St.Theresa's Arts and Science College for Women, Tharangambadi-609313

DEPARTMENT OF PHYSICS

"INDIAN AGRICULTURE CROP PRODUCTION"

By

TEAM LEADER:

R.ANGAYAR KAVI

TEAM MEMBERS:

L.BAKKIYALAKSHMI

J.CHRISTI

G.GUNASRI

M.JAMUNA

R.MAGESH

“INDIAN AGRICULTURE CROP PRODUCTION”

1.Introduction

Agriculture, with its allied sectors, is unquestionably the largest livelihood provider in India, more so in the vast rural areas. It also contributes a significant figure to the Gross Domestic Product (GDP). Sustainable agriculture, in terms of food security, rural employment, and environmentally sustainable technologies such as soil conservation, sustainable natural resource management and biodiversity protection, are essential for holistic rural development. Indian agriculture and allied activities have witnessed a green revolution, a white revolution, a yellow revolution and a blue revolution.
This section provides the information on agriculture produces; machineries, research etc. Detailed information on the government policies, schemes, agriculture loans, market prices, animal husbandry, fisheries, horticulture, loans & credit, sericulture etc. is also available.\

1.1 Overview

While agriculture’s share in India’s economy has progressively declined to less than 15% due to the high growth rates of the industrial and services sectors, the sector’s importance in India’s economic and social fabric goes well beyond this indicator. First, nearly three-quarters of India’s families depend on rural incomes. Second, the majority of India’s poor (some 770 million people or about 70 percent) are found in rural areas. And third, India’s food security depends on producing cereal crops, as well as increasing its production of fruits, vegetables and milk to meet the demands of a growing population with rising incomes. To do so, a productive, competitive, diversified and sustainable agricultural sector will need to emerge at an accelerated pace.

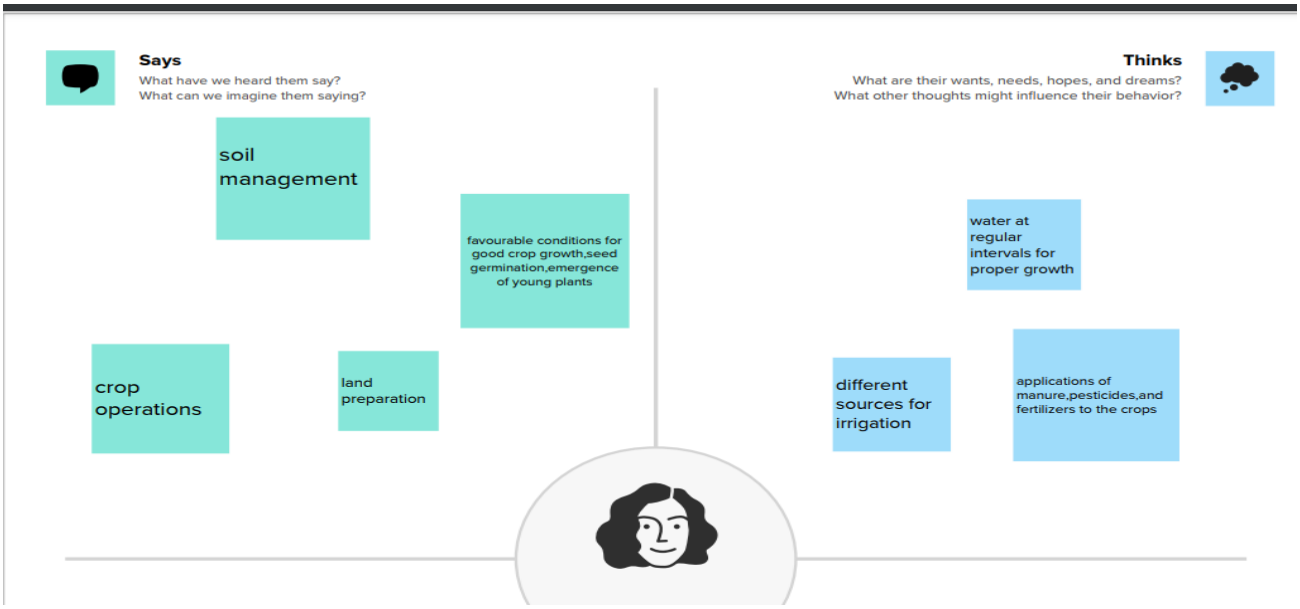
India is a global agricultural powerhouse. It is the world’s largest producer of milk, pulses, and spices, and has the world’s largest cattle herd (buffaloes), as well as the largest area under wheat, rice and cotton. It is the second largest producer of rice, wheat, cotton, sugarcane, farmed fish, sheep & goat meat, fruit, vegetables and tea. The country has some 195 m ha under cultivation of which some 63 percent are rainfed (roughly 125m ha) while 37 percent are irrigated (70m ha). In addition, forests cover some 65m ha of India’s land.

