



FREEDESIGN

Introduction

FreeDesign (estd. 2016) Private Limited specializes in technology transfer and adoption, specifically for Rural communities. 2020 onwards, we started a service for startups primarily in the agritech space to enable them to reach last mile communities via process design, market research, last mile operations and content creation.

We have worked on enhancing livelihoods through technology adoption & transformation in the agri ecosystem - especially with stakeholders like Farmer Producer Companies, Collection centres, farmers and traders, government bodies, financial institutions, technology companies and local agri consultants. We build local capacity and awareness for adopting such technologies across the value chain, pre and post harvest, to facilitate on-ground implementation. Our body of work has helped us interact with farming communities in various states including Maharashtra, Karnataka, Orissa, Assam, Madhya Pradesh, Tamil Nadu and Gujarat.



Core Team



Abhinav Dey

B.Tech Mechanical Engg.
Agri-Innovation Ecosystem Building

Started his journey in product design developing workspaces for the visually impaired and slowly transitioned into systems design over the last decade. He is a Maker at heart and is constantly inspired to find new ways design philosophies from grassroots work which guide business and community livelihood resilience and innovations.



Vignesh Seshadri

B.E. (Electrical and Electronics Engg.)
Livelihoods, Product Design & Manufacturing

Developed low cost electronic devices and has expertise on manufacturing industrial equipments, and setting up enterprises with village based micro-entrepreneurs. He has also developed livelihoods research and implementation programs in Assam, with SBI, Rashtriya Gram Vikas Nidhi and establishing ecosystem support for innovations.



Karishma Manglani

MBA in Business
Brand Management, Account Management,
Content Strategy

She's a digital branding and content strategy expert who's core competency was defining Brands in the D2C space over the span of a 10-year career.

Has recently taken the plunge into the B2B and Rural marketing domains where she hopes to learn and meet more interesting people everyday.



List of services

- 
- ❖ Market Research and Documentation
 - ❖ Pilot Testing
 - ❖ Stakeholder Mapping
 - ❖ Livelihood Design
 - ❖ Digital Marketing
 - ❖ Supply Chain Analysis
 - ❖ Business Model Development
 - ❖ Prototype Development (Hardware)
 - ❖ Prototype Testing



Network & Clientele

NGOs



SEWA
SELF EMPLOYED WOMEN'S ASSOCIATION



International Union
for Conservation of
Nature



SELCO



Global
Communities



India
Inclusion
Foundation



FAB LAB



Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



Startups



LUSTRAL WATER™
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ChanceLabs

Corporates



FD's Venture Building Template

Community-Led Approach

In contrast to the old model of companies pushing ideas onto customers, a community-led approach pulls ideas from consumers and continually improves the product or service experience for everyone through active participation.

This fundamentally changes the process of consumer engagement, flipping the old model on its head:

