



**Solidaridad**

**Strengthening sustainable soy supply chain through  
climate smart practices and community led Institutions**

**7-8 October, 2023**

**SOLIDARIDAD REGIONAL EXPERTISE CENTRE  
BRILLIANT CONVENTION CENTRE , INDORE**

## Sustainable Soy through Climate Smart Agriculture, Food and Nutritional Security

### Cross-cutting themes and thematic focus

- **Integrated Farming System (IFS) based on principles of “More with Less” efficient use of water and inputs , ecological farming practices , system integration**
- **Climate Smart Efficient weather advisory services to mitigate risk and develop adaptation capacity of smallholders through climate resilient production**
- **Efficient service delivery and market linkages through rural entrepreneurship/Farmer Producer Organizations (FPOs) with Robust infrastructure.**
- **Integrated Nutrition Intervention through behaviour change , dietary diversification ,Soy food intake, convergence with stakeholders .**
- **Empowering women with knowledge and skill on GAPs, entrepreneurship, Nutrition**
- **Innovative ICT solutions as a tool of efficient and effective extension service**
- **Aiming to attain SDG 1(Address Poverty),3(Good health),5(gender Equality),7(clean Energy 12(responsible production & consumption),13(Climate Action), 17(partnership)**

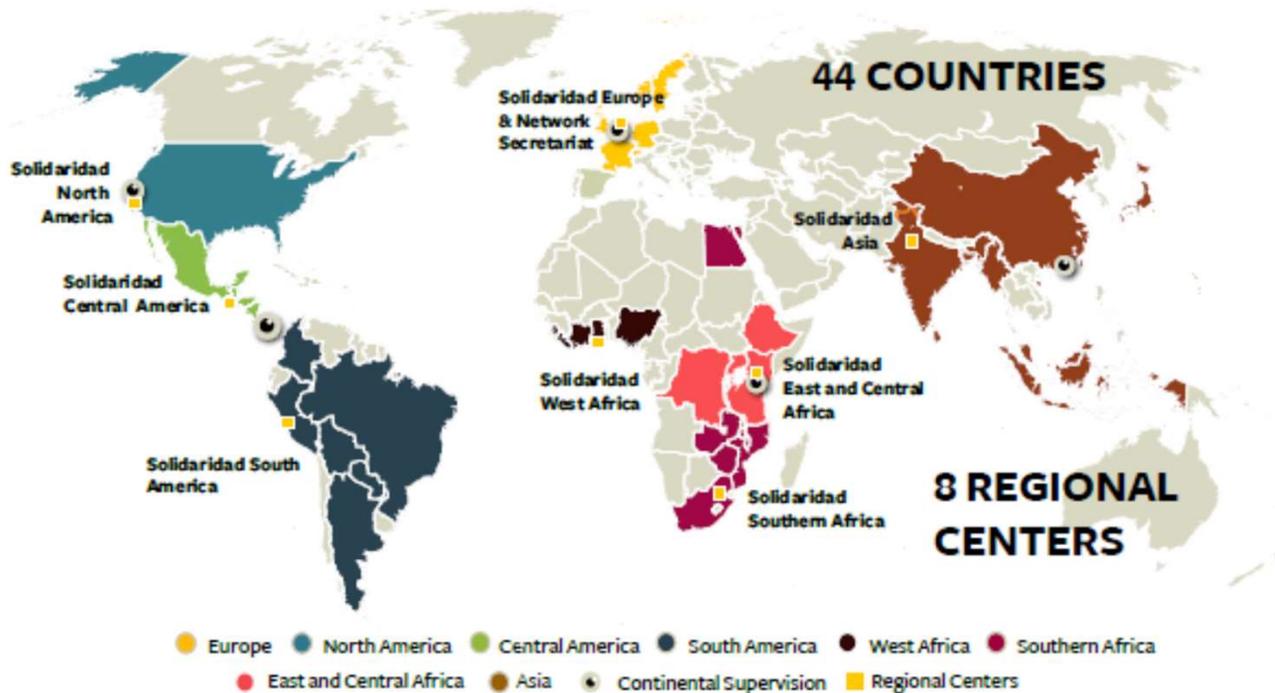


THE SOYBEAN PROCESSORS  
ASSOCIATION OF INDIA

# Solidaridad

## SOLIDARIDAD IS AN INTERNATIONAL CSO

### WORKING IN 44 COUNTRIES WORLDWIDE



Our vision is an economy that works for all: a world in which all we produce, and all we consume, can sustain us while respecting the planet, each other, and the next generations.