1.2 Purpose

1.Problem definition & Design Thinking

Agriculture is the foundation of the Indian economy. The population of India mostly depends on agriculture for their livelihood and agriculture contributes to 40 percent of the total GDP of the country.

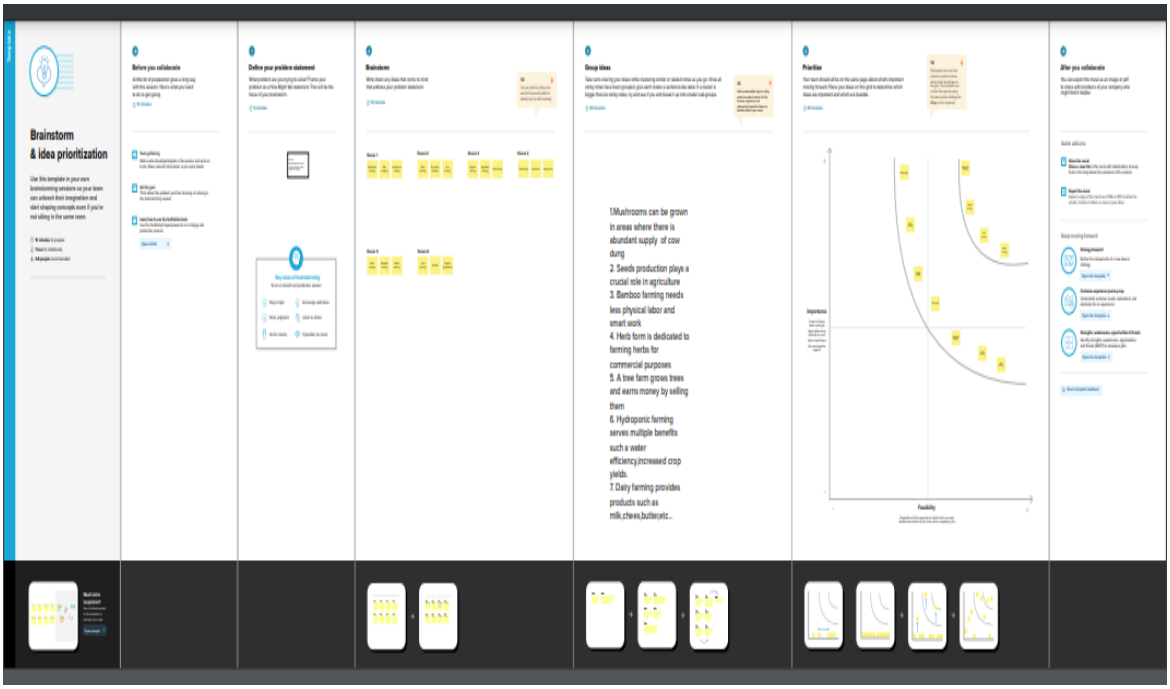
1.2 Empathy map



The nameless, faceless, caste-less and religion-less ‘Indian farmer’ was a monolithic conception, and the government rightfully recognised the urgency to address the crisis, on priority.

In India, as in several other nations, the COVID pandemic has inflicted untellable pain in the underbelly of its marginalised and often invisible communities. Much before the pandemic, the Indian farmer was already reeling under the punishing strains of worsening agrarian distress, that had led to a spate of farmer suicides. The dire situation was evenly spread with the highest suicide numbers reported from Maharashtra, Odisha, Telangana, Madhya Pradesh and Gujarat.