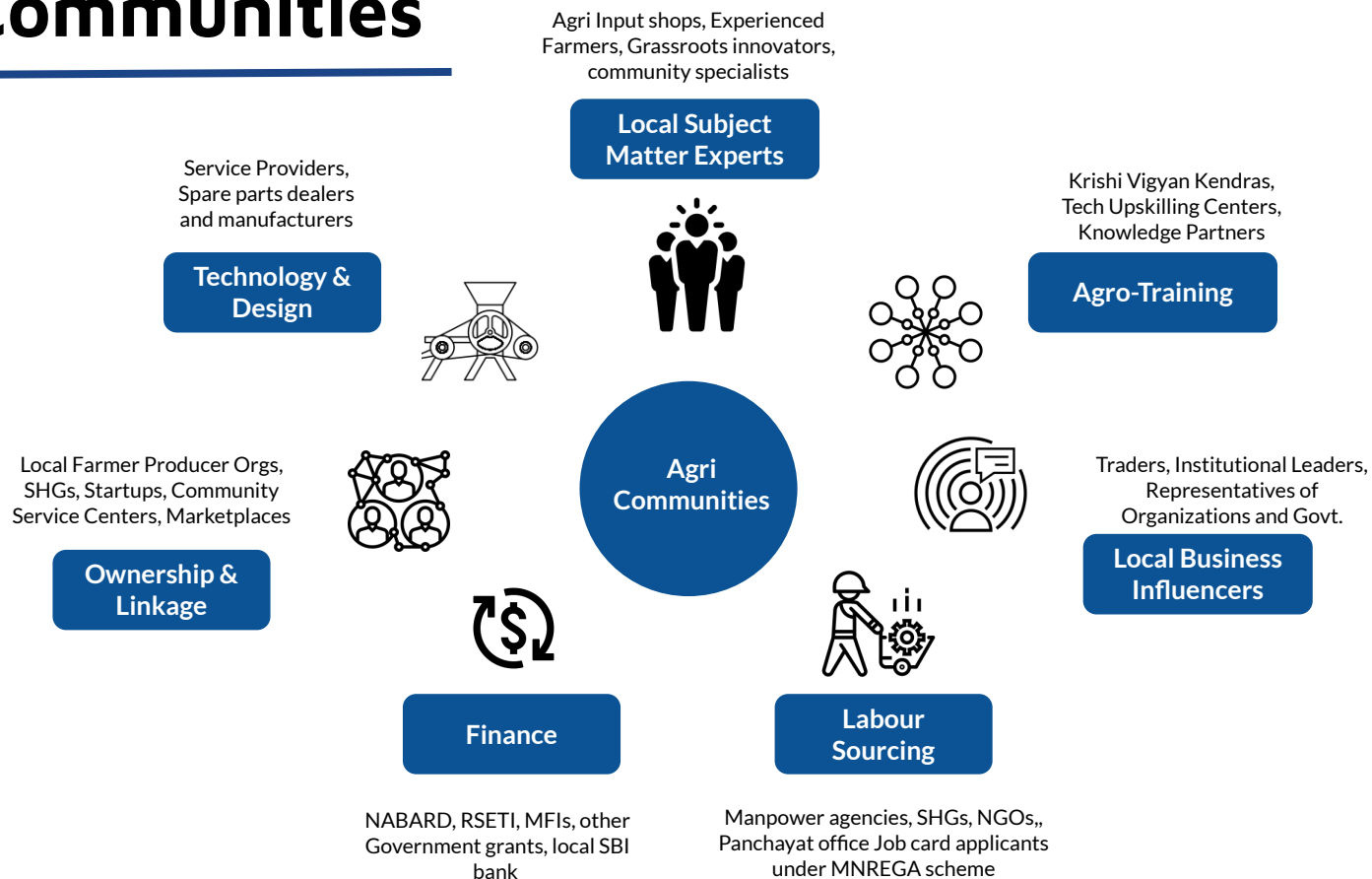
- (i) *Conventional*: Build products, services, software and then find customers.
- (ii) *Community-led*: build communities with the product and improve solutions on-the-go

Benefits of a Community-led approach to rural business functions:

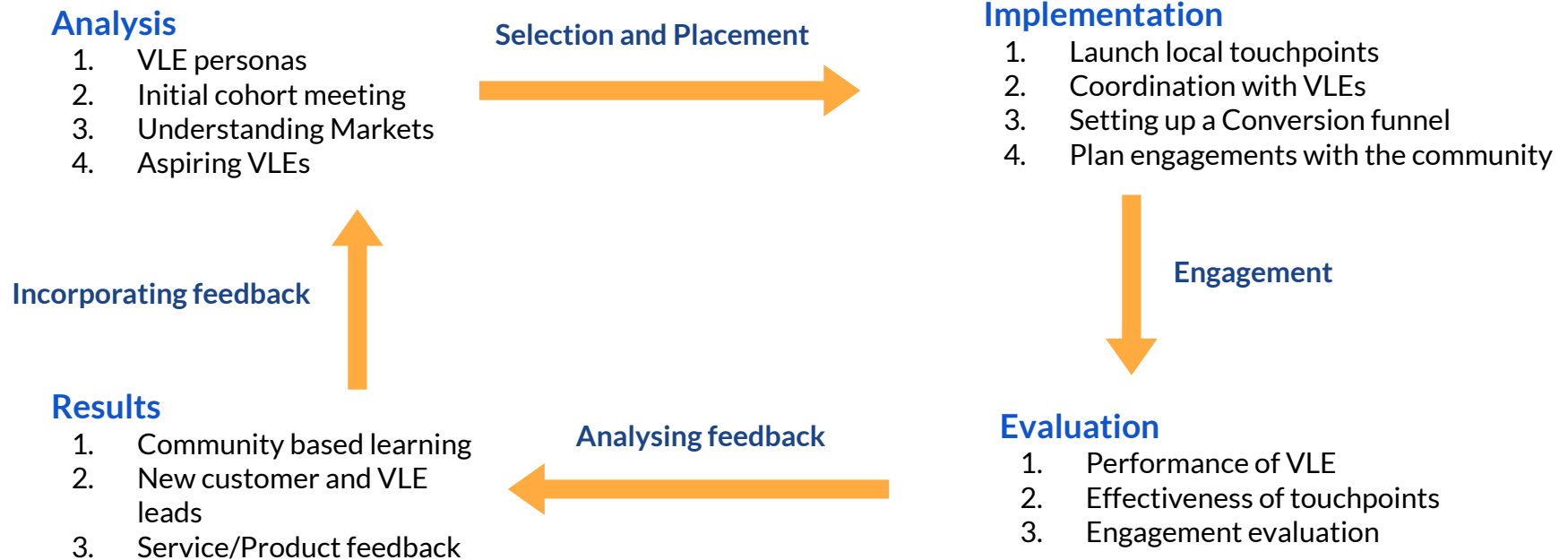
- ❖ Find genuine customers for your product/service.
- ❖ Direct communication with the customer builds trust, and rural customers are known to have brand loyalty.
- ❖ Get instant feedback and improve your customer's experience.
- ❖ Enable your services to go digital-first, eventually.



