Digital Green

Digital Green Trust

Annual Report
2021-2022

Inside

Trustees' Message

Digital Green was founded on the belief that smallholder farmers are heroes who produce much of the world's food, and yet they are often the poorest and the most malnourished among us. Over the last decade, Digital Green has improved systems to reach and support farmers at scale.

In a year of change and uncertainty, the myriad of challenges facing our society and economy, particularly rural farming communities are larger and more complex than ever before. These challenges call for the attention and urgent action of government bodies, philanthropies and civil society.

In the face of these challenges, there have been significant achievements at Digital Green presented in this report. Amid the crisis, we have been committed to our mission of empowering smallholder farmers and tried to understand the challenges they face in order to meet them with laser-focused solutions. Digital connectivity strengthens the value and the confidence of local farming communities. With its new strategic shift, Digital Green will be leveraging technology and data in strengthening farmer groups, with a gender and climate-action lens, for farmers to better access services, and new income streams, and generate greater power within the agriculture ecosystem.

We are thankful for the continued support of our donors and well-wishers that enable us to reach farmers and scale up our impact. We are particularly thankful to our government partners, and knowledge and implementation partners for enabling and institutionalizing our work. Lastly, all our achievements over the past year are a testament to the hard work of our employees and management. We look forward to the continued support of our partners, as we continue to work towards transforming the food and agriculture system.

Tejesh Shah & Dr GNS Reddy
Trustees

Overview & Context

Over the last year, we faced one of the largest humanitarian crises that left an unparalleled impact on our healthcare, governance systems, and our socio-economic fabric. Even as most economic activities came to a standstill, the agriculture sector weathered through and was one of the only sectors to see growth in India. Until recently, the agriculture sector was also the biggest contributor to India's GDP. In India, about 20 million smallholder farmers constitute about 78% of the country's farmers and are a crucial part of the food value chain in India. They are the ones ensuring food security, and rural livelihoods, and have the onus upon them to run our rural economy. Yet, they remain amongst the poorest and most vulnerable groups in the country and globally.

As our society reeled under the pandemic, our farmers never came to a halt despite not having much or any return. It is their economic action and production that are vital for economic recovery. Its damaging effects on farmers' livelihoods, and our food and nutrition security, however, will depend on policy response, and systemic support from civil society organizations over the short, mid and long-term. Supporting smallholder farmers in a timely and effective manner is the only way to build back better and foster economic recovery.

Over the last decade, Digital Green has been working with the National Rural Livelihoods Mission and its state counterparts, and the Department of Agriculture in various states to empower smallholder farmers by leveraging technology and grassroots-level partnerships. As a farmer-centred organization, it was crucial to understand the specific issues that farmers faced as they coped with the pandemic and

– its associated uncertainties to support them in overcoming the situation and steer them towards not just recovery but prosperity.

This is an immense opportunity to accelerate the transformation in the food and agriculture sector to build its resilience, particularly on the frontiers of climate resilience and gender. The threat of climate change to the agriculture sector is real and severe, affecting crop growth and yield, and at the same time agriculture is one of the largest contributors to GHG emissions. Among the hundreds of millions who are suffering from acute hunger, and are vulnerable to the impact of climate change, an estimated 120 million smallholder farmers are perhaps one of the most at-risk groups.

Feeling the brunt of all these vulnerabilities, without much voice, ownership and agency are the women in agriculture who constitute more than 75% of the workforce producing 60-70% of our food. Despite their high participation, entrenched gender disparities constrain women leading to unequal access to key resources such as secure land rights, advisory services, markets, and digital assets such as mobile phones.

There is a paradigm shift wherein agri-value chains are becoming increasingly digitized to solve pressing challenges. The need of the hour is to leverage technology and data to unlock the powerful potential of the agriculture sector through climate action and increasing women farmers' resilience. Recognizing the power of collectives, we aim to strengthen farmer organizations, support their adaptation and resilience, and democratize data that can offer new solutions to long-standing challenges.

Our mission is to create a world where farmers use **technology** and **data** to build **prosperous communities**.

Our Approach

Our partners already play a key role in mobilizing and strengthening farmer organizations and we see an opportunity to provide increased support that improves farmer organization agency and capacity in the face of this changing landscape. We believe in the promise of advisory, finance, and data to strengthen farmer organizations and unlock the potential of the agricultural sector. Responding to the global context, our approach will increasingly include direct support for farmer organizations. Serving all farmers, with a specific focus on women, we will strengthen farmer organizations in order to increase their collective power, support their adaptation and resilience, and democratize data that can offer new solutions to long-standing challenges. All of Digital Green's work is guided by five key principles:

Partnerships Enabled Partnering with values-aligned stakeholders who are committed to system level change.

Equity Focused Placing women and other marginalized communities back at the center of the food and agriculture system to advance gender equality, social inclusion, and women's empowerment.

Technology Empowered Increasing authority and agency of farmer groups through technology by enabling ownership and control of their own data.

Climate Smart Emphasizing climate resilience through data sharing & advisory content that increases the adoption of regenerative agricultural practices.

Always Learning Driven by evidence, sharing insights and data with the agricultural ecosystem to benefit farmers.

COVID-19 Response

The beginning of the 2021-22 financial year marked the onset of the second wave of the COVID-19 pandemic in India which brought severe consequences to the agricultural sector, particularly the smallholders. They continuously faced threats to their health, and agricultural productivity and had to deal with market closures. We at Digital Green remained committed to their cause – serving them through our technologies and grassroots-level partnerships. We also undertook a variety of other endeavours, here's a glimpse:

Survey to understand farmer needs and subsequent intervention

One in every two farmers expressed an inability to buy the quantity of food they earlier did due to a drop in household income

We conducted a rapid assessment of the impact of the second wave of COVID-19 on Indian farming communities in four states – Andhra Pradesh, Bihar, Jharkhand, and Odisha to understand the challenges posed by the pandemic to the harvesting activities and subsequent sale of rabi crops. We also gauged the support that these farmers would require in selling the existing crop and sowing for the next season and assessed the utility of digital extension channels to reach farmers with agronomic advisories and the willingness of these farmers to use such channels.