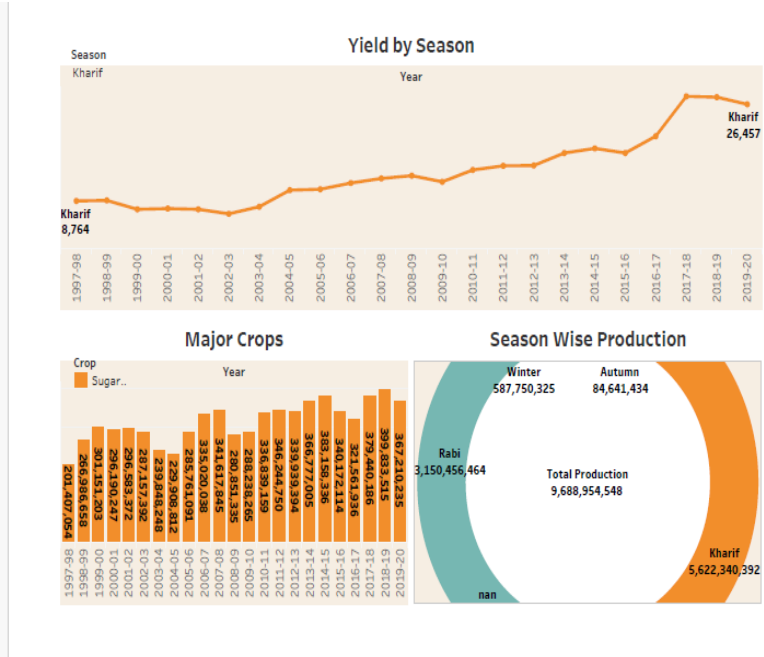
1.2 Ideation & Brainstoming map



Brainstorming is a great way to generate a lot of ideas that you would not be able to generate by just sitting down with a pen and paper. The intention of brainstorming is to leverage the collective thinking of the group, by engaging with each other, listening, and building on other ideas. Conducting a brainstorm also creates a distinct segment of time when you intentionally turn up the generative part of your brain and turn down the evaluative part. You can use brainstorming throughout any design or work process, of course, to generate ideas for design solutions, but also any time you are trying to generate ideas, such as planning where to do empathy work, or thinking about product and services related to your project.

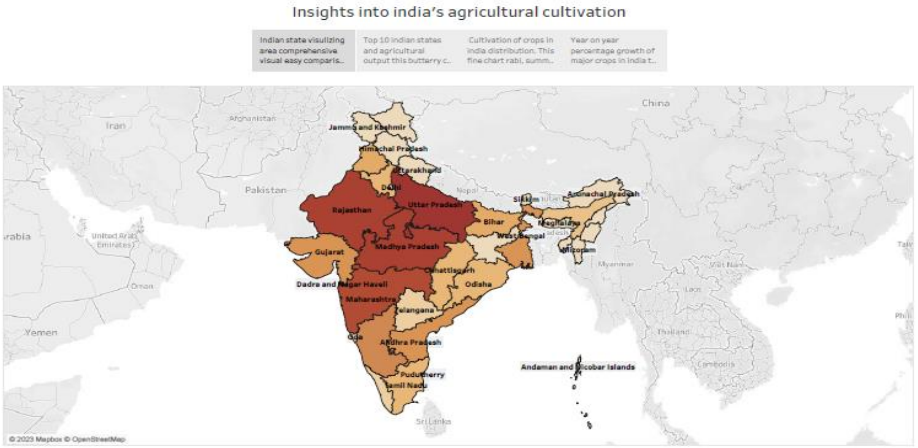
2.Result

Dashboard



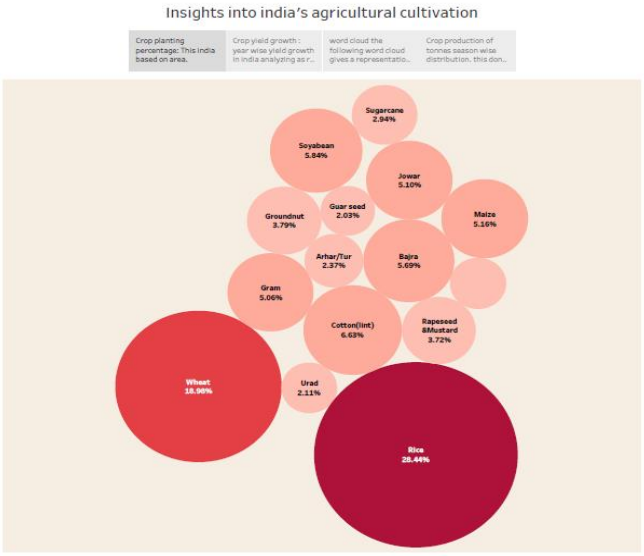
Dashboards offer a method of consolidating company data into one unified location with secure data storage. Dashboards are designed to offer a comprehensive overview of company performance, and do so through the use of data visualization tools like charts and graphs.

Story



Once, while travelling to Maharashtra, Mr. Biradar could not get any food to eat and suffered from starvation as a result. He started thinking of producing food for the future generations after coming back from Maharashtra. He started growing millets and entered the field of value-added millet products under the technical guidance one of the reasons for focusing on value added millet products is the emergence of lifestyle diseases among the urban population and prevalence of junk food consumption among the youth. Keeping all these factors in mind, in 2009, Mr. Biradar started a valueadded centre for millets in Huda Colony, Chandanagar, Hyderabad, products.

Story 1



While agriculture in India has achieved grain self-sufficiency but the production is, resource intensive, cereal centric and regionally biased. The resource intensive ways of Indian agriculture has raised serious sustainability issues too. Increasing stress on water resources of the country would definitely need a realignment and rethinking of policies. Desertification and land degradation also pose major threats to agriculture in the country.

The social aspects around agriculture have also been witnessing changing trends. The increased feminisation of agriculture is mainly due to increasing rural-urban migration by men, rise of women-headed households and growth in the production of cash crops which are labour

intensive in nature. Women perform significant tasks, both, in farm as well as non-farm activities and their participation in the sector is increasing but their work is treated as an extension of their household work, and adds a dual burden of domestic responsibilities.