FD's Communities



Community Creation Cycle using VLEs



FD's Venture Building Approach

EXPLORE

- ❖ Size Market opportunity
- ❖ Outline the Consumer personas
- ❖ List out resources and budget
- ❖ Identify your competition
- ❖ Select the best markets
- ❖ Build a Launch plan framework

DESIGN

- ❖ On-ground market research
- ❖ Refine Consumer personas into TAs
- ❖ Map local resources and stakeholders
- ❖ Select the ideal touchpoints and TAs
- ❖ Budget for success and failure
- ❖ Community engagement plan
- ❖ Complete the Launch plan

EXECUTE

- ❖ Align execution plan with current resources and activities in the select regions.
- ❖ Launch your Pilot program.
- ❖ Monitor and evaluate the progress.
- ❖ Collect feedback, analyse and

REPEAT to SCALE.



Projects

A brief description of some work that we have done over the years

Design & Pilot of solar solutions

Solving for: Adoption of decentralised renewable energy solutions to increase productivity, reduce drudgery and limit carbon emissions from agro processing supply chain.

Delivered: Business use case identification and opportunity mapping through field immersions and sectoral landscaping, survey of technologies from ancient to cutting-edge, prototyping & testing new solutions

Impact: Designed and piloted short, mid and long term solar interventions in multiple clusters in 3 value chains. Helped SF team kickstart their livelihoods program where prototype development was simultaneously achieved with opportunity mapping and market research.



SELCO Foundation



Human-Wildlife conflict Innovation



Solving for: Animal encounters that cause loss of life, intensive crop damage and violence occurring in forest based villages and neighborhoods. Occurrences of conflict were mapped and local animal deterring & detection methods were identified.

Delivered: Monitoring system to alert and trigger appropriate conflict mitigation response especially in remote areas where animals like elephants, tigers, leopards, wild boars are detected.

Impact: Participatory design system was implemented where the farmers owning the deterrent units, the forest department owning the detection units and the response teams come together seamlessly to function.



IoT Solutions for Agriculture



Solving for: Carbon emissions can be reduced if irrigation is managed using water saving methods. In order to implement these methods, the pressure at which roots can pull water needs to be sensed and irrigation is actuated only when parameters are within defined range.

Delivered: Water and soil parameter monitoring IoT system to help map SWRC and algorithm to achieve the ideal sensor placement in a field based on soil and crop was developed. These installation were placed in multiple locations for a 1-year study period.

Impact: Performance of multiple irrigation automation systems were calibrated with our sensors & reports were generated using remote monitoring device installed.



USAID

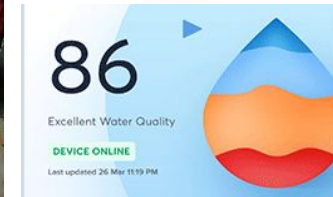


MVPs for Water filtration

Solving for: Mobilizing timely intervention for ensuring that quality of drinking water always lies within required safety range

Delivered: We developed multiple water filtration solutions for the clients as per their requirements. Both the startups depended on us to product their MVP in order to get their seed funding and we delivered that successfully.

Impact: We helped the founders develop the technology brief, define an MVP and pilot the system. This helped the startups take the product from conceptual level to marketable level. We also helped Lustral modify their business model based on product design changes.



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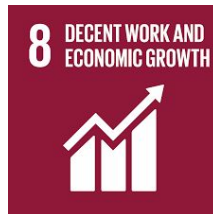
Agro advisory & Sales

Solving for: Rural Populations did not have access to appropriate technology for improving farm business outcomes and are not able to take full advantage of services and facilities being offered by institution such as FPCs and Agri companies.

