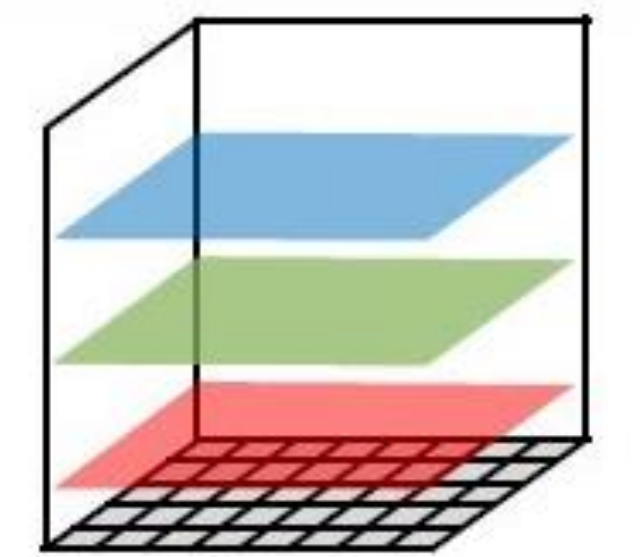
PARAM

Helping hand for farmers to generate more output in less cost

PROBLEM

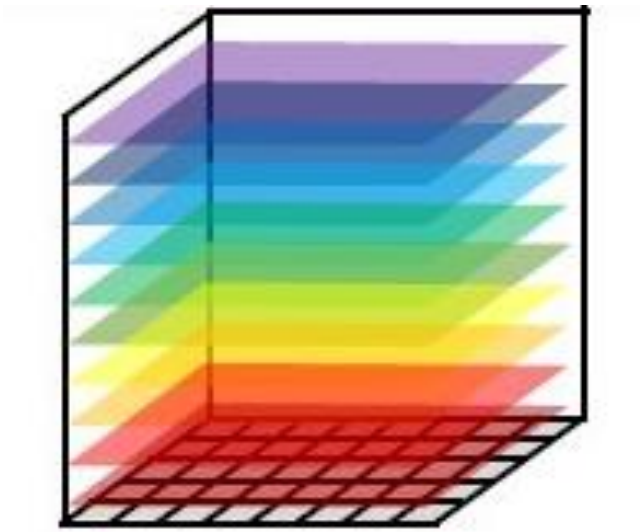
- India's crop yield for most major crops is drastically lower than even its BRICS counterparts
- 15-25% of potential crop is lost due to weeds, pests and crop disease
- Another reason for low yield is the non-affordability of sufficient agricultural inputs - fertilisers & irrigation

RGB image



- An image that is a combination of red, green and blue
- Can be clicked with a regular smartphone
- Cheaper to collect imaging data

Hyperspectral Image

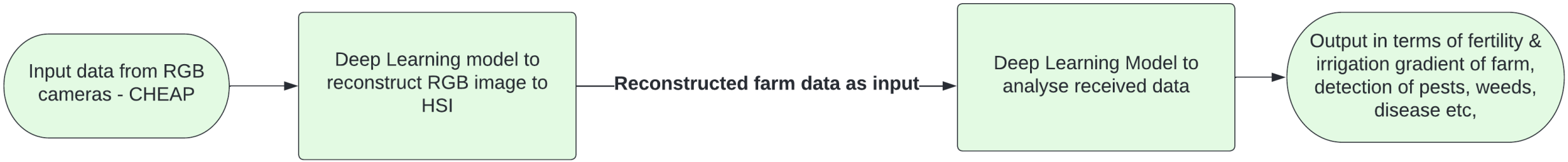


- Utilizes a very wide spectrum of light instead of just red, green and blue
- Usually captured through a hyperspectral camera
- Costs in range of lakhs of rupees

SOLUTION

- Stream farm imaging data from either satellite or on-site camera to cloud servers
- Use Deep Learning models to reconstruct the streamed RGB images to Hyperspectral images
- Further DL models predict information crucial for precision farming

