by lack of opportunities and knowledge."

Rita's circumstances have now altered dramatically, thanks to Syngenta Foundation India's (SFI), Agri-Entrepreneurship program. Rita was SFI's first female Agri-Entrepreneur (AE) in Jharkhand. She also chose to do additional training in seed production.

SFI partners with IDBI Bank to offer low-interest credit to AEs and other smallholders. Thanks to the combination of a loan, a buy-back arrangement with SFI, and a contribution from her family, Rita raised the money to begin seed production. With guidance from SFI project officer Satyajit Patil, she earned INR 160,000 in her first season. A further INR 20,000 came from cultivating vegetables during the rest of the year. This substantial increase in annual income enabled Rita to repay her loan in only a year. Neighboring farmers quickly noticed her change in fortunes. Rita's farm is now a regular venue for educational visits by farmers, NGOs and other organizations eager to learn from her experience. Seed production has changed the lives of Rita and her family, and now looks set to change her community, too.

**Quantitative Indicators:**

- Median income of farmers: INR 111,000 per annum
- % reduction in input costs: 11-14%
- % of women AE currently functional: 22%
- % increase in income of women AE's over baseline: 26% AEs have income increase of up to 40,000, 28% AEs have income increase up to 60,000, 28% AEs have income increase up to 100,000, 19% have income increase up to INR 100,000 year on year.

# Tractors and Farm Equipment Ltd. (TAFE)



## BACKGROUND INFORMATION

- **Name of organization:** Tractors and Farm Equipment Limited (TAFE)
- **Name of program:** JFarm Services
- **Year of Execution:** Launched in 2018
- **Area of operation (States and districts):** 230+ districts across 16 States in India (Andhra Pradesh, Assam, Bihar, Chattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh)

## PROJECT DETAILS

- **Crops covered -** All crops (Major crops are Paddy, wheat, pulses, groundnut, blackgram, cotton, maize)
- **Total area covered (ha) -** 59,38,000 ha
- **Average landholding of farmers under project -** 1-2 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** Easing Access to Farm Mechanization for Farmers in India
- **Number of farmers engaged -** 55,48,000
- **Total value of income enhanced as compared to base year -** INR Rs. 820 Crores of additional earning potential
- **Value of income enhanced/ha -** INR Rs. 1200 to Rs. 1500/-

## Description of Intervention/ Program

Small & marginal farmers across India have low purchasing power to afford tractors/implements and hence are dependent on manual labour or rental service providers nearby. As per census of 2015-16, 47% of operational landholdings are below 2 hectares. Their access to farm mechanization is completely dependent on the availability of implements nearby and conditions imposed by the limited service providers. This results in usage of inefficient farming practices having cost implications on small & marginal farmers.

As a positive correlation exists between availability of farm power and farm yield, providing mechanization to all categories of farmers is bound to have a positive impact on farm productivity.

With the objective of easing access to farm machinery for all farmers, TAFE joined hands with Government of Rajasthan to set up Custom Hiring Centers through franchise model. Business minded, focused entrepreneurs were identified and scrutinized by Department of Agriculture, Government of Rajasthan.

Further in 2018, taking forward our initiative to enhance access to farm mechanization, TAFE launched a phygital Farmer-to-Farmer platform in name of JFarm Services, which connects small and marginal farmers with equipment owners ready to rent out their tractors and implements. Farmers in need of farm equipment on rent can book through a mobile app or toll free call-center or field agent, by providing details of implement required, date & field location.

Also, tractors owners interested to become entrepreneurs can list their tractors and implements, which will be available for hiring by farmers. When farmers make the rental booking, the requirement is broadcasted to entrepreneurs available in service radius. Those renter entrepreneurs accepting to service the rental orders are connected with the concerned farmers. Through this intervention, farmers can easily have access to the required farm equipment. By servicing the rental orders, the entrepreneurs will be able to improve their asset utilization and thereby earn additional income. Being a CSR initiative, no listing fee or commissions are charged from the users. The respective rental amount should be paid by the farmer to service provider directly.

With a farmer base of 55 lakhs across 16 states, JFarm Services has supported in delivering 103 lakh hours of farm mechanization to the needful farmers. Further, JFarm Services has provided an opportunity for farmer entrepreneurs to earn additional income of nearly Rs. 820 Crores since inception in 2018.

JFarm Services has officially partnered with 9 State Governments and works closely with 1200 Farmer Producer Organizations. By collaborating with respective Government departments, nodal agencies & FPOs, JFarm Services is continuously working on creating awareness on usage of farm equipment and supporting farmers to easily access to farm equipment.

Further, awareness on latest and efficient farming methods is created among farmers through JFarm Services platform by agronomists from JFarm Adaptive Research Centers in Tamil Nadu, Rajasthan and Telangana.

### *Covid Relief to Small & Marginal Farmers:*

As a relief measure for small & marginal farmers during Covid-19 pandemic period, TAFE implemented a Free Tractor Rental Scheme through JFarm Services platform from April to June 2020 in 3 States of India – Tamil Nadu, Rajasthan and Uttar Pradesh. Farmers booked orders and service providers accepted orders through JFarm Services platform. TAFE had supported the farmers by verifying the service completion and paying the rental charges directly to the Service providers.

As the Free Tractor Rental Scheme provided significant benefits to farmers and service providers, during the second wave of the Covid-19 pandemic, TAFE implemented the Free Tractor Rental Scheme again in Tamil Nadu and Rajasthan from June – July 2021. More than 350,000 Acres belonging to small and marginal farmers were cultivated free of cost during 2020 & 2021.

Both these rental schemes in 2020 and 2021 were effectively implemented with the administrative support of the Agriculture Departments from the respective State Governments.

## Conclusion

Hence, TAFE has adopted a multi-prong approach to create awareness and promote adoption among farmers on the latest agriculture practices involving the applications of farm equipment. Considering the immense diversity of farmers and farming practices across India, unique networks having sustainable localized approach need to be developed to create scalable impact among farmers. Recent focus from Government of India on formation of Farmer Producer Organizations are a positive step towards developing such networks. Further, generating demand for mechanization in rural markets will also lead to entrepreneurial opportunities. These technological interventions through effective channels to reach farmers, will contribute significantly towards improving livelihood of farming community.