Through this survey we found that the awareness of the pandemic was universal and the farmers were expressing concerns over their own or family member's health (79%), lack of money or work (64%) and lack of access to healthcare or medical care (42%) facilities. As the farmers grappled with food shortages, rise in food prices and losing income, about 40% claimed that they would not be able to sell their entire rabi produce. Market and road closures were affecting the transport of produce to markets. To top this, only a few farmers were able to receive agricultural advisories through digital channels – which propelled us into thinking of ways to make inroads in the mobile devices of these farmers. We made our video content shorter and repurposed our existing videos to layer them with covid advisories.

We prioritized IVR, SMS and Whatsapp as the farmers who received advisories from these modes, found them useful and relevant (89%), easy to understand (53%) and timely (49%). This experience also signaled a change in our strategy which we modified to focus on enhanced productivity and marketing support using digital channels.

Income Support to Small and Marginal Farmers

We also received a sub-grant from ICRISAT in 2021 to support the generation of additional income for small and marginal farmers affected by COVID-19 in Andhra Pradesh. Through our robust presence on the ground, we supported 1800 farmers by providing Vegetable seed kits (600), fruit saplings (600) and even FPO membership fees (600) to help them enjoy the benefits of aggregation and scale. About half of the beneficiaries in this intervention were women. An evaluation conducted at the end revealed that the farmers found this intervention to be of great help, particularly in terms of the availability of nutritious food for consumption. Not only did it support them with additional income, but also improved their knowledge of crop cultivation.

Through the COVID-19 Resilience Project, we reached 1800 farmers on ground with seed kits, fruit saplings and FPO membership fees

Projects

ICRISAT COVID-19 Resilience Project
Andhra Pradesh & Telangana

Collaboration with other Stakeholders

Digital Green partnered and collaborated with Rapid Rural Community Response (RCRC) and ACT Grants Alliance by producing and sharing videos on COVID-19 management at the grassroots level. The videos developed by Digital Green were widely shared through local WhatsApp groups and local community organizations to reach hundreds and thousands of people.

Vooyaka Shanti and her husband Bhaskar Rao of Chinnabagga revenue village in Srikakulam district own a five-acre cashew orchard. Since cashew cultivation is a once-in-a-year income provider, they grow loads of vegetables on their tiny pieces of land in extreme rain-fed conditions with many innovative agriculture methods and low-cost irrigation technologies for supplementary sources of livelihood.

Bhaskar Rao and Shanti are among the hundreds of beneficiaries COVID-19 Resilience Support Program in Andhra Pradesh that Digital Green in partnership with Velugu Association is implementing, with support from ICRISAT and Walmart Foundation.

"We have faced many difficulties during COVID-19 times," said Bhaskar Rao. "Though we have been cultivating vegetables in the past also, there was some investment required especially for seeds and fertilizers," Bhaskar Rao added. He further said that through the COVID-19 Resilience Support Program, they have received different types of native vegetable seeds, cycle weeders and neem cake powder. "Earlier, we used to buy hybrid seeds which can't be used as seeds the following season. Now we are going to preserve seeds from native variety vegetables for many next seasons to come," Bhaskar Rao added. "We have never cultivated these many types of vegetables. Our food at home is quite diverse now with many vegetables, Shanti said. "Most importantly, we are not using any fertilizers to grow vegetables. We have learned natural farming methods through video dissemination sessions and by watching Digital Green's videos on YouTube. We have also received weather information and farming practice details through IVR. With less cost of cultivation in the natural farming method, we are harvesting safe and bountiful vegetables. After reaping sufficient produce for household consumption and sharing vegetables among our extended family, we have sold 1.5 quintals of tomato produce," said a very happy Bhaskar Rao and Shanti.

They say where there is a will, there is a way. In Vooyaka Shanti and Bhaskar Rao's story, it is like since they have a will, many things have come their way.

Our Solutions

Video-Based Extension

At the core of our approach lies the Community Video-Based Hybrid approach that includes an amalgamation of digital extension tools such as Whatsapp, IVR, and Chatbots. The video-based extension has been found to be 8 times more cost-effective than traditional extension approaches. In the last year, we produced 47 videos on different crops and their practices across Odisha, Jharkhand and Andhra Pradesh. What makes the video-based extension work is the facilitative nature of the program design. The communities gather in a common ground, where a video showcasing a specific best practice, is presented. The presentation is complemented by effective facilitation by an extension worker who is from the same community as the farmers. This establishes a trust for the facilitation within the community, who then feel comfortable in asking questions, sharing their experiences, and even reaching out after the session is over for further clarifications as they need.

For a large part of our extension work, we have chosen PICO projectors for disseminating community videos. During the last year, our PICO-based video disseminations reached 22,855 male and 13,354 female farmers. We also reached 3646 male and 617 female farmers through in-person meetings where our field staff personally reached the farmers' doorstep to showcase advisory videos and facilitate understanding.

In the geographies where we work, we have found that 54% of the population and 72.3% of the frontline workers have an active phone connection. In light of this increased penetration of smartphones (and their applications) in rural areas, we modified the format of our videos making them shorter and lighter to enable easy sharing on mobile phones and on messaging platforms like Whatsapp.

In 2021-22, Community Video-Based Hybrid Approach reached 784,813 farmers

Projects

eMircha: Delivering Digital Extension & Advisories to Chilli Farmers
Andhra Pradesh & Telangana

Tech-Aided Resilient Agriculture (TARA)
Andhra Pradesh

Advancing Tribal Livelihoods and Self-Reliance (ATLAS)
Jharkhand & Odisha

FRAME: Fostering Resilience in Agriculture through MRV Experimentation
Bihar

Project Samvad
Assam, Bihar, Chattisgarh, Jharkhand, Odisha, Uttarakhand

Roddenberry Award Project: Building Resilient Communities
Bihar, Jharkhand, Odisha

UPAVAN Project
Odisha

Potato Production through Zero Tillage (PZTM) Project
Bihar

Whatsapp Groups became bustling spaces of learning, where 45% of all mediators and frontline workers participated and 89% of them shared advisory videos. Using Whatsapp, we reached 134,676 male and 137,028 female farmers through videos.