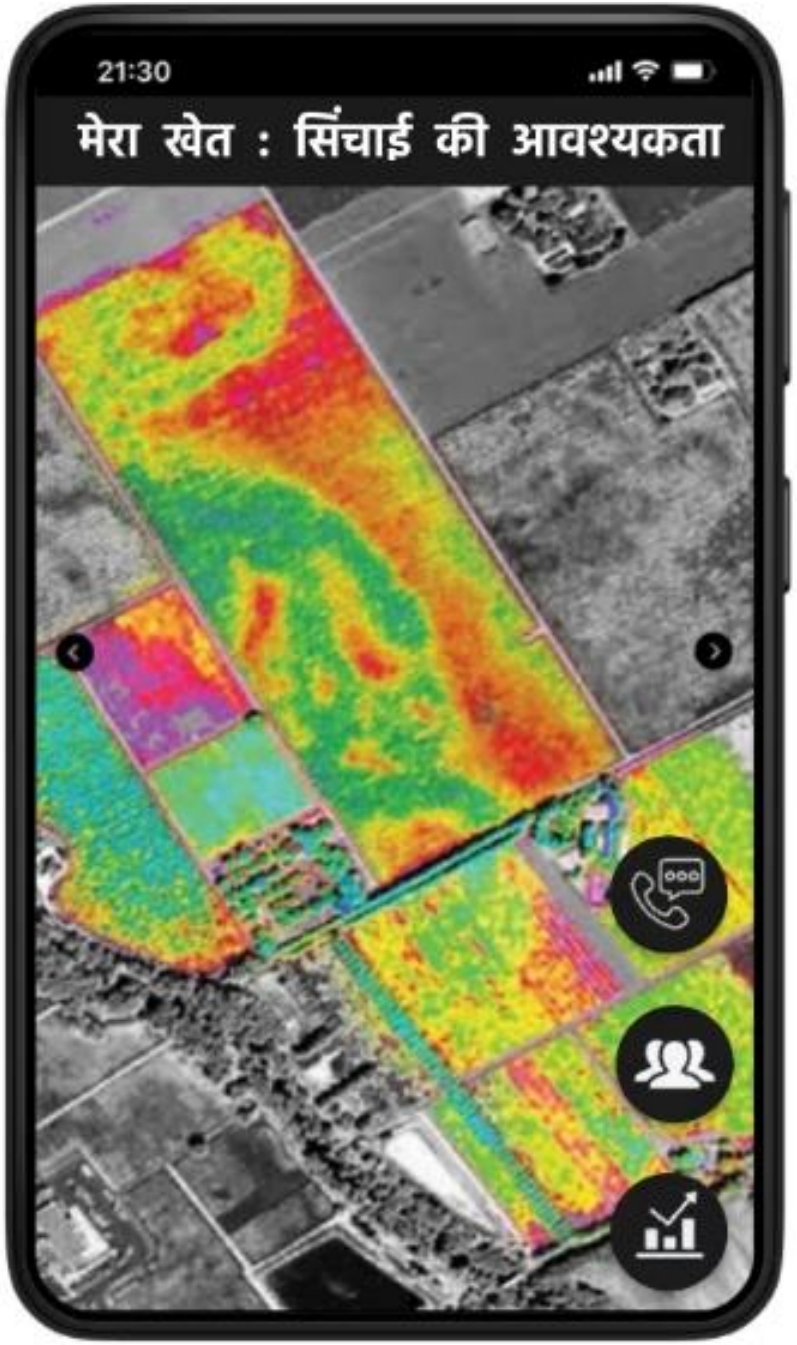
My Proposed Model



Current Models

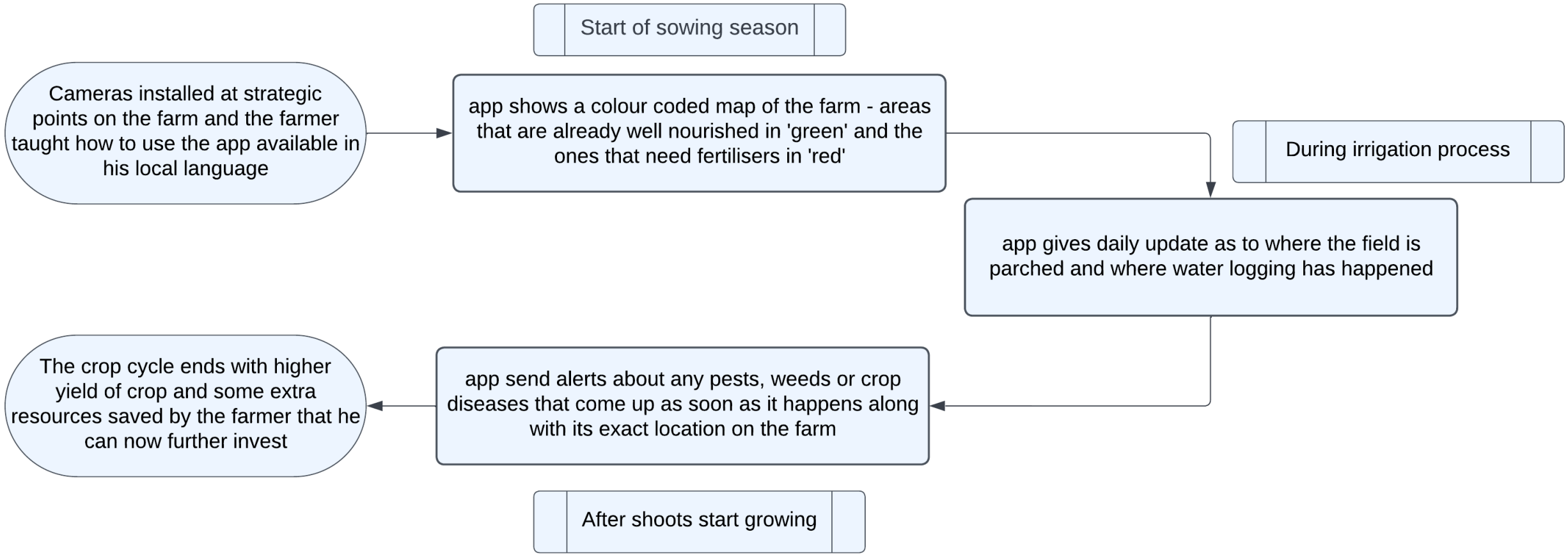
UNIQUENESS OF IDEA

- The existing companies acquire imaging data directly through HSI cameras, or through other expensive hardware which makes their solution expensive
- Moreover, they are mostly based out of foreign countries, thus, are not suited to the Indian agricultural landscape (area of farms, major crops, technical acumen of farmers)



- Available in local language
- Minimalist design
- Three clickable buttons on the screen: Community, Helpdesk, Information
- Full screen view of farm map
- Colour coded analytics of the farm
- Different map screens for different analytics (irrigation, fertilizers, growth, crop disease, pests) that can be accessed through the arrow button or through screen swipe

Figma link to interactive prototype:
https://www.figma.com/proto/5nizxs5K6F6Wb7IM9q9d9I/Agri_Tech?node-id=24%3A80&scaling=scale-down&page-id=0%3A1&starting-point-node-id=24%3A80


Start of sowing season
Cameras installed at strategic points on the farm and the farmer taught how to use the app available in his local language
app shows a colour coded map of the farm - areas that are already well nourished in 'green' and the ones that need fertilisers in 'red'
During irrigation process
app gives daily update as to where the field is parched and where water logging has happened
The crop cycle ends with higher yield of crop and some extra resources saved by the farmer that he can now further invest
app send alerts about any pests, weeds or crop diseases that come up as soon as it happens along with its exact location on the farm
After shoots start growing

BUSINESS ASPECT

Agriculture provides a unique business opportunity

- No large competitors
- Tech integration not yet done on a large scale
- According to a survey by E-choupal almost 30 million use smartphones and have a basic understanding of digital marketplaces