# Yara Fertilisers India Pvt. Ltd.



## BACKGROUND INFORMATION

- **Name of organization:** Yara Fertilisers India Private Limited
- **Name of program:** Yara Digital Ag Solutions
- **Starting year of program:** 2011
- **Area of operation (States and districts):** Uttar Pradesh, Haryana, Punjab, Madhya Pradesh, Himachal Pradesh, Bihar, Jharkhand, Maharashtra, Gujarat and West Bengal. Total districts - 120

## EXPENDITURE ON PROGRAMME

- INR 2,212 lakh during 2020-21

## PROJECT DETAILS

- **Crops covered -** Wheat, Rice, Sugarcane, Maize
- **Total area covered (ha) -** 8,000,000 ha
- **Average landholding of farmers under project -** 3 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objective:** To help farmers resolve their production challenges and get better crop growth & quality, thereby improving their lives through digital technology
- **Number of farmers impacted -** 8,000,000
- **Total value of farmers' income enhanced as compared to base year -** INR 1,440,000 lakh
- **Value of income enhanced/ha -** 18,000 INR/ha

## Description of Intervention/ Program

Yara digital farmer and retail mobile apps are built for farmers with objectives of improving yield, reducing expense, connecting farmers with the wider ecosystem, provision of digital agricultural expertise and increasing financial inclusion, and to connect the farmer to retailers – accessibility to our crop solutions. The company wanted famers to have access to their extensive agri knowledge and to link them with retailers closer to their area. The company also provided hyper-local weather update to farmers.

Yara Digital Ag Solutions are digital companions that aids farmers in India with affordable precision farming throughout the year. Whether growing paddy in the monsoon season, wheat through the winter, maize in the spring, or sugarcane throughout the year, Yara Digital Ag Solutions is designed to aid farmers with insight-driven decision making at all key stages of their crops through various features present within the app. FarmGo connects farmers to their agri experts and to their peers to share their success and issues and receive advice. Yara Connect is their retailer app that provides rewards for the retailer and connects retailers to farmers.







The company is helping farmers by providing digital tool to measure nitrogen level in crop, customizing fertilizers recommendations based on farmer need, immediate diagnostic of crop pest and diseases, discount coupons on micro nutrients and best practice advisory video for better farming.

# START-UPs

# AgriRain Agro Industries India Pvt. Ltd.



## BACKGROUND INFORMATION

- **Name of organization:** AgriRain Agro Industries India Pvt. Ltd.
- **Name of program:** Data driven precision irrigation as a service
- **Year of Execution:** 2018
- **Area of operation (States and districts):** India (Maharashtra, Bihar, Andhra Pradesh, Karnataka, Rajasthan, Madhya Pradesh), Rwanda, Ivory Coast, Myanmar

## PROJECT DETAILS

- **Program Objectives:** An operator run model offering data driven precision irrigation and empowering small farmers with efficient and equitable irrigation solutions.
- **Crops covered** - Multiple Crops

## VALUE PROPOSITION AND IMPACT

- **Number of farmers engaged** - 7784
- **Total value of income enhanced as compared to base year** - Increased by 14% after removing irrigation cost
- **Improvement in crop productivity** - 20-40%
- **Value proposition in terms of better income for farmers:**
  - 20-40% yield increase
  - 1.1 billion litres water saved
- **Any Other** - 1.1 billion liters of water saved

## Description of Intervention/ Program

Small farmers cannot afford to buy irrigation systems as it involves capital expenditure and knowing what system to buy and how to use is a challenge.

AgriRain's solution is an operator run model offering data driven precision irrigation. Empowering small farmers with efficient and equitable irrigation solutions.

Affordable irrigation includes no capital expenditure, no complex decision making and no maintenance. The model involves a hyper local water entrepreneur who demonstrates irrigation technology to farmers, gathers field data and enrols in to AgriRain app. A cluster is created with 20 Ha with a dedicated irrigation system and trained operator. Water is sourced from either canal, tube well or farm pond. Weather and soil moisture are monitored through satellite imagery for each field and farmer. An irrigation schedule is created for each enrolled farmer and a tentative irrigation date is provided to the farmer. On ground moisture information is measured by water entrepreneurs 10 days pre-irrigation. Each critical irrigation is optimized to maximize the yield. Irrigation fee is collected based on water delivered on ground.

The business model includes service to farmers, FPOs and large company partnerships





**Impact on farming and farmer income due to adoption of a new approach**

The pay per irrigation service is available to farmers for Rs. 750 for 10mm of application in 2 hours.

# Agstack Technologies Pvt Ltd (Gramophone)



## BACKGROUND INFORMATION

- **Name of organization:** Agstack Technologies Pvt Ltd (Gramophone)
- **Name of program:** Improve the way farmers' have been doing farming traditionally with the help of the right Agri-knowledge and technology
- **Year of Execution:** 2016
- **Area of operation (States and districts):** Madhya Pradesh, Rajasthan, Chhattisgarh, Maharashtra

## EXPENDITURE ON PROGRAMME

This is not a single project, but the basis of the business model of Gramophone. Consequently this comprises of Gramophone's operational expenditure in its business

## PROJECT DETAILS

- **Crops covered** - Wheat, Cotton, Maize, Potato Onion, Garlic, Sugarcane, Tomato, Water melon, Gram, musk melon, ginger, paddy, bitter gourd, Soybean, pumpkin, Chilli, peas, groundnut, Cabbage, Jowar, Mustard, bean, Coriander, Capsicum, Okra, Banana, Spinach, Cauliflower, millet, Brinjal etc
- **Total area covered (acre)** - 7 million acres
- **Average landholding of farmers under project** - 1-3 Hectare (2.5-7.5 Hectare) size farmers

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** Full stack technology platform that acts as one-stop solutions for farmers. Aim to make farming scientific and intelligent for farmers and help enhance their income.
- **Number of farmers engaged** - Over 25 lakh farmers
- **Total value of income enhanced as compared to base year** - 50-100% increase in the income of farmers
- **Value of income enhanced/ha** - INR Rs. 40,000 - 80,000 per acre

## Description of Intervention/ Program

Agriculture is a complex business, with millions of combinations of variables such as soil health, weather trends, cropping patterns, demand/supply unpredictability, and so on. Add to it the constantly evolving pest attacks and disease situations. Thus, it is imperative that farmers get access to scientific, data driven agronomy advice, and be able to easily buy genuine crop inputs in a timely manner.