Our community video approach exemplified using video communication to trigger social behaviour change and health outcomes for mothers and children across the states of Assam, Chattisgarh, Odisha, Bihar, Jharkhand and Uttarakhand. Through Project Samvad, since 2016, we trained 5000 frontline workers and reached over 700,000 beneficiaries producing over 1000 videos in the period. Our approach of producing hyper-localized videos facilitated an immediate connection with the targeted audience and helped internalizations of the messages to impact social norms. More than half of the women were following the recommended practices of pregnancy care and around 90% were exclusively breastfeeding their children – such was the impact of this project and our community video approach.

Community videos disseminated in-person and via Whatsapp helped us in reaching over 5000 frontline workers, and 700,000 beneficiaries in improving maternal child health and nutrition outcomes through Samvad

Direct2Farmer

Chatbot & Voicebot

98% of farmers found Chatbot advisories useful and were willing to recommend to fellow farmers

Projects

eMircha: Delivering Digital Extension & Advisories to Chilli Farmers
Andhra Pradesh & Telangana

Tech-Aided Resilient Agriculture (TARA)
Andhra Pradesh

Roddenberry Award Project: Building Resilient Communities
Bihar, Jharkhand & Odisha

In our quest to take crop advisory directly to the farmers in an easy-to-use, low-cost, digital mechanism, we made significant strides in 2020 with our experiments in Chatbots. The ubiquity of Whatsapp is quite apparent in states like Andhra Pradesh, and farmers had been utilizing Whatsapp groups to share generic crop-related information with each other. This presented a unique opportunity to employ human-centred design in a hybrid model of communication to complement community videos enhancing knowledge-sharing manifolds. Leveraging the Whatsapp platform, Digital Green in 2021, launched a Chatbot that enabled 9289 farmers in Andhra Pradesh and Jharkhand to receive specific, and targeted advisory videos based on their crops and their stage, in their regional languages at the click of a button, and free of cost. In an assessment conducted in Jharkhand to understand the efficacy of chatbots, it was found that chatbot advisories were useful (98%), adequate (94%), timely (60%) and were adopted by 48% of the farmers. Moreover, 97% were willing to recommend the service to fellow farmers and 99% of the farmers showed interest in re-joining the service the next season.

While some farmers adapted easily to the chatbot as they were launched in Telugu, the local language, others found it difficult to type out responses, the majority being female farmers. This was when a strong need was identified for a Voicebot, which as a communication medium, is agnostic of the literacy level of the farmers. The Voicebot was launched in July 2021 testing the response of about 200 unique users to its various features. We found in a subsequent survey that voice was the preferred medium for the farmers to interact with the bots.

Koteshwaramma and her husband Venkateshwar Rao are farmers from Kopparu village in the Guntur district of Andhra Pradesh. Like many farmers around their village and district, they have been cultivating chilli on their one-acre rented agricultural land.

Without adequate information about changing climatic conditions, unpredictable markets, and higher costs of production, they were faced with a dilemma on whether to plough on. In 2019-2020, with support from the Andhra Pradesh Government and RySS Community Extension functionaries, they adopted climate-resilient natural farming methods to cultivate chilli crops. Within a year, they have seen significant success with 25 quintals of red chilli yields, and minimal farming expenses.

Their success has become an inspiration for many farmers in and around their communities, and also across the state. There have been media articles written about this farming couple, and Koteshwaramma was also awarded as the 'Best Farmer' in the chilli crop and natural farming category.

The Digital Green team has followed them over a period of the cropping cycle to document their best practices in video form. This has now become a 12-part video series of Package of Practices. When we ask Koteshwaramma about her success in chilli cultivation, she promptly says that it has been due to the timely advisory and messages that she received on the climate resilient, natural farming methods of chilli cultivation.

Kisan Diary Enterprise (KDE)

Farmer Producer Organizations are slated to turn around the fate of small-scale producers. The challenges they face, however, are immense – ranging from (but not limited to) lack of adequate backward and forward linkages to inadequate professional management. Kisan Diary Enterprise (KDE) is a data collection and sharing solution for FPOs that supports buyer discovery and aggregation of commodities for sale.

Through KDE, we empower producer groups, and FPOs to leverage their own data for building farmer visibility, visualizing their demand and supply, and catalyzing their revenue-growing activities through credible market linkage. The inventory information compiled on the application helps in building a supplier's directory that can be showcased to the buyers to match their demands.

Since its launch, 25 FPOs with 19,312 farmers have been using KDE to optimize their operations across 49 crops. About 16,407 female farmers are onboarded on KDE. In the last year, we onboarded 17,591 farmers on KDE.

More than 25 FPOs have been onboarded on KDE

Projects

Tech-Aided Resilient Agriculture (TARA)
Andhra Pradesh

Advancing Tribal Livelihoods and Self-Reliance (ATLAS)
Jharkhand & Odisha

Roddenberry Award Project: Building Resilient Communities
Bihar, Jharkhand & Odisha

Projects

eMircha: Delivering Digital Extension & Advisories to Chilli Farmers
Andhra Pradesh & Telangana

Tech-Aided Resilient Agriculture (TARA)
Andhra Pradesh

Advancing Tribal Livelihoods and Self-Reliance (ATLAS)
Jharkhand & Odisha

Project Samvad
Assam, Bihar, Chattisgarh, Jharkhand, Odisha, Uttarakhand

UPAVAN Project
Odisha

Integrated Voice Response (IVR)

The approach of disseminating advisories with videos is effective but doubling it down with Integrated Voice Response – a complimentary channel-serves to deepen the understanding of the practice. One of the primary benefits of IVR is that information can be consumed effectively regardless of the literacy levels of the community. Also, there is no dependency on smartphones or internet connections.

We have utilized IVR in several of our projects including Project Samvad and E-Mircha to disseminate advisory on health, nutrition, family planning, and crop & pest management across geographies like Jharkhand, Odisha, Uttarakhand, Andhra Pradesh, respectively.