Our mission is to enable farmers and workers to earn a living income, shape their own future, and produce in balance with nature by working throughout the whole supply chain to make sustainability the norm.

## 12 years of Continuous support to farmers in central India



**1,00,085  
Farmers**



**Productivity Enhancement  
& Enhanced Efficiency of  
Farms**



**Market linkages &  
Industry Engagement**



**~3560 Producers' Groups  
& 28 Farmer Producer  
Organizations Supported**



**Multi-stakeholder  
engagement**



**34,536 Sustainable  
Certified Farmers**





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## Our Partners

Some examples....



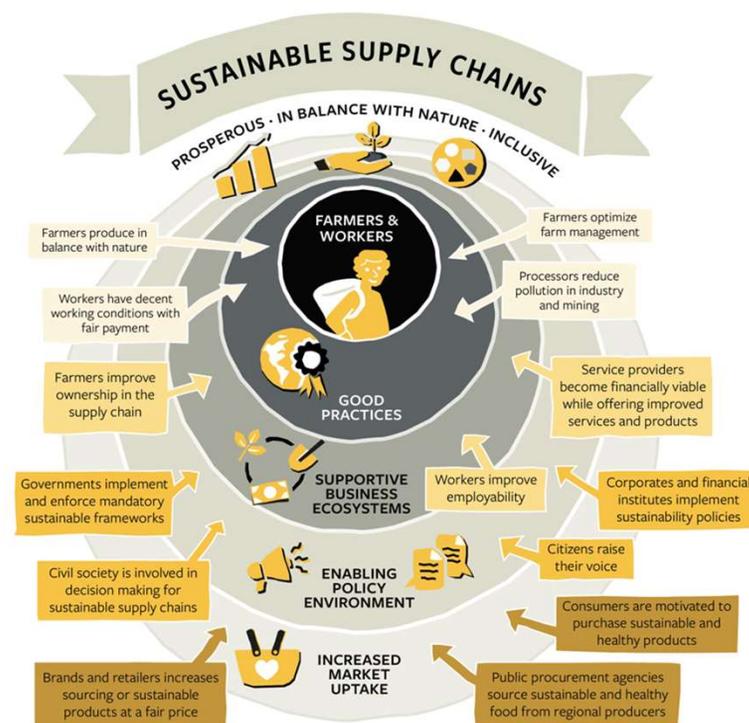


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## IMPLEMENTATION STRATEGY

**SUSTAINABLE  
SUPPLY CHAINS  
THROUGH FOUR  
INTERCONNECTED  
LEVELS**



## WE NEED SUSTAINABLE VEGETABLE OIL SUPPLY CHAINS

### ON THREE LEVELS



#### PROSPERITY

Socio-economic progress: income, decent work, fair pay, inclusive business ownership models



#### BALANCE WITH NATURE

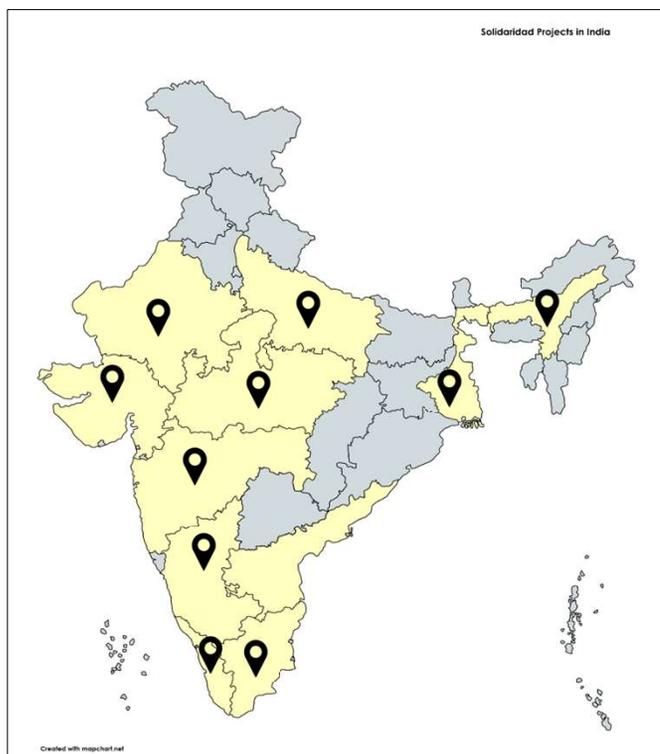
Healthy ecosystems: resilient against climate change, healthy, regenerative, circular, pollution- and waste free.