Problem of weeds, pests and crop disease in cotton farming

- From the perspective of actually taking this to market – will start with a more narrowed down approach i.e. focussing on high impact areas
- In India, cotton crop occupying only 5% of the cultivated area consumed 53% of the total insecticides used in the country
- Bollworms alone are estimated to cause 49% losses in yield
- There over 100 hundreds of varieties of weeds and pests that destroy cotton crop and lead to hundreds of farmer suicides every year.

PAIN POINTS

- Collection of imaging data – low resolution of satellite imaging
- Reaching out to farmers – ineffectiveness of digital marketing
- Generating alternate streams of revenue as a business – farmers may not be able to pay a high price for the product

KEY PARTNERS

1. Real time imaging partners
2. Farmer associations, NGOs, Farm schools (people through which we can reach the farmers)
3. Government (Can partner for subsidy benefits, promoting tech in agriculture)

KEY ACTIVITIES

1. Collect suitable farm data
2. Develop & test the software
3. Partner with real time imaging companies
4. Create customer acquisition and support system

KEY RESOURCES

1. Suitable farm data
2. Technical team
3. Customer acquisition/support system

VALUE PROPOSITIONS

1. Help increase quantity and quality of crop yield at reduced input costs
2. Help achieve international standards for export
3. Uplift farmer community through technology integration on farms
4. Entice the young, upcoming generation to take up agriculture and help in further innovation

CUSTOMER RELATIONSHIPS

1. **For individual farmers:** hybrid of automated services , personal assistance and community based assistance
2. **For farm schools/ companies**: Dedicated personal assistance

CHANNELS

1. Outreach through NGO's, Kisan Banks
2. Referral programs
3. Advertisements on radio, TV channels like Doordarshan
4. Word of mouth