The challenge in IVR is to create content that will engage the listener until the key message is delivered. Keeping this in mind, our team utilized storytelling and drafted short dramas about 3-4 minutes long as the content. Through IVR, last year, we reached 307,081 beneficiaries of which 8153 accessed agriculture-based advisories and 298,928 accessed health and nutrition advisories.

Sabita Devi is a frontline worker (FLW) in Latehar, Jharkhand who is a KDE user. With the application, she is able to keep a track of the produce being collected and yet to be collected by the farmer members of the village level producer group.

"Through this mobile application, maintaining and reporting produce data to our FPO has become simplified. I collect and feed the data in the mobile app during the meeting with farmers. I have access to complete producer data (including the break-up of produce for self-consumption, other commitments, and surplus for selling to producer groups or FPOs) for each farmer in one place."

Before being trained on how to use KDE, Sabita would attend meetings with farmers and manually load information collected into a register that would take hours to complete. Now, with the automated system, Sabita feels empowered to take on more tasks and realizes the potential of digitised data in transforming the agency and resilience of her farming community.

Ecosystem Strengthening

Farmstack

When we think of creating a prosperous future for our smallholder communities, it does good to also think of the ecosystem within which they operate. In the current agricultural ecosystem, we see brilliant innovation happening across geographies, be it to become climate resilient or to amp up the productivity of food. However, it is replete with fragmented services and platforms operating in silos. At the organizational level, we see there are trust deficits and compliance issues and at the very base of the pyramid lie the smallholders who have an absolute lack of control over their own data. In a bid to power the secure transfer of data and solve these bottlenecks, we are in the process of creating a reference implementation of an open and interoperable data sharing protocol in the agriculture sector– Farmstack. What this will essentially do is enable communities to use their data to connect with service providers and avail required services. Through Farmstack farmers not only own and control their data assets but harness them to create better incentives and value propositions.

Integrated farm and farmer data were used to develop customized and demand-driven information and services offered to farmers via multiple integrated channels of communication (e.g., video and mobile-based channels.) in the early version of Farmstack in Andhra Pradesh. This led to higher adoption of agriculture advisories – 8.6 percentage points (41.1% to 49.7%) as compared to non-Farmstack farmer groups. Farmstack has been continuously evolving and improving as we took on different projects across the world. In our project TARA, being implemented in Andhra Pradesh, we developed a data interoperability back-end system architecture that enables farmers to receive soil advisory on request. This happens in a completely secure manner where only the necessary set of data points (geolocation) is shared with the service provider (ISRIC) through 'connectors' developed in FarmStack. The soil parameters thus received, enable us to prepare the soil advisory which is then shared with the beneficiary farmers through IVR or SMS all automated in the Farmstack application.

Projects

Tech-Aided Resilient Agriculture (TARA)
Andhra Pradesh

Gender

Women farmers in India make up nearly 75% of full-time workers, producing 60-80% of food for the country, and hold just about 14% of the land. Despite their high participation and critical role in agricultural activities, women farmers' contributions continue to be underreported and undervalued due to systemic issues and often end up remaining invisible in policy and practice. With increasing digitization aiming to enhance the efficiency of the agriculture ecosystem, we have to ensure that women farmers are not marginalized due to digital gaps or access issues.

Digital Green has been working with its grassroots partners, including JEEViKA-Bihar, Jharkhand State Livelihood Promotion Society (JSLPS), Department of Agriculture, Andhra Pradesh, and Odisha Livelihood Mission (OLM) amongst others, reaching approximately 2.5 million women farmers over the last 14 years. We've been deploying technology solutions that address the needs of small-scale producers, particularly women farmers.

In 2021-22, in Odisha and Jharkhand, we are working with tribal women farmers, particularly from Adivasi and particularly vulnerable communities to strengthen women's farmer producer organizations.
With timely advisories, leadership coaching, and Kisan Diary Enterprise (KDE), we aim to improve the bargaining power and resilience of over 50,000 tribal women farmers.

Digital Green also organized a key thought leadership event on **'Making Gender Visible in AgTech'** which brought together key stakeholders including policymakers, practitioners, and women entrepreneurs working in AgTech. The chief guest was Mansi Nimbhal, IAS, SMD cum CEO of Odisha Livelihood Mission, who spoke on government initiatives in integrating gender in AgTech, and the keynote address was given by Prabhat Pani, Executive Director – Center for Innovation in Sustainable Development, SPJIMR which highlighted how AgTech can be leveraged to build an equitable and sustainable agriculture ecosystem.

About 85% of the farmers that we have reached have been women

Projects

Advancing Tribal Livelihoods and Self-Reliance (ATLAS)
Jharkhand & Odisha

Project Samvad
Assam, Bihar, Chattisgarh, Jharkhand, Odisha, Uttarakhand

Upscaling Participatory Action and Videos for Agriculture & Nutrition (UPAVAN) Project
Odisha

This was an opportunity to deliberate on the challenges brought by the digitization of agriculture on women farmers and farmer groups, and discuss learning how to make AgTech more gender inclusive. A key learning was that gendered innovation in AgTech makes for a great case in shifting power equations in society and enhancing women's agency. Moreover, the power of collective agency through women's farmer groups can be the key to solving accessibility-related issues and ensuring impact.

Our new strategy will deepen our existing work with women farmer's through gender-intentional interventions that place women at the centre of the food and agriculture system. We envision that the collective strength of the farmer organization will increase the leadership, decision-making, negotiation and bargaining power of women as players in the agriculture domain.

Climate

Access to locally relevant, trustworthy information helps smallholder farmers leverage climate-resilient agricultural practices. Yet, most farmers lack consistent access to quality extension services that provide this information in an actionable way.

We have been promoting climate-resilient farming practices through participatory extension through our programmes in Andhra Pradesh and Bihar. Digital Green has been partnering with JEEViKA to integrate climate-smart practices, particularly focusing on the system of rice intensification (SRI).