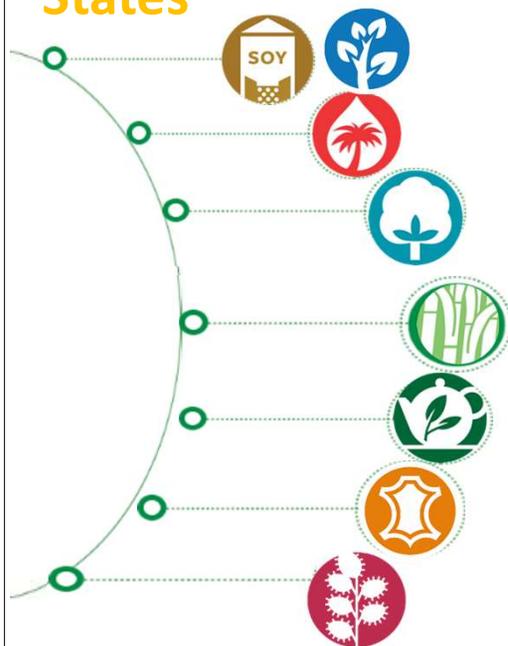
#### INCLUSIVITY

Social-political influence: civic space, voices from the south, gender equity, youth, indigenous minorities

## SOLIDARIDAD PROJECTS IN INDIA



### Public-Private Partnership Projects in 13 States



**Solidaridad is Pioneer in leveraging partnerships for sustainable supply chain and enhancing the livelihood of smallholder farmers**

## Design of Agri Extension Services

- **Organize Front Line Demonstration in target village with Lead farmers**
- **Provide Critical Agri Inputs to farmers for FLD and undertake comparative Yield analysis and help farmers understand the relative advantage IP viz-a-viz FP**
- **Organize inter village Exposure Visits and farmer Field Day/ under the supervision of Technical Expert and Host farmer in farmer's field.**
- **Periodic FFS level meeting and Training with facilitation of Soli Subject Expert or External Expert.**
- **Emphasis on community participation and ownership through consistent relation building and bonding .**
- **Organize periodic capacity building programme based on need assessment with key stakeholders .**
- **Formation , grooming and strengthening of People's Organization like FFS/FIG/PG/FPC/SHG**
- **Undertake Method Demonstration on GAPs through group of lead farmers in village under FFS.**
- **Farmers led awareness program eg Soy Week Celebration /Women Week Celebration/Soil Campaign/ involving relevant stakeholders.**
- **Follow up support and tracking of adoption of GAPs by farmers**
- **Weekly training through online platform of Krishi Choupal.**
- **Grooming Lead farmers and build cadre of lead farmers for scaling up the outreach.**
- **Innovative Training modules development and distribution eg ICT tools/ AV Modules/Booklet**

## Seven Sutra of Effective Agri Extension Delivery followed by Solidaridad

- 1 Cluster Based Approach:** 4-5 villages chosen in one cluster for extension support through Model Farms. 1 acre of area at the prominent point of the village is finalized for Model farm set-up
- 2 Text hTraining of Trainers:** Field officers and Lead farmers undertaken by Solidaridad and knowledge partners i.e ICAR- IISR, CIAE, Dept of Agriculture and KVKs
- 3 Farm Field Schools Set-up:** Group training of farmers organized as per crop calendar. Farmer Field Day organized to facilitate sharing of knowledge and promote cross learning on beneficial effects of GAPs viz a viz control .
- 4 On Field Support:** to facilitate the method of adopting critical practices like spacing, seed inoculation, Thinning, Topping, moisture management, foliar spray of nutrient, crop surveillance and Pest management, bio-pesticide spray etc
- 5 Weather Based Advisory Services:** It was extended to farmers in MP and Rajasthan to reduce losses caused due to adverse climate situation and take informed decision on preventive measures.
- 6 Innovative Tools and Technology:** Introduced Soil Moisture Indicator for moisture management. Sowing with BBF Machine/raised bed planter to maintain spacing for good branching, flowering and Pod development.
- 7 Data Tracking and Monitoring:** Farmers data compiled with basic profile details, joint yield assessment and data compilation of Model farms viz a viz control plot for comparative analysis ere

## Agri Extension and technology Dissemination



### Farmer Field Schools

Field level trainings are facilitated by cadre of Solidaridad Trained Farmer, Field School Facilitators & KVK experts . 330 FFS has been set up and 500 farmers linked with Each FFS . Platform for exchange of knowledge and critical reflection among farmers based on adult learning principle



### Front-Line Demonstrations

Front-Line Demo for “Lab to Lands ” Solidaridad’s Technical Advisor and Trained Rural Associates with the technical support of research institutes provide on-farm advisory support to farmers, FLD is set up in farmer’s own plot with input and technical support, paves path for replication based on seeing is believing and learning by doing..



