

What is your idea?

Essence of the idea: Reducing asymmetry in information for decision-making process at different levels.

In the century of robotics and artificial intelligence many developing and under developing countries are still struggling with improper databases which inhibits them analyzing and measuring the impact and growth. Even the available data and sources are in staggered form which makes worse for the researchers to understand the actual issues. According to SPIA, to develop and reach, a Mega Variety, the time period required is nearly 25-30 years for self-pollinated and 15-20 years for cross pollinated crops. In between many technologies/varieties are developed released but the success rate can be considered as low, mainly because of lack of consolidated information. Vis-à-vis the situation with farmer, with the lack of reliable information the community is always at the receiving end, making the conditions vulnerable and susceptible to climate and markets. The first and foremost requirement of the former is timely weather forecast which can minimize the loss of returns from agriculture and timely price updates can help the farmer realizing the better prices. Similar is the requirement of researcher/policy maker, real time information of technologies adopted, agronomical practices and their interaction effect on productivity. This necessitates the need for integration of different databases into a single platform for appropriate decision making both at the farm and lab level as exiting new age technologies (used for tracking information and like remote sensing, DNA finger printing are costly and requires huge manpower, costly and time consuming. To realize the necessities and to form a big data, an App for a mobile platform will be developed and will be circulated to farmers so that they can access the information in a simpler format. The app will collect i) technologies adopted ii) resources usage as per crop calendar and iii) socio-economic information from the farmer and farmer intern will be provided with i) weather updates ii) soil health based fertilizer recommendations iii) other agronomical practices to be followed to realize maximum output and revenue.

The databases include – (i) Existing remote sensing data on weather forecasts and time series data on weather parameters to be procured from the Indian Meteorological Department database; (ii) Soil health data from Government of India (GoI); (iii) socio-economic data, technologies and agronomic practices obtained through primary survey; (iv) land records from local revenue office cleaned with remote sensing maps of the area under study; and (v) trade/market prices from national agricultural market .

This integration of data will also help scientist/researchers to understand i) technologies adopted ii) input usage and their response to prices iii) biotic and abiotic constraints iv) reducing the lab to land gap v) real time tracking of technologies adopted by social groups vi) crop yield simulations with climate risks ; private industries to understand input usage and yield response to inputs and for policy makers i) creating the inventory of inputs before cropping season and ii) creating cost effective extension system

What is creative about the idea?

- Testing suitability of technologies in one timeframe
- One stop tool for tracking and advisory App
- One store database for technologies adopted and their interactive effect on income and livelihoods
- Development of self-sustainable business model for long term panel data collection

Hypothesis of the proposal for its success:

- (i) Information needs are same across the social groups
- (ii) Technologies (App based and IVR –Interactive Voice Recording) have similar role in data collection and information dissemination (advisory)
- (iii) Both science and perception of farmers come together on a common platform to increase the scale of adaptation

How will you pilot it?

Three technologies will be developed for the proposed study i) App based for Smart Phone Users ii) IVR based for Basic phone Users and iii) CAPI based data collection for Non-User of phone and The project envisages the use of HADOOP® platform, an open source software framework for distributed storage and processing of big datasets. This will help in further scaling up from single servers to thousands of machines, each offering local computation and storage. Assistance from private mobile operators will be taken for technology and technology dissemination.