India also needs to improve its management of agricultural practices on multiple fronts. Improvements in agriculture performance has weak linkage in improving nutrition, the agriculture sector can still improve nutrition through multiple ways: increasing incomes of farming households, diversifying production of crops, empowering women, strengthening agricultural diversity and productivity, and designing careful price and subsidy policies that should encourage the production and consumption of nutrient rich crops. Diversification of agricultural livelihoods through agri-allied sectors such as animal husbandry, forestry and fisheries has enhanced livelihood opportunities, strengthened resilience and led to considerable increase in labour force participation in the sector.

3.Advantage & Disadvantage

Advantage:

- Farming is one of the oldest economic activity in our country. Different regions have different methods of farming
- Cash crops are crops that are grown for sale rather than for personal consumption. Some of the advantages of growing cash crops include:
- Cash crops are grown mainly for sale and not for consumption, which means they generate greater incomes than food crops. Like castor, cotan,
- Cash crop does not spoil quickly, without cold storage, you can store easily, unless you get a good price.

Disadvantage

- Require Special Chemicals. costly rather than food crop
- Environmental degradation: Cash crop farming can lead to environmental degradation if not done sustainably.
- Dependence on a single crop: Growing only one crop can lead to dependence on that crop
- You cannot cultivate any crop immediately after harvesting a crop like tobacco.

4. Application

- Kisan Suvidha
- IFFCO Kisan Agriculture
- RML Farmer – Krishi Mitr

- Pusa Krishi
- AgriApp
- Kheti-badi
- **Conclusion**

The agriculture sector employs nearly half of the workforce in the country. However, it contributes to 17.5% of the GDP (at current prices in 2015-16).

Over the past few decades, the manufacturing and services sectors have increasingly contributed to the growth of the economy, while the agriculture sector's contribution has decreased from more than 50% of GDP in the 1950s to 15.4% in 2015-16 (at constant prices).

India's production of food grains has been increasing every year, and India is among the top producers of several crops such as wheat, rice, pulses, sugarcane and cotton. It is the highest producer of milk and second highest producer of fruits and vegetables. In 2013, India contributed 25% to the world's pulses production, the highest for any one country, 22% to the rice production and 13% to the wheat production. It also accounted for about 25% of the total quantity of cotton produced, besides being the second highest exporter of cotton for the past several years.

Future scope

Implementation of Digital Agriculture in India The main factor behind the gradual acceptance of digital farming in India is the prominence of segregated small-holder farms in the country, this complicates data gathering. Additionally, limited penetration of mechanisation tools and frequent natural calamities, like droughts, floods and excessive monsoon rains, have negatively impacted the deployment of digital solutions in the sector. Thus, a customised approach would be needed to implement digital agriculture to a typical Indian small farm, this can be later be scaled up and made available to many Indian farms. Following measures could be implemented to make digital agriculture a success in India: -

Low cost technology: - The average annual income of an Indian farmer is >US$ 1,000. This low income explains the precarious financial circumstances in which a typical farmer operates in India. Thus, lowering the cost of technology will help. Portable hardware: - As

typical Indian farms are small, plug and play hardware has a better opportunity in the Indian market. Also, agricultural land leasing is widely prevalent under various farming arrangements, therefore a farmer farming on a specific plot of land may move to another farm plot next season. In such scenarios, investing in portable equipment is better for farmers.

Renting and sharing platforms for agriculture equipment and machinery: - Owing to both constrained financial resources and small farm plots, opportunity exists for digital platforms that offer equipment renting and sharing services instead of outright purchases. A few agritech start-ups like Farmkart (rent4farm), EM3 AgriServices and Trringo, are already providing equipment rental services.

Academic support: - The local agricultural organisation and academic institutes regularly interact with farmers through various locally conducted programs and government initiatives. Training facilities provided by various academic institutes and agricultural organisations will improve digital adoption among farmers.

CONCLUSION

As the Indian Agriculture and Allied sector is on the verge of adopting modern technologies, such as IoT, AI/ML and agri-drones for unmanned aerial surveying, Indian and foreign agritech players can play a vital role in supplying these advanced technologies to farmers. Currently, there are few players in the market, but catering to ~267 million farmers in a country exhibits a huge opportunity for private and foreign entities to expand their footprint in the country. However, influential factors that will define the success of digital agriculture in India are technology affordability, ease of access and operations, easy maintenance of systems and supportive government policies.

Adopting a holistic ecosystem approach to address challenges faced by the Indian agriculture sector is of national interest, to achieve objectives, like doubling farmer incomes and sustainable development. Thus, a multi-stakeholder approach will be required for the wide-scale adoption of digital agriculture in India, with the government playing a key enabler’s role in the ecosystem.