### Govt. institutions - Technical Knowledge

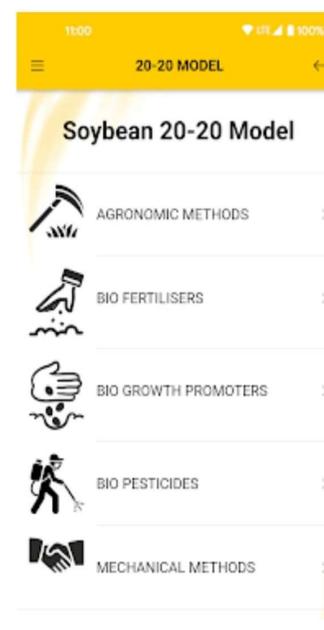
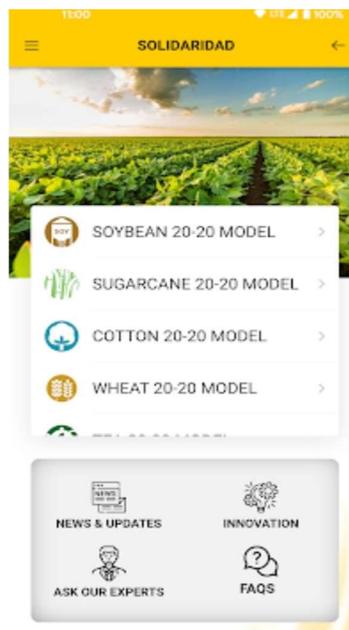
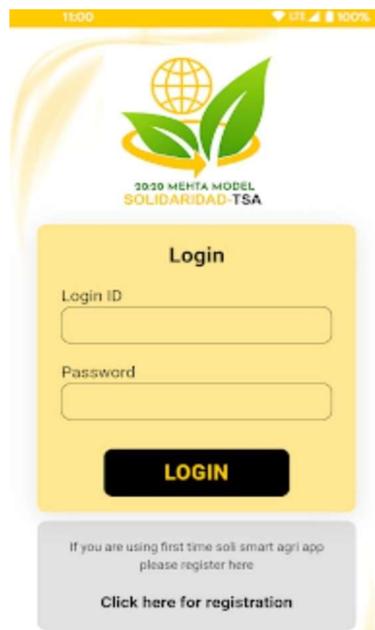
Government research institutions i.e. ICAR- Indian Institute of Soybean Research, ICAR- Indian Institute of Oil Palm Research , ICAR- ICAR-Directorate of Rapeseed Mustard Research, Central Institute of Agricultural Engineering, IARI, Indian Institute of Soil Science, and KVKs



### Training of Trainers (ToTs)

Training of Trainers (ToTs) are organized with the technical knowledge support of KVKs/research institutes on GAPs . Helped build a cadre of trained field functionaries and lead farmers for ensuring delivery of uniform extension services in all locations.

## Solidaridad-TSA 20:20 Mehta Model app



The Mobile App Solidaridad – TSA 20:20 MEHTA Model is an android app based on the concept of bio-fertilizer, bio-pesticide, bio compost. It has been developed to disseminate the knowledge and skill on use and application of 20 20 model for different crops. The app provides a handy tool in the hand of farmer to learn and apply the ecological methods and inputs for sustainable crop production.