Among hundreds of millions who are vulnerable to the impact of climate change, an estimated 120 million small-scale farmers are perhaps one of the most at-risk groups

Projects

FRAME: Fostering Resilience in Agriculture through MRV Experimentation
Bihar

In 2020, this partnership expanded to pilot an innovation on farmer-centric Measurement, Reporting and Verification (MRV) system, technology and data pilot with high emission reduction impact while helping farmers improve productivity and resilience. Through this intervention, we aim to reach 200,000 farmers with digital advisories and reduce 10,000 MT of CO_2 emissions.

Similarly in Andhra Pradesh, Digital Green has been partnering with Rythu Sadhikara Samstha (RySS) to institutionalize video-based approaches to enhance the efficiency and effectiveness of extension systems to promote Community Managed Natural Farming throughout the state that addresses soil degradation, biodiversity loss, water scarcity and crop diversification to restore ecosystem health, and increase land productivity in a climate-smart manner. Farmers assigned to participate in the program reported higher adoption of novel practices by 5-8% relative to farmers who did not participate (where adoption ranged from 13-30%).

Digital Green organized a seminar on **'The Role of Technology and Data Science in Climate-Smart Agriculture'** in August 2021 to discuss with key stakeholders how technology can serve as an enabler to farmers in order to accelerate climate-smart agriculture outcomes. The keynote address was delivered by Abhishek Singh, IAS, CEO, Digital India Corporation, and a spotlight discussion on putting farmer and farmer-controlled data at the centre of climate-smart actions was held with T. Vijay Kumar, IAS (Rtd), Executive Vice Chairman, RySS, Balamurugan D, IAS, CEO, JEEViKA, and Dr Purvi Mehta, Asia Lead (Agriculture), BMGF India. The closing address was delivered by J. Satyanarayana, IAS (Rtd), Chief Advisor, C4IR-WEF who discussed seminal initiatives like IDEA and AgriStack that will enable farmers to lead the use and privacy of their data.

Only 2% of climate financing impacts smallholder farmers; farmer-level data is a powerful resource to build policies and climate-smart models suited to local factors when empowering farmers to lead the use of their data.

Our Projects (2021-2022)
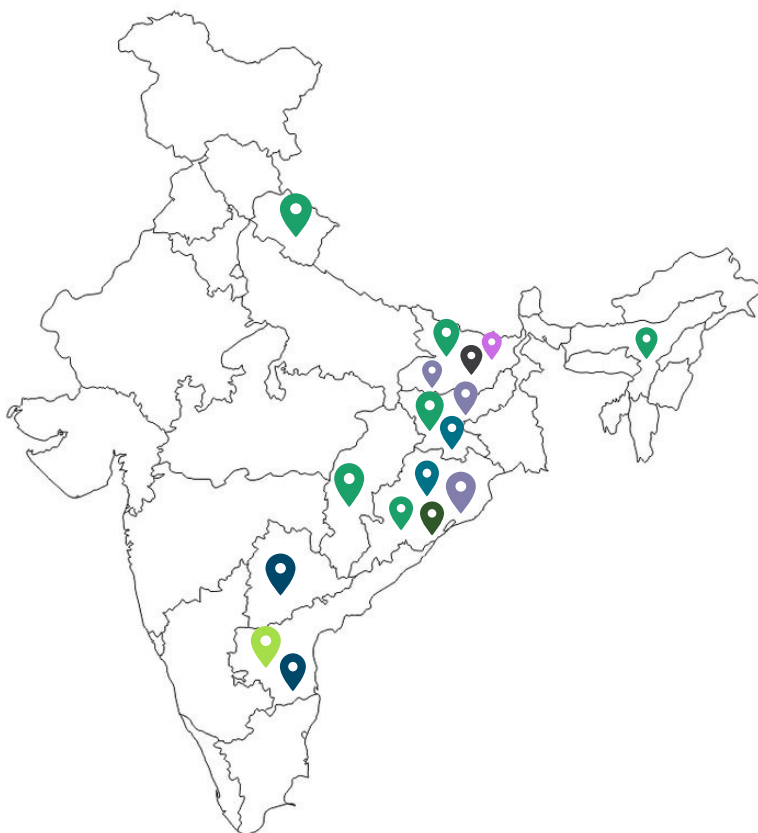
eMircha: Delivering Digital Extension & Advisories to Chilli Farmers
Impact: 52 FLWs | 31,073 Farmers
Andhra Pradesh & Telangana

eMircha tests and evaluates digital extension innovations that integrate technology tools and platforms to deliver high-quality advisory to chilli farmers in Andhra Pradesh and Telangana and connect them to buyers

Tech-Aided Resilient Agriculture (TARA)
Impact: 1163 FLWs | 32,275 Farmers
Andhra Pradesh

TARA improves the livelihoods & resilience of smallholder farmers by enabling efficient delivery of targeted, relevant, and timely agricultural advisories and improving access to markets and market information.

Advancing Tribal Livelihoods and Self-Reliance (ATLAS)
Impact: 866 FLWs | 25,993 Farmers
Jharkhand & Odisha

ATLAS advances livelihoods, resilience and self-determination of tribal women farmers by strengthening women farmer producer organizations (FPOs) and improving their bargaining power with buyers.

FRAME: Fostering Resilience in Agriculture through MRV Experimentation
Impact: 17 FLWs | 1286 Farmers
Bihar

FRAME kickstarted in Gaya district, Bihar. The major objective of the project is to develop a low-cost scalable model of GHG emission estimation and to share digital advisories of different CSA practices with farmers.

Project Samvad
Impact: 4546 FLWs | 513,515 Beneficiaries
Assam, Bihar, Chattisgarh, Jharkhand, Odisha, Uttarakhand

Project Samvad collaborated with India's State Rural Livelihoods Missions, and National Health and nutrition Missions to increase the adoption of optimal maternal, infant & child health, nutrition and family planning practices.

Roddenberry Award Project: Building Resilient Communities
Impact: 277 FLWs | 152,386 Farmers
Bihar, Jharkhand & Odisha

Digital Green addressed the immediate effects of COVID-19 on farmers by repurposing the digital library into short-form video and audio messages to share advisories with farmers via Whatsapp and Chatbot.