With the help of technology driven expert agronomy advice and offerings across the farm input and the post-harvest segments, we aim to improve the way farming has been executed traditionally.

Traditionally, the knowledge of which inputs to use and their quantities was addressed through local contacts, as well as based on heuristics. In contrast, Gramophone makes expert knowledge referred to as agronomy intelligence accessible to farmers from the

convenience of their phone. Through our distribution channel, we enable doorstep delivery to farmers within 48 hours.

In 2021 with Digital output marketplace launch - Gram vyapaar we empower farmers to sell their crops easily and find the right buyer. This makes us a one stop shop for farmers and helps us to improve the entire agri-ecosystem.

Since many issues which farmers face are interrelated, our approach has been to evolve into offering farmers solutions for all their activities which impact their income (both on the revenue and cost side).

In that regard, Gramophone enables improvement in farmers' income by:

- Recommending the right mix of agri-inputs to deploy, based on analysis of the crop's life cycle. Optimizing the inputs to use leads to a lower cost of cultivation for farmers
- Access to market linkages- which helps farmers with better price discovery on the revenue side

**Gramophone value proposition:**

The core proposition of Gramophone is to directly improve farmers' income by making farming more intelligent/efficient (on the cost/yield side) and helping farmers obtain higher realizations for their finished produce. Since many issues which farmers face are interrelated, our approach has been to evolve into offering farmers solutions for all their activities which impact their income (both on the revenue and cost side). Conviction in Gramophone's business model is reflected by the backing of notable investors- including Info Edge (early investor in Zomato), Z3 Partners (who were investors in Big Basket, MakeMyTrip, Pepper Fry, etc), Siana Capital (a deep tech fund), among others.

By covering over 50,000+ villages Gramophone have been able to achieve a 50-100% increase in income of farmers through our efforts. Furthermore, at a time when food security is increasingly important, Gramophone's advisory has helped farmers to understand their soil requirements better, and improve their yields. Gramophone's efforts have helped in promoting sustainable agriculture (by addressing issues such as soil depletion), and created livelihood opportunities for thousands of rural micro-entrepreneurs

- **Farm inputs:**

1. Real time and Easily accessible Agronomy Intelligence for farmers
2. Recommending the optimal mix of high quality agri-input products from top brands with doorstep delivery
3. Personalized farm management solutions
4. Digital output marketplace that helps in selling crops easily

- **Post-harvest (farm output):**

1. Farmers can easily list their produce, hand holding by Vyapaar experts
2. Find from thousands of right buyers called traders PAN India
3. Connect directly, discuss the mutual terms and Close trade at the right price

## Impact on farming and farmer income due to adoption of a new approach

Gramophone's farmer centric approach has helped farmers by:

- Reducing Agri-Input cost minimum by 10-15%
- Increasing farmer's crop yield by 30-40%
- Resulting in an overall net benefit of 50% or more if our practices followed for entire crop cycle
- Our approach is to make agriculture sustainable which involves working on soil health and practicing Integrated Crop Management techniques

# Aquaconnect

## (Coastal Aquaculture Research Institute Pvt. Ltd.)



### BACKGROUND INFORMATION

- **Name of organization:** Aquaconnect (Legal name:Coastal Aquaculture Research Institute Pvt. Ltd.)
- **Name of program:** Access to formal credit for aquaculture farmers with innovative FinTech Solutions
- **Year of Execution:** 2021
- **Area of operation (States and districts):** Pan India

### EXPENDITURE ON PROGRAMME

Enabling fintech solutions for aquaculture stakeholders are the part of Aquaconnect's core business model, hence, separate expenditure cannot be provided.

### PROJECT DETAILS

- **Crops covered** – Shrimp, Fish
- **Total area covered (ha)** – 26,000+ ha
- **Average landholding of farmers under project** – 3 to 5 acres

### VALUE PROPOSITION AND IMPACT

- **Program Objectives:** Transforming the aquaculture industry with innovative contextualised fintech solutions using Artificial Intelligence and Satellite remote sensing that brings more efficiency and transparency to the entire value chain.
- **Number of farmers engaged** – 60,000+ farmers through ground intervention and remote advisory
- **Total value of income enhanced as compared to base year** – upto 15% increased profits
- **Value of income enhanced/ha** – upto 10% per pond/culture

## Description of Intervention/ Program

The aquaculture farmers face several challenges such as lack of access to scientific farm advisory. The need for immediate liquidity post-harvest, limits the bargaining power of farmers (leading to suboptimal prices). Similarly, the input retailers also see a lack of access to low cost, formal working capital- inhibiting the growth of their business. Add to that, the hassle of coordinating with multiple input distributors and arranging logistics. The Seafood Buyers also witness a lack of working capital and operational challenges at the farmgate, lack of transparency in product quality and pricing.

Formal financial institutions are shying away from the sector due to poor transparency and lack of data for portfolio evaluation. Aquaconnect is transforming the aquaculture industry with innovative contextualized fintech solutions using Artificial Intelligence and Satellite remote sensing, bringing more efficiency and transparency to the entire value chain. We do this by first creating a commerce/trading layer (1) farm input supply chain on the pre-harvest part of the value chain, and (2) market linkage solution and facilitating sales of harvested material. In doing so, we get access to a lot of transaction data intelligence on the stakeholders involved. These stakeholders (farmers, input retailers, buyers), are then connected with Aquaconnect's BFSI partners and can avail of formal credit at reasonable interest rates.

## Impact on farming and farmer income due to adoption of a new approach

Farm advisory services form an important engagement tool for our network of farmers. This has led to more and more farmers adopting sustainable farming practices. Access to a wider variety of genuine and affordable farm inputs with predictable supply chains, has meant better farm management. Further, credit solutions have brought down the interest rates from ~40% in informal settings, to <20% from formal lenders. Immediate liquidity after harvest sales, has led to quick capital turnaround, and farmers ability to start work on the next crop without waiting for capital, hence boosting productivity. Overall, putting together the comprehensive holistic solutions, farmers have benefited by ~15% of increase in their incomes.