## Development of a Sustainable and Traceable Supply Chain for Organic Soybean in India

SI No	Name of the ICS	Cluster	No of Farmers	Area in Ha	Status
ICS-1	Dharani	Bailhongal	500	412.118	Completed Kharif and Rabi, 2022-23
ICS-2	Samruddi	Dharwad and Kalaghatagi	500	654.314	Completed Kharif and Rabi, 2022-23
ICS-3	Negilayogi	Bailhongal and Dharwad	500	677.971	Registered with Ecocert CB
ICS-4	Shiggaon	Shiggaon and Kalaghatagi	500	449.190	Registered with Ecocert CB
<b>Total</b>			<b>2000</b>	<b>2193.593</b>	

No. of ICS's	Farmers target	Area target
4	2000	2000 Ha

- ICS-1 and 2 already registered to certification board and completed 1 year of conversion and due for 2<sup>nd</sup> external audit.
- ICS-3 and 4 completed internal inspection and AFL and Registered with Certification Board and due for 1<sup>st</sup> external audit

## Smart Agri Hub Set up at Bhopal

- A State level Hub has been set up and inaugurated on 16<sup>th</sup> September 2023.
- The Centre is primarily working to fulfil the critical needs of Knowledge , Information and Training on crop weather relation, climate resilient practices, and data analysis of weather information from AWS for right advisory services .
- The centre is one of its kind in the state to capacitate the knowledge and skill of famers, field functionaries on climate smart practices, utilizing weather information for agriculture operation, mitigate the climate induced risk .
- The centre is working with support of ICAR Institute , KVK , Subject Experts and Lead farmers to analyse the weather data, develop appropriate advisory and work in collaboration to make farmers future ready.
- It will develop and guide farmers with disease model, pest diagnostics, short term forecast, appropriate and timely crop specific advisory services.

## Smart Agri Hub inaugurated at Bhopal



## Inauguration of Nico Roozen Centre of Excellence on Regenerative Agriculture

- A Centre of Excellence on regenerative agriculture has been set up and inaugurated on 5<sup>th</sup> April 2023 by Founder Mr Nico Roozen in serene landscape of Barkehda Kharet village of Sehore district in an area of 6 acre land.
- The Centre is working to provide practical knowledge , information and live demonstration on regenerative agriculture practices for farmers, development practitioner, field functionaries .
- The Centre is providing much needed skill and knowledge on resilient practices, techniques of C-sequestration, climate literacy and conservation farming.
- The centre is meant to collaborate with all national and International Institutions , Knowledge bodies to showcase National international practices on regenerative farming.

## Inauguration of Nico Roozen Centre of Excellence on Regenerative



## Impact of Unique Our Extension Model

- Farmers becoming climate literate and making use of climate based advisory and climate resilient practices and thereby mitigating risk and adapting to climate induced changes.
- Large scale adoption of low cost composting and other low cost ecological and smart practices helping improve soil fertility and productivity.
- Crop diversification in place of mono-cropping coupled with integrated farming approach leading to increased income, additional man-days and livelihood security of the HHs.
- Experienced ,Young and tech savvy new generation farmers and entrepreneurs becoming increasingly embedded with our programme and getting involved with us. It gives futuristic approach
- Farmers able to get right advisory in right time and thereby saved from unwarranted expenses on agri inputs, get solution and stay prepared for unfavourable condition.
- Agro ecology of the crop production has seen qualitative improvement owing use of ecological production method with significant social , economical and environmental impact. Pursuing TSA-Soli 20 20 Mehta Model, regenagri based on ecological principles.
- Helping farmers make conscious shift from chemical intensive production system to climate smart, precision based and sustainable production system .

## Smart Agri: IoT Solutions and Sensors for Precise Advisory Support

Leveraging Technology for Self Subsistence to Enterprise Farming



Promoting IoT BASE (sensors) solutions and Artificial Intelligence



Farmers owned Producer Companies and Rural Enterprises to facilitate farmers' access to advisory, quality inputs and markets



Transition from traditional delivery channels to ICT-Enabled channel for Smart Agriculture Advisory

***The partnership with Vodafone India Foundation and Indus Towers Limited is facilitated for integration of IoT solutions***



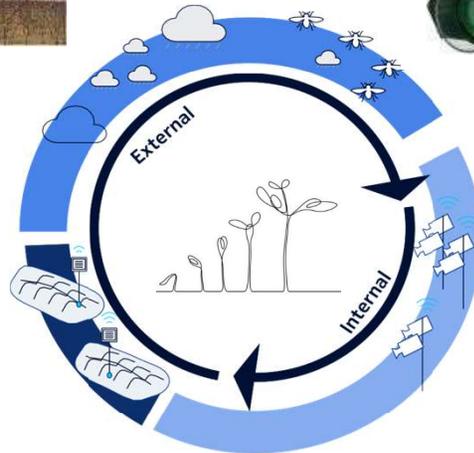
## AUTOMATIC WEATHER STATIONS AND SMART SENSORS BASED TECHNOLOGY TO MAKE AGRICULTURE MORE EFFICIENT & SUSTAINABLE