Upscaling Participatory Action and Videos for Agriculture & Nutrition (UPAVAN) Project
Impact: 73 FLWs | 28,263 Farmers
Odisha

UPAVAN is a four-arm, cluster randomized controlled trial (RCT) based in Keonjhar, Odisha, aimed at assessing the nutrition and agricultural impact and cost-effectiveness of interventions (compared with a control arm).
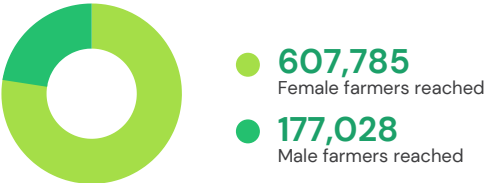
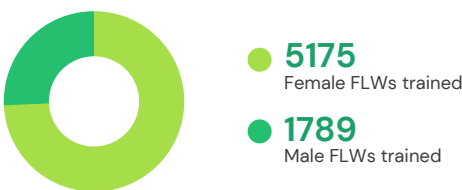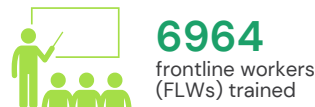**PZTM Project**
Impact: 3 FLWs | 22 Farmers
Bihar

PZTM is a project for potato cultivation with zero-tillage and rice straw mulch. It will analyse the adoption of PZTM practices on socio-economic and environmental outcomes through an RCT.
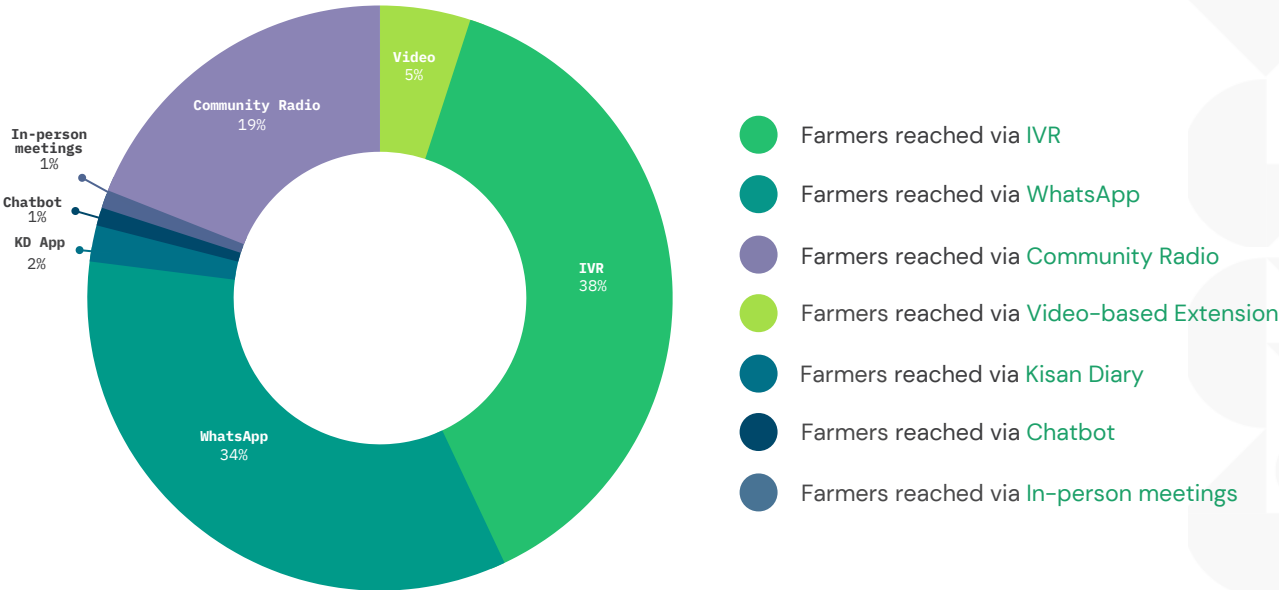
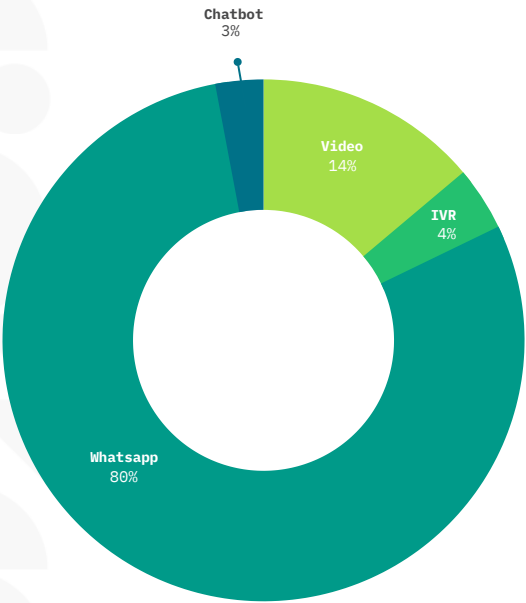# Our Impact (2021-2022)

Program Reach

784,813
farmers reached

- **607,785** Female farmers reached
- **177,028** Male farmers reached

Frontline Workers (FLW) Trained

6964
frontline workers (FLWs) trained

- **5175** Female FLWs trained
- **1789** Male FLWs trained

Platform-wise Reach

Video 5%
Community Radio 19%
In-person meetings 1%
Chatbot 1%
KD App 2%
IVR 38%
WhatsApp 34%

- Farmers reached via IVR
- Farmers reached via WhatsApp
- Farmers reached via Community Radio
- Farmers reached via Video-based Extension
- Farmers reached via Kisan Diary
- Farmers reached via Chatbot
- Farmers reached via In-person meetings