**Improvement in crop productivity:** upto 20%



**Any other:**

- 30% reduction in farm inputs usage
- 60% reduction in cost of capital
- Remotely assisted 60000+ farmers; Physical assistance to 16,000+ farmers
- Our network of farmers have sustainably produced 40 million lbs of seafood

# BharatRohan Airborne Innovations



## BACKGROUND INFORMATION

- **Name of organization:** BharatRohan Airborne Innovations Pvt. Ltd.
- **Name of program:** Cumin traceability platform backed with Hyperspectral imaging-based Decision Support System
- **Year of Execution:** 2016
- **Area of operation (States and districts):** Pali and Nagaur districts of Rajasthan

## EXPENDITURE ON PROGRAMME

- INR 1.9 Crore
- **In last five years -** INR 6 Crore

## PROJECT DETAILS

- **Crops covered -** Mint, Cumin, Paddy, Potato, Moong, Fenugreek, Fennel, Coriander, Carom, Mustard
- **Total area covered (acre) -** 30,000 Acres
- **Average landholding of farmers under project -** 2.5 acres

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** To empower Indian Farmers to reach their full potential by enabling farmers to grow sustainably and to create a safe food supply chain through use of advanced technology like UAV/Drone based Hyperspectral Imaging
- **Number of farmers engaged -** 6000 farmers
- **Total value of income enhanced as compared to base year -** INR 41,400,000/- for 3600 farmers in 5000 acres of area
- **Value of income enhanced/ha -** Mint crop - 11,500/- INR per acre

## Description of Intervention/ Program

The critical pain points addressed by BharatRohan are crop loss due to pest attack, soil & weather hazards, high cost of agri-inputs, and low-value realization for final produce. The advanced remote sensing-based decision support system in the form of crop advisory services is designed for farmers to improve agricultural practices. It helps farmers reduce crop losses, save additional expenditure due to pest infestation, avail scientific crop advisory, access and utilize certified agri-inputs, get parametric crop insurance, enhance crop yield, and improve livelihood.

BharatRohan's Outgrower Programme helps farmers enter into an indirect contract with seed or FMCG companies to realize better value for their produce in an efficient market. The Remote Sensing and UAV/Drone technology solves problems faced at each step of cultivation. Solutions provided in the following:

- The pre-sowing stage include farm geo-tagging and basal dose advisory.
- The sowing stage included certified seed delivery, periodic weather forecast and advisory, drone-based periodic monitoring, pesticide advisory recommendation
- The harvest stage includes harvesting and grading.
- The post-harvest stage includes procurement of the final product

Each farmer is provided with a unique ID card containing vital information. The ID has a unique barcode used to track farm activities on the ground.

Each bag of the procured product has a unique LOT No. which can be traced to the farmer and farm activities. Our business model is unique in technology, low-cost crop advisory, provision of effective agri-inputs at correct times, and end-to-end farm services. Our business is operational in the agriculture belt of India, where no technology intervention has penetrated. We are the pioneers with a strong farmer relationship that transparently provides farm linkage (INPUTS) and market linkage (OUTPUT) for all stakeholders.



### Impact on farming and farmer income due to adoption of a new approach

There is cost saving on agricultural inputs and an increase in crop produce yield with the help of BharatRohan services. Risk avoidance is seen in 70% of the farmers registered with BharatRohan. Moreover, there is an improvement in the soil conditions with increased Carbon and Nitrogen levels.

As a result of the effect, BharatRohan is "**Building an efficient ecosystem for Multiple crops in respective geographies**" in the Pali and Nagaur districts of Rajasthan, BharatRohan kisan sangathan an association of village level producer groups collectively report their farmer related problems in BharatRohan Sehyog kendras. These institutions are being developed to bring a formalised structure in cumin supply chain and provide technology based solutions at the grass root level to improvise efficiency and affordability.

**Measurable outcomes:**

- **Improvement in farmer income: Rs. 11,380 saved per acre**
- **Average % Increase in crop productivity: 50%**
- **Average % Prevention of Crop Loss- 27%**

# BioPrime Agrisolutions



## BACKGROUND INFORMATION

- **Name of organization:** BioPrime Agrisolutions Pvt. Ltd.
- **Name of program:** Building Climate resilience in crops, improved crop yields without using chemicals
- **Year of Execution:** 2019-2020
- **Area of operation (States and districts):** All over India

## EXPENDITURE ON PROGRAMME

- **Amount spent on development of technology:**
  - SNIPR biologicals - INR 1 Crore
  - Bionexus Plant trait modifying microbes library - INR 2 Crore 30 Lakhs
- **In last five years -** INR 8 Crore

## PROJECT DETAILS

- **Crops covered -** Rice, Wheat, Maize, mung, pulses. vegetables like tomato, potato, onion, brinjal, peas, gourds, orchards like pomegranate, grapes, lemons banana
- **Total area covered (ha) -** 25000 ha
- **Average landholding of farmers under project -** 1-2 Ha

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** Giving farmers assured yields by making crops climate resilient using targeted physiology modulating biomolecules
- **Number of farmers engaged -** 25000
- **Total value of income enhanced as compared to base year -** INR Two Crore Thirty Lakh
- **Value of income enhanced/ha -** 20000

## Description of Intervention/ Program

**Redefining Agriculture, Transforming Lives**

Bioprime aims to transform the way we grow crops making food more nutritious and wholesome using cutting edge technologies and approaches, always keeping sustainability at our core. BioPrime is developing effective & affordable Next Generation Agri biologicals that helps make crops Climate resilient- protecting yields and crops from fluctuation weather, untimely rains, temperature stress and water stress to name a few. These Biologicals are based on small biomolecules that modulate plant processes for faster and targeted results on field. Products are crop agnostic and can be adopted by farmers on as is where is basis. First generation of products are at early commercialization stage.

Climate change affects 70% of agriculture in India Annually Indian agriculture suffers a loss of US$ 42.66 mil 35-40 % of this is due to climate change. Most severely affected are small and marginal farmers who are unable to adopt modern technologies. Fruit and flower drop due to stress account for 30-60% drop in yield, especially at extreme temperatures (>35 degrees and <15 degrees). 5 products for different crop stages.