CUSTOMER SEGMENTS

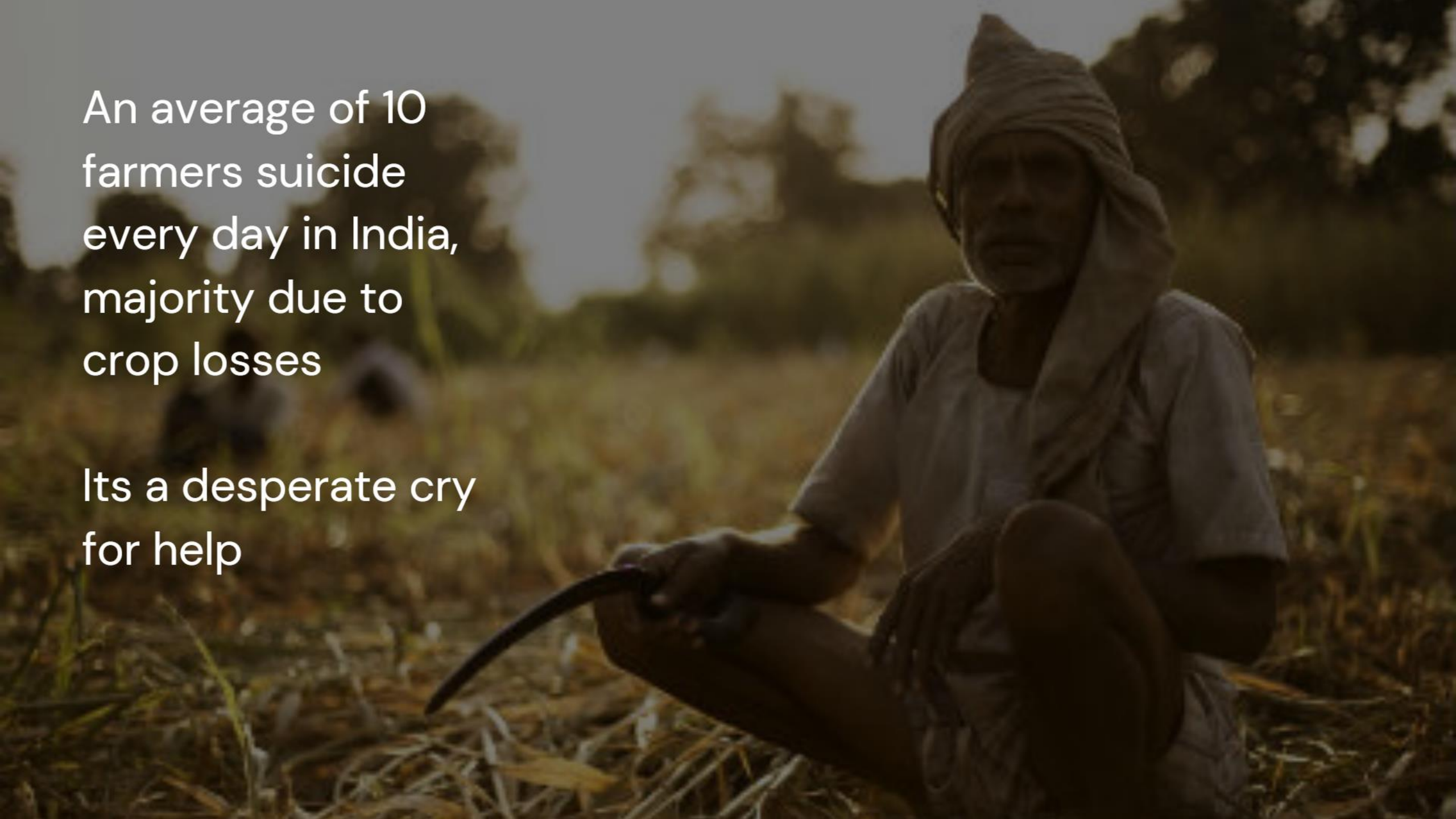
1. Individual (Commercial) Farmers
2. Farm Schools
3. Food/ Beverage Manufacturing Companies

COST STRUCTURE

1. Data collection costs
2. Software development costs
3. Real time imaging costs (through satellites/ onsite cameras)
4. Data storage/ Cloud hosting costs
5. Customer acquisition/ support costs

REVENUE STREAMS

1. Monthly app services subscription
2. Technical Workshops for farm schools
3. Dashboard/ Combined large-scale analytics for Food/ Beverage Companies


An average of 10
farmers suicide
every day in India,
majority due to
crop losses
Its a desperate cry
for help