### Weather Monitoring

- Air temperature
- Wind speed
- Wind direction
- Air relative humidity
- Leaf wetness
- Dew point
- Solar radiation
- Precipitation
- Temperature variation

### Irrigation Management

- Soil data
- Soil temperature
  - Soil moisture
  - Precipitation levels



### Pest Monitoring

Insect Data Identification of insects  
Count of the Insects

### Crop Management

- Plant Image Data
- Growth pattern
  - Leaves quality
  - Germination
  - Size



## Promoting Regenerative Agriculture and Integrated Farm System

**Promoting IFS with inclusion of high value Vegetables and Medicinal and Aromatic Plants for crop diversification as well as for better health and Nutrition**

**Encourage Eco-friendly Agricultural Inputs for better environmental performance and reduction in cost of cultivation**

**Integrate Climate Smart Agriculture Practices**

**30 % increase in income through crop diversification with vegetables**

**IFS contributed towards improved soil organic carbon**

**Employment generation through advisory and inputs services, farm mechanization, nurseries, processing units etc.**



## Smart Agri: Vodafone-IDEA & Solidaridad Collaborative Programme

### Leveraging Technology for Self Subsistence to Enterprise Farming



Enhance **livelihood of 50000 soy farmers** through sustainable farming and use of SMART technologies in **Madhya Pradesh and Maharashtra**



Promote **farmers owned Producer Companies and Rural Enterprises** to facilitate farmers' access to inputs and markets



Improve agricultural practices by **adopting IoT BASE (sensors) solutions and Artificial Intelligence**



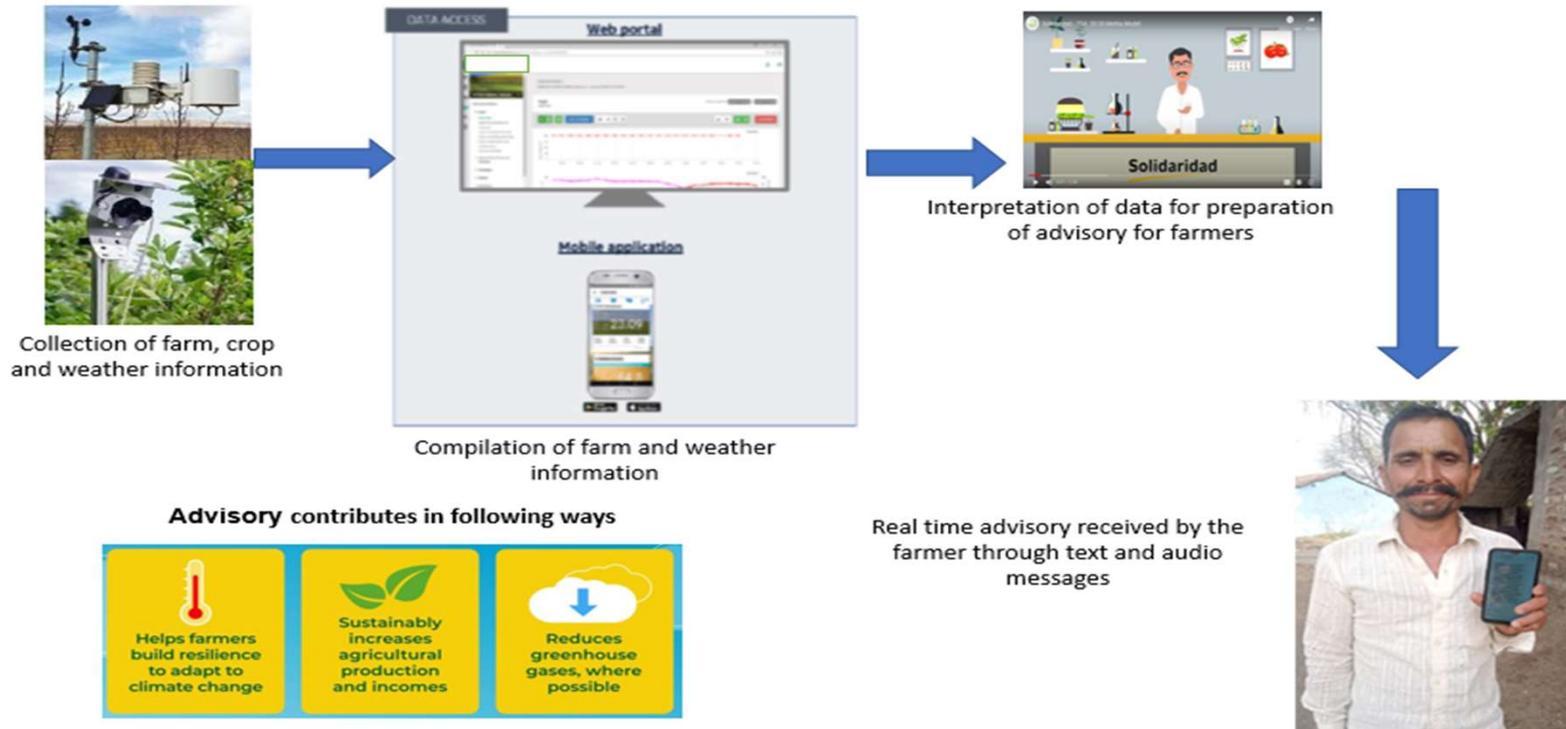
Build a learning ecosystem in the project areas and raise awareness about **nutrition, health and hygiene**