*Fig: Strawberry Farming*

Bioprime makes crop climate resilient using biologicals that are based on small biomolecules that modulate specific processes in plants. Bio primes technology platform- SNIPR (smart nano molecule induced physiological response) provides specific molecules that can be rapidly sensed by plants, modulating key stress mitigation processes and impact yield directly. First-in-class signaling molecule-based yield booster, Chiron impacts flowering pathways directly resulting in uniform size and colour and increase A-grade produce by 15-20% without use of hormones. Growth booster, Fortisea and stress mitigator Verdant/Aavirat will help in mitigating any stress and ensure growth and productivity. Products are crop agnostic, certified residue free, organic and help in restoring and revival of soil health. All products are extremely stable with high tank mix compatibility and can be adopted by farmers on as is where is basis, irrespective of farmland size.

**Impact on farming and farmer income due to adoption of a new approach**

SNIPR biologicals make crops climate resilient giving small and marginal farmers assured yields despite weather fluctuations. Vegetable farmers are able to increase yields by 20-25% with 10-15% higher A grade produce resulting in increased earning of INR 10,000-INR 15,000. Row crop farmers are able to reduce fertilizer requirements by 15% and increase production by 15%. Increase in shelf and storability gives added benefits and help famers fetch higher market price.

**Any other:**

- Impacted over 1 Lakh farmers in 4 states
- 8 Products commercialized and in use
- Added over 30 Cr INR in farmer income
- Reduced urea consumption of 30 L Kgs and carbon foot print saving 2.88 L Kg CO2 Annual

# Distinct Horizon Private Limited



## BACKGROUND INFORMATION

- **Name of organization:** Distinct Horizon Private Limited
- **Name of program:** Doubling farmer's profits sustainably
- **Year of Execution:** 2015 onwards
- **Area of operation (States and districts):** Uttar Pradesh, Tamil Nadu, Orissa, Andhra Pradesh, Telangana, Maharashtra, Kerala, Uttrakhand

## PROJECT DETAILS

- **Program Objectives:** Develops breakthrough technologies to double the profits of marginalised farmers across the developing world & increase food production, while protecting the ever degrading enviornment
- **Crops covered -** Paddy and Sugarcane

## VALUE PROPOSITION AND IMPACT

- **Total value of income enhanced as compared to base year -**
  - Paddy: INR 20,000 additional profit/ha/season
  - Sugarcane: INR 50,000 additional profit/ha/season
- **Improvement in crop productivity -** by 20%
- **Value proposition in terms of better income for farmers:**
  - Reducing urea/fertiliser consumption by 30%
  - Farmer Entrepreneurs can break even within just one year.
  - 1 applicator reduces 520 Tons CO2eq over 10 years

## Description of Intervention/ Program

The current method of manual fertilizer/urea application (broadcasting) leads to more than two-thirds of it being lost to the environment, which increases greenhouse emissions (one ton of urea causes 5.15 tons CO2-equivalent emissions in the whole process, from urea production to on-field application), degrades soil and pollutes groundwater, lakes and rivers and still ends up providing low productivity despite of increased input cost for farmers. The plants grown by regular fertilizer broadcasting methods are weak & vulnerable due to improper nutrition delivery & bad soil health. High input costs coupled with poor outputs is the key pain-point for most of the farmers in India. Farmers' high-dependence on fertilizer-broadcasting exacerbates low-income for farmers due to poor productivity. It also severely damages the environment. Moreover it puts an increased burden on the government exchequer for fertilizer import and subsidies.

A very efficient one-stop solution to tackle many of the aforementioned problems is UDP. Urea Deep Placement (or UDP) is an alternative to broadcasting is a scientifically tested technique in 23 countries, which has proven to have huge benefits both for increasing production upto 20% and reducing Fertiliser/

/Urea consumption by 40% as urea briquettes have to be applied only once during the season as compared to 3-4 times of application by broadcasting of prilled Urea. This technology is well known for combating large-scale environmental damage as it reduces loss of urea to soil and groundwater which prevents soil (maintains healthy soil) and water pollution.

However, this technology, if manually implemented, is extremely labor-intensive (i.e 5 man-days/acre), time consuming and a back breaking practice, thus hindering adoption on a large scale and continues to be a mere theoretical concept for most technologies.

**Impact on farming and farmer income due to adoption of a new approach:**

At Distinct Horizon, we have enabled the mechanization of UDP by developing the World's First successful Tractor Powered UDP/FDP applicators (DH Vriddhi and DH Samriddhi) in collaboration with IDEO, the World's Best Design company. These applicators precisely deploy urea briquettes in soil near the roots of crops and reduce the labour requirement by 60 times compared to manual UDP application, while reducing the fertiliser consumption by 40% and increasing productivity upto 25%.. Hence, it presents multi-fold compelling reasons for farmers as well as other stakeholders to adopt.

# EF Polymer Private ltd.



## BACKGROUND INFORMATION

- **Name of organization:** EF Polymer Private Limited
- **Name of program:** Tackling the organic waste problem and solving the problem of water scarcity in agriculture.
- **Year of Execution:** 2020
- **Area of operation (States and districts):** Rajasthan & Uttar Pradesh

## PROJECT DETAILS

- **Program Objectives:** To address the problems of organic waste generation and water scarcity in agriculture.
- **Crops covered** - Wheat, groundnut, onions, cauliflower, and other vegetables

## VALUE PROPOSITION AND IMPACT

**Number of farmers engaged -** Contacted nearly 5000 farmers

**Total value of income enhanced as compared to base year -**

- Nearly INR 5400 extra income for Wheat farmer/ acre
- INR 14,000 extra income for Bottle Gourd farmers/acre

**Improvement in crop productivity -**

- 28% higher yield observed in Wheat crop/acre
- 18% higher yield observed in Bottle Gourd crop/ acre

**Value proposition in terms of better income for farmers:**

- 40% less water
- 20% less fertilizer
- 15% yield increase
- 10-30% higher income

**Any Other -** 20% irrigation water reduction has been noticed in Wheat crop while 18% irrigation water reduction noticed for Bottle Gourd crop per crop cycle

## Description of Intervention/ Program

EF polymer private limited has adopted a unique idea of addressing problems of organic waste generation and water scarcity in agriculture. Further, microbial growth and soil fertility are improved along with the reduction in the leaching of nutrients from the soil. There is a reduction in irrigation requirements along with enhanced yield. Reduced water and fertilizer requirements for the crops.