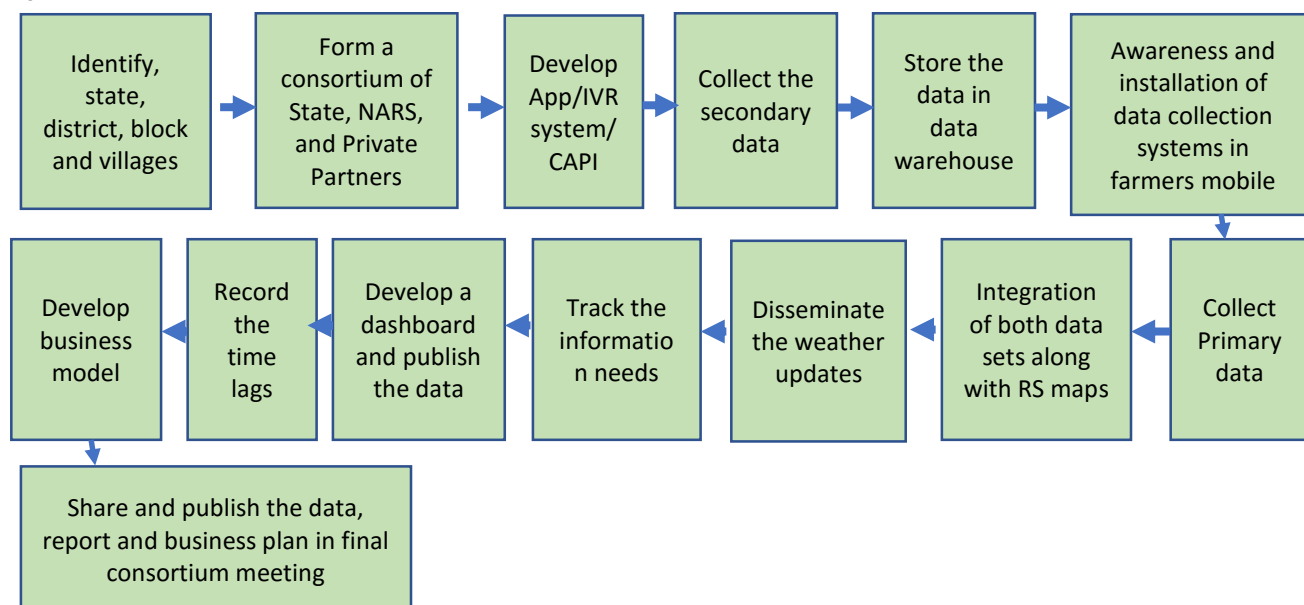
Three scenarios will be identified for the study i) one with established extension system where ground level monitoring is possible ii) moderate extension system and iii) No extension system, where only remote monitoring is possible. This helps in identifying the limitations in tracking and disseminating information through App based applications and need for strengthening the extension systems for bridging the yield gaps.

Two databases i) stationary (soil nutrient status, crop specific recommended agronomical management practices water structures, and land records) ii) dynamic (weather and price data) will be formed and stored and integrated within the platform. This will help in designing the app for the farmers for their use in decision making at the farm level. Farmers will be requested to register either through App, IVR or CAPI and provide the information regarding their socio-economic status, current technologies adopted and input utilization pattern.

Subsequent information needs and advisory will be tracked as the project progress. The time lag in requesting the information need against the expected time of need is the major component of the research, which helps in testing the null hypothesis and this will be both voluntary and involuntary responses.

Anantapur district of Andhra Pradesh will be selected for piloting as the district represents the SAT region and lies between 13°-40' and 15°-15' Northern Latitude and 76°-50' and 78°-30' Eastern Longitude. Average annual rainfall of 524 mm, Net area sown is 10.48 Lakh Hectares., which forms 54.78% of the total area. The total cropped area is 11.14 Lakh Hectares, The District occupies the lowest position in respect of Irrigation facilities (in state) with only 15.43% of the gross cropped area. Moreover, four mandatory crops of ICRISAT are grown in this region.

Implementation Plan:



Budget allocation (US\$ 100,000) within the 12-month timeframe:

Activity	Cost in \$
App development, testing and Server	20000
Secondary data collection	4000
Household survey	45000
Travel and miscellaneous	15000
Administrative costs	16000
Total	100000

Time Lines

Parameter	1	2	3	4	5	6	7	8	9	10	11	12
Collection of land records												
App development and testing												
Developing RS maps												
Household survey												
Data Integration												
Data tracking												
Dashboard												
Data and report submitted												

Data to be generated during the pilot:

- (i) Real time data repository of technologies adopted, farm practices and crop outputs
- (ii) Social dynamics in technology adoption vis-à-vis information needs vis-à-vis welfare gains
- (iii) Importance of information needs by social group vis-à-vis time lags

Next steps on successful completion of the pilot:

If the pilot runs as planned and with proper advocacy, it's scaling up to other sub-districts in the state is feasible since adopted approach is universal covering all the crops of the system. Horizontal scaling up with public-private partnerships (PPP) by sharing the information on technological and agronomical practices of the farmers through a revenue generating mode will make the system financially feasible. Standardized data collection methodologies will help national and international research organizations in effective adoption and impact assessment. A repository of data will be planned and can be used by policy makers and researchers for effective research and planning.

Partners:

Name of the Partner	e-mail	Role	Funds
Government of Andhra Pradesh	cs@ap.gov.in	Consortium formation, Maps, Land, Water, Soil data	Based on the actual work done by the partners and also without any financial implications we will include both senior, middle and lower level officers
Department of Agriculture	comag@ap.nic.in	Human Resources, Technical and HR support	
Department of Horticulture	horticulturedept@yahoo.co.in	Human Resources, Technical and HR support	
Acharya NG Ranga Agricultural University, Andhra Pradesh	dr_angrau@yahoo.co.in	Human Resources, Technical and HR support	

We also include private partners from Seed, pesticide, fertilizer and Irrigation industries without any financial implication to the project