Gender-wise Reach across major channels

Male Reach

Chatbot 3%
Video 14%
IVR 4%
Whatsapp 80%

Female Reach

Chatbot 0.2%
Video 3%
Whatsapp 67%
IVR 67%
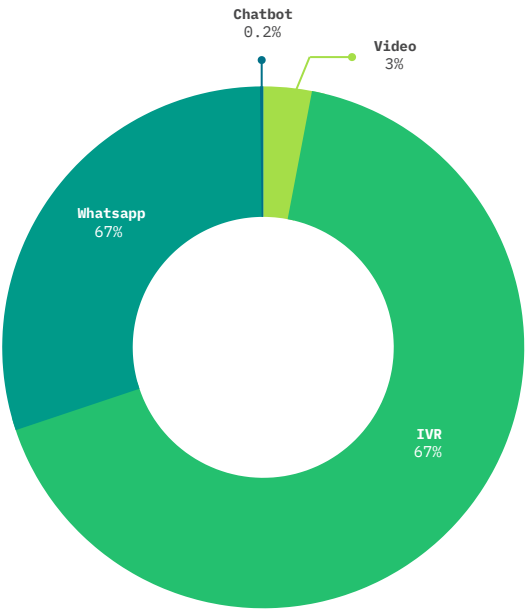
IVR	Whatsapp	Video	Chatbot
300,751 Female Farmers	**137,028** Female Farmers	**13,354** Female Farmers	**710** Female Farmers
6330 Male Farmers	**134,676** Male Farmers	**22,855** Male Farmers	**5127** Male Farmers

Efficacy of the Community Video-Based Hybrid Approach

In a phone survey that we carried out during Project Samvad, we attempted to understand the efficacy and learnings of new digital media tools - Whatsapp and IVRS in disseminating information among the rural communities and found out that they were a more popular source of information among women while mass media was among the men.

About 40% of the respondents were exposed to Whatsapp videos, 21% to community videos, and 6.1% to IVRS. We concluded that digital platforms are a potential channel for social and behavioural change communication, however, some measures such as having a valid database of phone numbers, focusing on capacity enhancement of frontline workers (considering the huge dependency of the community on them) and a human-mediated approach to drive adoption are crucial to increase their efficacy. We will continue looking at digital tools and how they are received by our beneficiary communities moving forward.

Building the digital capacities of farmer producer groups

Another area that we are rigorously working on is linking Farmer Producer Organizations with markets. One of our projects, ATLAS in Odisha and Jharkhand focuses on building the capacities of tribal women farmers to help improve productivity, understand market value chains, and improve livelihoods. ATLAS pairs scalable, high-quality agricultural and post-harvest advisory services and coaching with a mobile application – Kisan Diary Enterprise - an intuitive digital tool that we have developed to enable transparent data sharing to improve FPO performance and support buyer discovery and aggregation of commodities for sale. ATLAS has set out to reach 50,000+ tribal women farmers.

Research, Evaluation & Publications

Improving Maternal and Child Nutrition through Participatory Video, Nutrition-sensitive Agriculture Interventions, and Women's Groups (UPAVAN Trial)

UPAVAN was designed as a four-arm cluster randomized control trial (RCT), based in Keonjhar district, Odisha, to assess the nutrition and agricultural impact and cost-effectiveness of three types of interventions compared with a control arm. The London School of Hygiene & Tropical Medicine (LSHTM) led research activities along with University College London's Institute for Global Health and DCOR Consulting. The results of the RCT show that a combination of nutrition-sensitive agriculture videos, nutrition-specific videos, and participatory learning and action cycle meetings led to improvements in maternal and child diet quality compared against a control group. This suggested that making agriculture interventions nutrition-sensitive can improve diets.

Monitoring and Evaluation of Samvad Intervention through Periodic Lean Surveys

London School of Hygiene and Tropical Medicine (LSHTM) and the Centre for Media Studies carried out periodic lean surveys to monitor and evaluate Project Samvad. The results of the lean surveys indicated improved health and nutrition outcomes. Women exposed to the intervention were following improved care during pregnancy. 57% of women who were exposed to Samvad interventions were consuming the recommended quantity of at least 100 IFA tablets as compared to 29% unexposed. In addition, 47% of women who were exposed to the intervention were following the recommended consumption of diversified food (minimum dietary diversity) as compared to the 36% unexposed.

Making the Government Adoption of Social Innovations Work

IDInsight carried out a study to understand the degree of institutionalization of video-based extension in Andhra Pradesh. The study was conducted across four districts in Andhra Pradesh (Krishna, Kadapa, Kurnool, Visakhapatnam) and involved in-depth interviews with Digital Green leadership and state teams, as well as state, district, and village level government officials. It also included qualitative interviews with farmers. The study concluded that Digital Green's institutionalization of video-based extension has been remarkably successful along several dimensions and also identified opportunities that Digital Green could capitalize on for institutionalization in AP and Video-based implementation in new states.

Digital Green Farmstack Evaluation Results: A Usecase For Cashew In Andhra Pradesh

IDInsight conducted an evaluation to assess the impact of a pilot cashew "use case". This use case involved providing information to farmers using a combination of video and IVR and the integration of soil and weather data to offer customized content using Farmstack protocol. This study included a randomized-controlled trial (RCT) method. The evaluation suggested that the video and IVR messages (Farmstack) improved knowledge and adoption of practices, compared to those who only received information via only video dissemination.

Evidence Review of Digital Green's Video-Mediated Farmer Extension Approach

IDInsight conducted an evidence review of Digital Green's bank of evidence on the efficacy of Video Mediated Approach (VMA) and other technologies for improving farmer welfare. The results of the review saw consistent achievements in the use of VMA enhancing near-term extension outcomes. The study also concluded that Digital Green has been successful in institutionalization of VMA with state partners to amplify the reach of agriculture extension and also highlighted future areas worth exploring.

**Scan to visit our
Evidence page**

What's Next for Digital Green?

In the last three years, Digital Green worked on developing a suite of new services that would increase farmers' incomes and enable their aspirations with the recognition that no single organization could serve the diversity of the world's farmers. We have worked alongside our government and NGO partners to explore ways to harness technology to better connect the dots across a wider constellation of stakeholders, and build their digital extension programs to transform our food and agriculture system from the bottom up.