The Product Fasal Amrit is 100% Organic and fully biodegradable Natural water retention Polymer to reduce water and fertilizer requirements, avoid low yield due to missing micronutrients, and increase overall profit by more than 30%. The polymer can absorb water equivalent to 100 times its weight and allows a controlled mix of micronutrients specific to the crop soil mix.

It releases water very slowly in the soil thereby extending the duration of soil moisture. The raw material is collected from city waste and Juice producing companies which is converted into Organic Super Absorbent Polymer. This is sold to Food Producer Organizers, Distributors, and local customers. In the last 2 year sold more than 25000 kgs in 8 districts.




**Impact on farming and farmer income due to adoption of a new approach:**

EFPPL has collaborated with farmers on crops like- wheat, groundnut, onions, and other vegetables to produce results that completely wipe off the need for one complete irrigation cycle- while simultaneously increasing the yield. The soil quality has improved as attested by the farmers. They are also getting 10-30% more yield which is increasing their income by 20-30%. In less than 15 months EFPPL has connected with nearly 3500 farmers of more than 15 districts and sold over 15000Kgs of product. The product can either be directly mixed with soil, with any fertilizer, or with seeds and propagated in the field using hands or seed drill.

# Farms2fork Technologies Pvt. Ltd. (Cultyvate)



## BACKGROUND INFORMATION

- **Name of organization:** Farms2fork Technologies Pvt. Ltd. (CULTYVATE)
- **Name of program:** Sustainable Farm and Farmer Livelihood
- **Year of Execution:** 2019 onwards
- **Area of operation (States and districts):** Maharashtra, Tamil Nadu, Karnataka, Andhra Pradesh, Punjab, Haryana

## EXPENDITURE ON PROGRAMME

- INR 2.5 lakhs
- **In last five years -** INR 75 lakhs

## PROJECT DETAILS

- **Crops covered -** Paddy
- **Total area covered (ha) -** 2000+
- **Average landholding of farmers under project -** 2 ha

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** To help farmers to grow 25% more by using 40% less water
- **Number of farmers engaged -** 2800
- **Total value of income enhanced as compared to base year -** 2.5 Crore additional revenue to farmers
- **Value of income enhanced/ha -** 12,500/ha
- **Improvement in crop productivity -** 3.92 tonnes/ hectare
- **Value proposition in terms of better income for farmers:**
  - 30% increase in farmer profit
  - 50% decrease in water consumption
  - 30% power saving
- **Any Other:** 600 Cr (400 from Paddy & 200 from Tobacco) liter water saving during 2021.

## Description of Intervention/ Program

Preventable revenue to farmers- India ranks 10th in the global paddy productivity index. Indian farmers lose up to Rs. 60,000 per crop/ Hectare. Besides direct revenue loss, farmers also consume up to 50% more water & electricity. On crops like Banana, pomegranate, and grapes farmers are also losing up to 2 Lakh/ year/ acre due to improper water and nutrition management, consuming up to 30% more electricity and water beside the direct revenue loss in different states in India.

cultYvate provides IoT and AI-based smart irrigation solutions to enable the crops to take water when they want without any human intervention. Irrigation advisory as a solution is offered for farmers growing low-value crops such as Paddy, Sugarcane, and Tobacco using real-time moisture data collected once in every 1 or 4 hours by ground sensors.

This can further be customised for every farmland based on crop variety, its growth stage & soil texture. In Paddy, cultYvate had innovated age-old AWD based irrigation management by empowering it with IoT sensors & real-time alert triggering algorithm. Automated Smart irrigation solution is offered for high-value crops like- Banana, grape, and pomegranate. Customized and fully automated smart irrigation includes real-time monitoring of soil moisture once in 30 minutes, crop and soil specific irrigation schedule- drip and pulse-based. For ultra-high value crops like exotic vegetables and Floriculture, Smart Poly- house solutions are under progress and this includes fully automated smart irrigation, demand-based nutrition supply, and pH-balanced fertigation. cultYvate's product strength includes IoT enabled AWD for paddy, smart irrigation for horticulture crops, AI & ML based demand-based watering and predictive crop-water modelling.

**Impact on farming and farmer income due to adoption of a new approach:**

Yield and quality enhancement in the banana crop are accomplished through a fully automated system that irrigates only when the crop needs water. Advisory farmers are advised to irrigate based on measurement of data acquisition from sensors and satellites. This has benefitted the farmer in achieving uniform yield, additional revenue of Rs. 32,560/acre, Up to 18% yield enhancement, 12% quality improvement, 28% water saving, and completely eliminating the labour being used for watering. Problem of excessive chloride levels in Tobacco is addressed by automating the irrigation using soil moisture sensors to measure the available moisture in real-time and irrigate based on crop age and farm climatic condition. Tobacco growers benefited with an additional revenue of Rs. 43,329/ Hectare (app 15% increase in revenue), 50-67% water saving, 13.5% yield enhancement, 5% quality improvement, 0.17% reduction in chloride levels.

# FlyBird Farm Innovations Pvt. Ltd



## BACKGROUND INFORMATION

- **Name of organization:** FlyBird Farm Innovations Pvt. Ltd.
- **Name of program:** Affordable Smart Irrigation & Fertigation systems
- **Year of Execution:** 2015
- **Area of operation (States and districts):** PAN India

## PROJECT DETAILS

- **Program Objectives:** Focus on Food security and sustainable agriculture by designing and implementing affordable Smart Irrigation / IoT / Artificial Intelligence products.
- **Crops covered** – All Horticulture and Plantation crops



## VALUE PROPOSITION AND IMPACT

- **Number of farmers engaged** – 800+
- **Total value of income enhanced as compared to base year** – Saves 20 to 25% fertilizers costs and it directly increased profit ratio
- **Improvement in crop productivity** – Increase in crop yield by 10 to 15%
- **Value proposition in terms of better income for farmers:** Crop yield improvement and reduction in fertilizer cost
- **Any Other** – Water saving - 25% to 30%

## Description of Intervention/ Program

Right amount of water and fertilizer at right time is key for plant / crops growth and good yield. Its one of the major challenge in Agriculture. FlyBird focus on Food security and sustainable agriculture by designing and implementing affordable Smart Irrigation / IoT / Artificial Intelligence products. FlyBird smart irrigation system monitor and control the water and fertilizer supply as per the crops /plant needs using various sensors.