Transition from **traditional delivery channels to ICT-Enabled channel for Smart Agriculture Advisory**



## SMART AGRI FARMERS ADVISORY SUPPORT SYSTEM



## Front Line Demonstration of Soybean in MP & Rajasthan

- In Kharif 2023 , Solidaridad has set up 500 FLD of Soy of one acre each in MP and Rajasthan
- Farmers have been provided with new Variety of Soy , critical inputs for yield improvement
- Farmers have also received on field extension support , weather advisory and training which has helped their skill on adoption of Resilient techniques and mitigate the climate induced risk.
- The key learnings on GAPs were further disseminated through periodic FFS meeting and Farmer Field Day
- Use of IoT Device, expert support and Toll free services to farmers has further helped adopt precise method of Plant Protection and reduce the repeated use of external inputs.
- Adoption of microbial solution like GLS Relife for Wheat stubble decomposition has further helped showcase the ecological method of stubble management. It has potential to replicate on large scale .
- Intensive Awareness building initiatives of Solidaridad on Soli-TSA 20 20 Model and regenerative practices is gaining momentum among farmers and is being adopted in all crops including soy .

## Front Line Demonstration of Soy in Kharif 2023



## Front Line Demonstration of Soy in Kharif 2023



**SEHORE**

## Front Line Demonstration of Soy in Kharif 2023



**NICO ROOZEN CENTRE**



**DEWAS**



**RAJASTHAN**



**NICO ROOZEN CENTRE**

## Field Demonstration on GLS Relife for Crop Residue Management

### Wheat Stubble management with Multi-micorbial Solution



## Farmer Field School

- 250 Farmer Field Schools had been established in Madhya Pradesh and working actively with extension team.
- The main objective of Farmer Field School is to provide a platform to the farmers for the latest information related to farming, sharing of knowledge , identify the problems in crop, brainstorm over solution, execution and analyze result and impact for larger adoption .
- Soybean, Mustard, Wheat, Gram and MAP crops are being covered under farmers field school.
- The FFS is equipped with IEC material, efficient tools, technical facilitator etc.
- Information board, crop calendar , crop modules and meeting register is maintained and upgraded on regular basis.



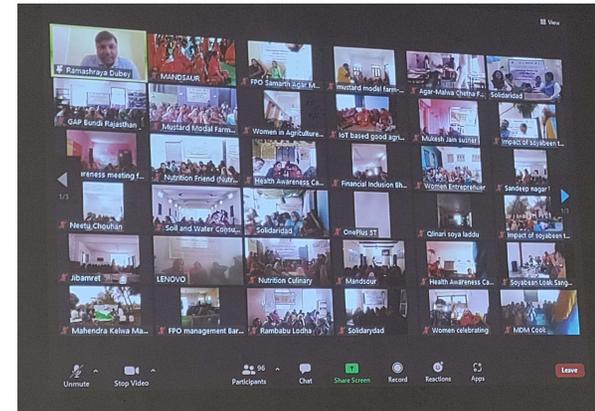
## Rural Entrepreneurs

- Trained 125 numbers of rural entrepreneurs, providing extension and market linkage services to the farmers.
- Supported in developing cluster level agri-business plan, input demand assessment, product information, leverage economy of scale through aggregation model catering 250-300 farmers.
- Also providing the extension services based on field visit and crop stages.
- They are working as a one stop solution for input and output services in aggregation model.
- They are also working as a connection in between farmers and market players