Having seen the benefits of equipping extension agents with educational videos and other digital tools first-hand, many of our partners have also invested their own resources in scaling and sustaining this approach on their own. We will continue our journey as we always have: by starting with each farmer and innovating together. Our 2022–2025 strategy lays the foundation for the future state we envision: the creation of Digital Farmer Networks (DFNs), which ensure that farmer groups have agency over their data and can drive their own digitization efforts in order to deliver the most value for their members. As DFNs thrive, farmers realize multiple benefits: digital connectivity strengthens the value and confidence of local farming communities; individual farmers have control over the nature and use of their information; and farmer groups can easily use member data to access better services, new income streams, and greater power within the agricultural system.

Digital Green's digital tools and thought leadership are intended to invite other key players into this systems-level effort to benefit farmers' resilience and success. The technology solutions that we develop are open source, co-designed with farmers themselves, and built so that farmers maintain control over their valuable and increasingly sought-after data.
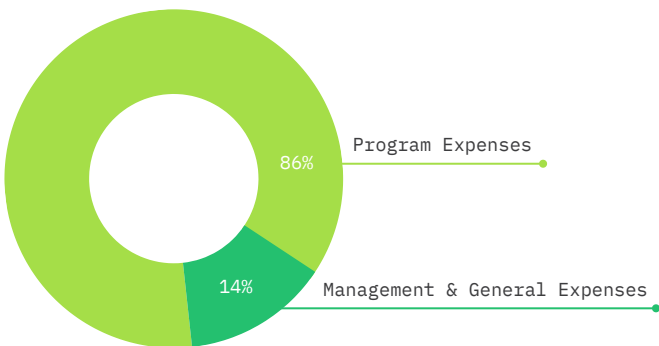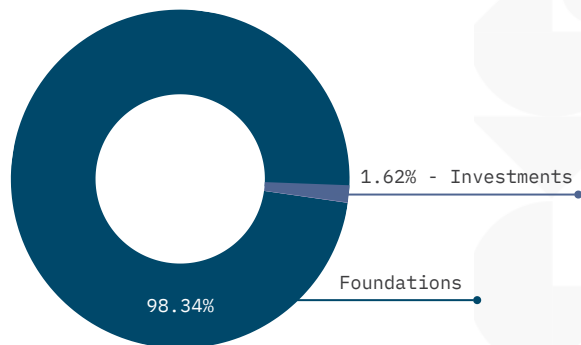
HR & Operations

In the last year, Digital Green strategized and took active steps to conduct skills mapping, and organizational and professional development to enhance employee engagement. As an organization that prioritizes gender as one of our primary strategic impact areas, leadership training for women leaders was also carried out as part of our professional development initiatives. The Digital Green team is growing and has filled 19 vacancies with more to come. To date, Digital Green has 57 employees (21 Female | 36 Male).

Financial Performance

Expenses - INR 116,862,103

86% Program Expenses
14% Management & General Expenses

Revenue - INR 119,536,151

1.62% - Investments
98.34% Foundations

Digital Green Trust 2021-2022
Assets - Total: INR 52,017,452
Liabilities - Total: INR 6,184,564
Net Assets -Total: INR 45,832,888

Our Governance

Trustees

Mr Tejesh Shah
Board Chair

Dr GNS Reddy
Trustee

Board Members

Mr Anirban Ghose

Mr Neeraj Jain

Mr NM Prusty

Ms Namita Vikas

Ms Priyanka Singh

Leadership Team

Mr Kunal Tiwari
Director

Ms Anuradha Bhattacharji
Head, HROD

Dr Sanjeev Kumar
Head, Monitoring, Evaluation & Learning

Ms Neha Kaushik
Head, Finance

Ms Ronali Pradhan
Regional Head, Odisha & Jharkhand

Ms Archana Karanam
Regional Head, Andhra Pradesh & Telangana

Mr Akash Asthana
State Head, Bihar

Mr Gautam Mandewalker
Head, Products

Digital Green Trust is a public charitable trust registered under a trust deed, under Section 12A of the Income Tax Act. The registered address is: Flat No T4, 4th Floor, #33, Race Course Road, Swiss Complex, Bangalore, Karnataka, 560001.

In Gratitude

Ministry of Agriculture & Farmers' Welfare, Government of India
National Rural Livelihoods Mission (NRLM), Ministry of Rural Development
Bihar Rural Livelihoods Promotion Society (JEEViKA)
Rythu Sadhikara Samstha (RySS)
Department of Horticulture, SERP, Andhra Pradesh
Jharkhand State Livelihood Promotion Society (JSLPS)
Mahila Kisan Sashaktikaran Pariyojana, Jharkhand
Department of Agriculture and Farmers' Empowerment, Government of Odisha
Odisha Livelihood Mission (OLM)
Odisha PVTG Empowerment and Livelihoods Improvement Program (OPELIP)
National Health Mission
National Health Mission Assam
National Health Mission Chhattisgarh
National Health Mission Jharkhand
National Health Mission Uttarakhand
Integrated Child Development Services, Bihar
State Nutrition Mission, Jharkhand
Abdul Latif Jameel Poverty Action Lab (J-PAL)
Accenture
ACT Grants
AGNEXT
Arghyam Societal Platform
Bill & Melinda Gates Foundation
CARE
Centre for Fourth Industrial Revolution, World Economic Forum
Centre for Media Studies
Centre for Youth and Social Development (CYSD)
Charities Aid Foundation (CAF)
Colouredcow
Dalberg
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
Digital Green Foundation
Ekjut
Environmental Defense Fund (EDF)
Exotel
GS1/NEC
Gramodaya Trust
OnionDev Technologies/GramVaani
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
IDInsight
International Maize and Wheat Improvement Center (CIMMYT)
International Potato Center (CIP)
ITC Limited
Jattu Trust
JSI Research and Training Institute
Kalgudi
KrishiTantra
MacArthur Foundation
Mahila Abhivruddhi Society, Andhra Pradesh (APMAS)
Mulago Foundation
Oracle
Rapid Rural Community Response (RCRC)
Roddenberry Foundation
Sequoia Climate Fund
Societal Platform
Tata-Cornell Institute for Agriculture and Nutrition (TCI)
Voluntary Association for Rural Reconstruction and Appropriate Technology (VARRAT)
Velugu Association
Walmart Foundation

Notes

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