Smart Irrigation will prevent the over & under irrigation and over dosing of fertilizer / micronutrients to plants. This will increase the crop yield by 15% to 20%, saves water by 25% to 30% and saves fertilizer inputs by 20 to 30%.

# Krishitantra



## BACKGROUND INFORMATION

- **Name of organization:** Krishitantra
- **Name of program:** Soil Health Management
- **Year of Execution:** 2017
- **Area of operation (States and districts):** PAN India

## EXPENDITURE ON PROGRAMME

- INR 5.8 Crore
- **In last five years –** INR 7.2 Crore

## PROJECT DETAILS

- **Crops covered –** Major Horticulture and Floriculture crops, Apple, Paddy, Wheat, Banana, Sugarcane, Mango, Chilli, Coffee, Cotton, Grapes, Pulses, Guava, Lemon, Maize, Millets, Pomegranite
- **Total area covered (ha) –** 51260.45 ha
- **Average landholding of farmers under project –** 1.4 Ha

## VALUE PROPOSITION AND IMPACT

- **Program Objectives:** Encourage balanced application of fertilizers leading to higher farmer income, soil rejuvenation, savings on irrigation water, reducing water contamination and greenhouse gases, etc.,
- **Number of farmers engaged –** More than 40,000 across India
- **Total value of income enhanced as compared to base year –** Upto 39 %
- **Value of income enhanced/ha –** Upto 8.3 %

## Description of Intervention/ Program

Enabling and motivating farmers to balance the use of fertilizers while protecting their soil fertility and improving their livelihood. Testing soil for nutrient content and composition. Soil quality and data analysis provided to farmers. Providing increased access to soil information. Increased food quality and quantity.

"Krishi RASTAA" is Rapid Automated Soil Test with Agronomy Advice- a portable automated soil analysis system that has been designed to provide results of soil nutrients with customized agronomy on the go.

It is fully automated, time-efficient, accurate and accessible. It offers solutions such as soil solubility and health tests, Macronutrient test and Micro-nutrients test. The working of KT includes- soil sampling by farmers (15 minutes), Submission of sample to nearest Krishi RASTAA partner center, teste report is generated in 45 minutes, an SMS is sent to farmer mobile number and the data is stored in cloud.

Krishitantra collects samples locally from the farmers, and the Farmer Producer Orgnaization/ Village Level Entreprenuer operating the portable soil testing machine ( KrishiRASTAA / Krishi JIVAN micro biometer ) serve as hub.



## Impact on farming and farmer income due to adoption of a new approach:

Krishitantra's technology enables fast, accurate, and informed soil analysis in less than 30 minutes. The device works on Internet of Things providing soil advisory obtained post soil analysis and would facilitate efficient use of farming inputs thus increasing production and income while lowering soil degradation.

Farmers are advised on crop selection, fertilizer use, macronutrients resulting in efficient use of resources (fertilizer, water, micro-nutrients, pesticides). Intermediate outcomes include enhanced soil management and increased farmer incomes. Long-term outcomes include improved local farming ecology and enhanced farmer livelihoods. Reduces groundwater contamination and soil pollution.

### Measurable outcomes:

- **Number of Tests performed: 35,000**
- **Arable area covered by KT soil testing: 1,04,000 Ha**
- **Improvement in farmer income: 39 %**
- **Improvement in crop productivity: 8 %**
- **Reduction in Green House Gases : 13.5 Tonnes of Carbon/Hectare by increasing the SOC content from 0.4% to 0.5 % with appropriate package of practice given by Krishitantra.**
- **Fertilizer Savings : 31 %**

| Theme | Metrics | Impact* |
|---|---|---|
| Farmer Reach | Number famers who availed soil testing facility through Krishitantra partner centers. | 40,283 Farmers |
| Farmer Profitability | Amount of economic value created for the farmer – Yield | Upto 8.3% |
| Agriculture Sustainability and Climate Resilience | Area under sustainable cultivation (Reduced chemical/Fertilizer usage) Acres | 1,26,532 Acres* |
| | Reduction in Fertilizer Consumption | 4,900 Tonnes * |
| | Amount of GHG emissions mitigated / Carbon Sequestered | 1,20,000 Tonnes of CO2 e * |
| Employment Generation | Direct employment with partner centers | 403 Nos |
| Gender Impact | No of women employed at our partner centers | 128 Nos |

*** Numbers provided are based on the consideration that the farmers have followed our agronomy advisory.**

# Proximal Soilsens Technologies Private Ltd.



## BACKGROUND INFORMATION

- **Name of organization:** Proximal Soilsens Technologies Private Limited
- **Name of program:** Helping Indian farmers digitally by providing simple sensors and IoT based solutions in implementing precision agriculture and reducing crop losses due to diseases
- **Year of Execution:** 2018
- **Area of operation (States and districts):** Maharashtra, Telengana, Karnataka, Andhra Pradesh, Kerala, Gujarat, Assam, Jharkhand and Himachal Pradesh.

## PROJECT DETAILS

- **Program Objectives:** builds innovative, patented, customized and affordable technologies to bridge the technological gap in Indian Agriculture.
- **Crops covered** – Multiple crops (majorily Potato,citrus,maize)

## VALUE PROPOSITION AND IMPACT

- **Number of farmers engaged** – >500
- **Value proposition in terms of better income for farmers:**
  - Yield improvement by 20%,
  - saving water by 27%,
  - Reducing soil testing time from 15 days to 5 minutes.