## Created A Digital Platform for Exchange of Knowledge

- Krishi Choupal , an e-platform for farmers training , discussion , sharing and appropriate crop advisory on weekly basis.
- Krishi choupal bridge the knowledge gap as the farmers can avail the expert guidance from remote locations.
- Provides opportunity for Farmer to farmer exchange of knowledge and best practices further helpful in replications and scaling up GAPs.
- Saves travel time and money for smallholders as they can avail the access from place of their work without having to loose wages or agriculture work which is very critical for greater participation. Provides equal opportunity to men and women farmers to participate through link



## On field Agri Extension Services and Drone Services to farmers



**On field support by FX**



**Pest monitoring**



**Enrollment on Smart Agri app**



**Extension Functionary of Soli undergoing Drone Training at Gurugram facility.**

## On field training and critical input support



**Certified Soy Seed Distribution for FLD**



**Germination test of Soy Seed**



**Demo being given on Grain moisture meter**



**Farmer Adopting Seed treatment with FIR method**



**Soil Testing with Soil testing kit**

## Use of Scientific tools for Climate resilient Production



Use of Solar Light Trap in FLD



Thrips Surveillance with BSC in Onion



Farmers Training on use of BBF Planter



Weed control by customized tools



Pusa Decomposer for enriched composting



Multi grain Semi automatic Grader machine

## Use of Scientific tools for Climate resilient Production



**Pusa Decomposer Demo**



**Sowing with raised bed Planter**



**Mechanical Traps (Pheromone and YSC)**



**BBF Planter machine**



**Gravity Separator machine**



**Leaf Colour Chart for crop Nutrient Mgt**

## Rejuvenating Soil Health for Sustainable Production



## Strengthening FPC and Community Outreach



**farmers training at Resource Centre**



**Support and facilitation during AGM**



**Field Day and deliberation on FLD**



**BoD Training on FPC Governance**



**BoD Training on FPC governance & BP**



**BoD meeting with CII delegate**

## GOOD FARMING – GOOD FOOD

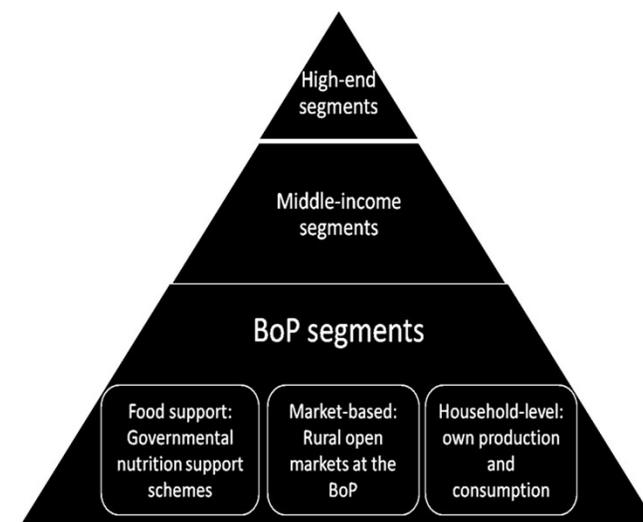
### “SUSTAINABLE FOOD AND NUTRITION SECURITY AND TRANSFORMING SMALLHOLDERS’ LIVELIHOOD IN MADHYA PRADESH”

**Pathway 1:** Availability and affordability of soy and vegetables at farm and household level

**Pathway 2:** Availability, affordability and accessibility of nutritious soy products to the rural areas (BoP)

**Pathway 3:** Awareness raising to stimulate consumption of nutritious soy products and vegetables

### Project Partners



**Total 50,000 farmers are being targeted by the end of the project.**

## GOOD FARMING – GOOD FOOD



**Nutrition Extension Team**



**Training underway on soya recipe**



**Women training on health and nutrition**



**Exposure on Nutrition and herbal garden**



**Mass awareness on soybased food**



**Training underway on soya recipe**

# CAPACITY BUILDING EXERCISE WITH TEAM



Training on the use of  
"Flipbook"



Culinary Training of Nutri  
Sakhis and Para Workers



Training on Soy mix Food Processing  
at Navi Bagh, CIAE Bhopal



Training on Data Management  
Information System



Training on Poshan Vatika

**Solidaridad**



Amba Badhod , Agar  
MDM Cook Training



Sekli, Dewas  
MDM Cook  
Training



Barotha , Dewas  
MDM Cook Training

# **Solidaridad**

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**Thank You**