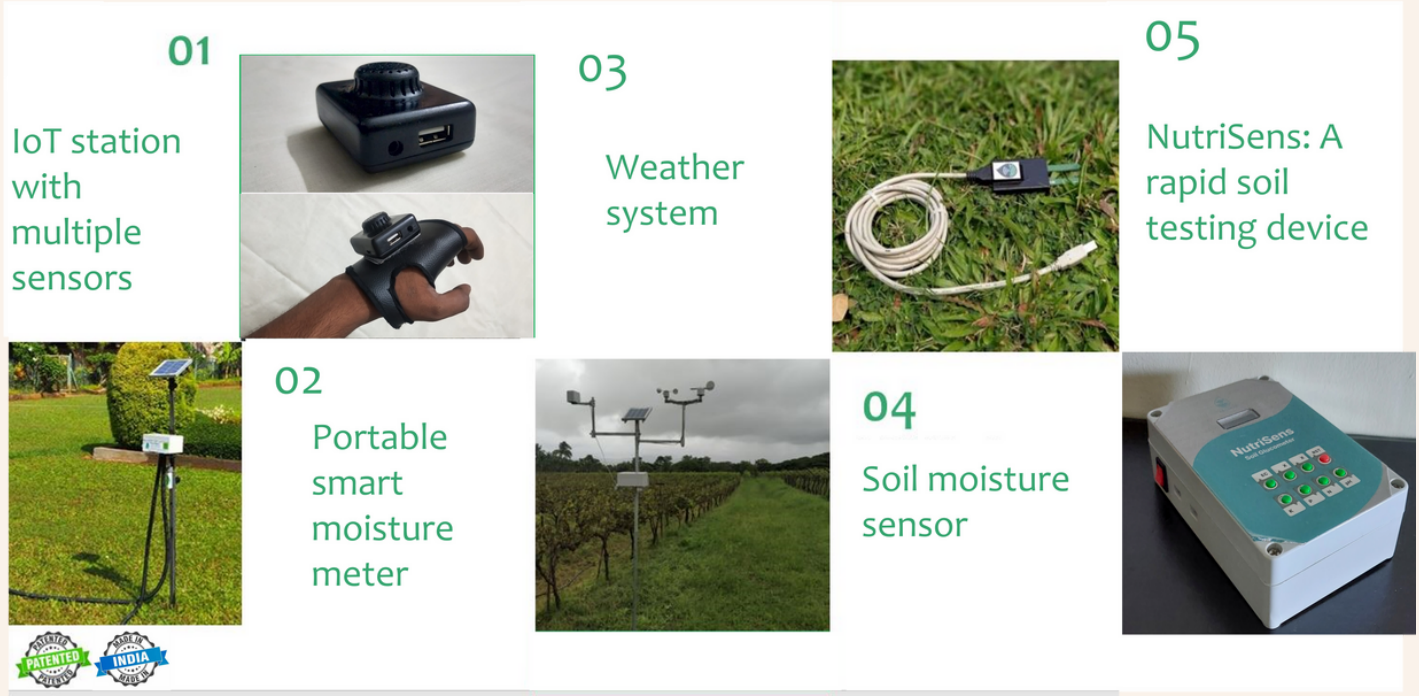
## Description of Intervention/ Program

Most of the farmers in India cannot implement precision agriculture because the current technologies are imported, complex, expensive, time-consuming, and do not provide efficient service support. Moreover, they are not suitable considering the social background of Indian farmers Proximal SoilSens indigenously builds innovative, patented, customized and affordable technologies to bridge the technological. Soilsens has developed simple to use, affordable soil NutriSens that instantly gives soil nutrient parameters on farmers' mobile.

Soilsens thermometer (SoilSens Go) and glucometer (SoilSens NutriSens) for soil provide soil health parameters like moisture, temperature, pH, EC, Nitrate, phosphate and potassium with just a click of a button.

### Impact on farming and farmer income due to adoption of new approach

**SoilSens portable moisture meter and Nutrient meter provides soil health parameters like moisture, temperature, pH, EC, nitrate, phosphate, potassium and organic carbon of soil on the click of a button.** The technology is affordable for farmers and provides on-site rapid soil health analysis, enhances yield, and helps early diagnosis of diseases. Broad applicability helps conserve water, and electricity, reduces fertilizer usage and input cost, and is easy to use because of its mobile-based operation.




*Product Portfolio*

# YCook India Pvt. Ltd.



## BACKGROUND INFORMATION

- **Name of organization:** YCook India Pvt. Ltd
- **Name of program:** Steamed snack products
- **Year of Execution:** 2012
- **Area of operation (States and districts):** Across India and 6 countries across the globe

## PROJECT DETAILS

- **Program Objectives:** Helped farmers by making them partners and assisting them right from the beginning, so the quality of food is controlled to the maximum.
- **Crops covered -** Multiple Crops

## VALUE PROPOSITION AND IMPACT

- **Number of farmers engaged -** 2832
- **Total value of income enhanced as compared to base year -** increase their income by 112% along with saving water
- **Value proposition in terms of better income for farmers:** Farmers income increased by 112% and 77% water recycled and used for irrigation

## Description of Intervention/ Program

While the consumers are looking for healthier options, there is a need for a truly healthy, wholesome and natural snack. The steamed range of snacks offers a satiating wholesome and natural snack, health is inherent.

Since the product does not require refrigeration, it is an easy carry-along snack. Further there is a need to create more healthy kitchen convenience options, our steamed range of ingredients make it easy to toss out a dish in a jiffy.

Everything that is packed for consumers is grown exclusively in partnership with farmers. So, there is a quality focus right from the start, from the seed, soil and agricultural practices. All the farmers are trained and comply to Global GAP hence ensuring zero pesticide residue for consumers. All fresh produce is also packed within 19 hours of harvest to retain farm freshness, texture, colour, taste and nutrition. No refrigeration also makes it easy to reach healthy options to the remotest places. With steamed snacks and ingredients, it is now easy to choose healthy.

**Impact on farming and farmer income due to adoption of the new approach:**

Towards a socially responsible organization, Y-Cook has helped farmers by making them partners and assisting them right from the beginning, so the quality of food is controlled to the maximum. They have helped women, farmers, by creating an additional income opportunity. Extended support to farmers and help increase their income by 112% along with saving water.




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