Role:

FreeDesign was engaged as the primary on-ground implementation agency for this project run with Bayer CropScience, Rabo Bank, Axis Bank and Indivillage Foundation. We were directly responsible for the follow work streams:

1. Program Design
2. Operations Strategy and Implementation
3. VLE Hiring, Training and support



ChanceLabs



mastercard



indi
village
foundation



Project Scope of Work samples

Product/Service Design

PARTICULARS	ACTIVITIES	DELIVERABLES, DURATION and BUDGET
Pilot Strategy and Monitoring	• FD will help define SOPs for on-ground Ops • FD will define Communication protocol for all stakeholders. • FD will identify and build partnerships with local ecosystems • Evaluation of Operations on-ground	Strategy and SOP documents. Impact Report for operations.
Product/Service Market Fit	• Collect Secondary data about the consumers/buyers based on predefined demographics and identify initial locations. . • Identify TG consumer/buyer profiles and ideal pilot conditions • Identify touch points for buyers	Market Research Report
Product design	• Product Design research • Prototyping - Product Design, Procurement and Manufacturing • User Testing and Deployment. • Design Documentation	X Fully functional products as per predefined design specifications. Documentation, design files, programming files, etc.



Pilot Testing new products/services

PARTICULARS	ACTIVITIES	DELIVERABLES, DURATION and BUDGET
Market Research	1. Define market research protocol. 2. Profile new markets by collecting secondary data about the farmers, the produce and identifying the ideal locations/clusters. 3. Stakeholder Mapping in identified clusters. 4. Collect primary data for stakeholder connects to identify pilot locations.	Market Research Report 2 weeks per territory. 1L per district.
Customer Profiling	1. Identify TG farmer profiles and touch points for farmers 2. Define SOPs for Onground Ops and customer acquisition 3. Map farmer demographics along with motivation, goals, pain points, etc. for the defining pilot locations	Pilot Strategy and SOP documents. Planned and costed with Market research.
Pilot plan and launch	1. Create an ideal touchpoints map for TG customers/farmers or other stakeholders. 2. Create a Pilot calendar and define the broad goals and targets. 3. Create VLE's for outreach/execution of onground ops. 4. Execute Action Plan in pilot cluster.	Pilot plan, Live tracker and weekly reports. Planned and costed as per requirement.



Creation of VLEs

PARTICULARS	ACTIVITIES	DELIVERABLES and DURATION
Market Selection	1. Profile new markets by collecting Secondary data about the farmers and the produce and identifying the locations/clusters. 2. Define Market research protocol 3. Field study at location and Stakeholder Mapping in identified clusters 4. Map and identify target VLE profiles 5. Creating an Action Plan	Market Research Report and Action Plan. 2 weeks per district.
VLE Selection	1. Selection of VLEs. 2. Define SOP for Onground Ops and User acquisition 3. Define Communication protocol for all stakeholders. 4. Training plan for VLEs. 5. Onboarding VLEs to the Action plan.	VLE Strategy and SOP documents, profiles, etc. 6-8 weeks per district.
Community Engagement PoPs	1. Collect primary data along with farmer connects in identified pilot locations 2. Identifying agri communities in hotspots. 3. Creating an Engagement plan template.	Package of Practices for VLEs to follow during community engagements 2 weeks.



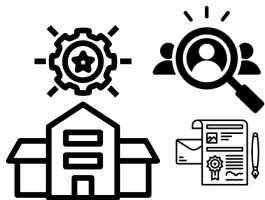
Decoding new markets

PARTICULARS	ACTIVITIES	DELIVERABLES, DURATION and BUDGET
Market selection	1. Client defines market research protocol. 2. Map new markets by collecting secondary data about the farmers, the produce and identifying the ideal locations/clusters. 3. Stakeholder Mapping in identified clusters.	Market Selection Report 2 weeks per territory. Costed per territory.
Customer Profiling	1. Define localised Value propositions for TG. 2. Define SOPs for Onground Ops and customer acquisition. 3. Map customer demographics along with motivation, goals, pain points, etc. for the defining pilot locations	Execution Strategy and SOP documents. 1 week per territory. Costed as per requirement.
Product Launch	1. Create an ideal touchpoints map for TG customers/farmers or other stakeholders. 2. Create an Action plan calendar and define the KPIs and KRAs. 3. Create a Community engagement plan to be executed for pilot. 4. Execute Action Plan.	Action plan, Live tracker and weekly reports. Planned and costed as per requirement.



Appendix

Program Design



- FD does a Market survey to identify the best stakeholders in the district and chooses Pilot locations.
- FD identifies potential VLEs through our proprietary assessment process.
- Post-selection, we conduct a 3 week long Bootcamp to train the selected candidates and then place them into job.

Digital VLE Profiles



Local SBO



Progressive Farmer



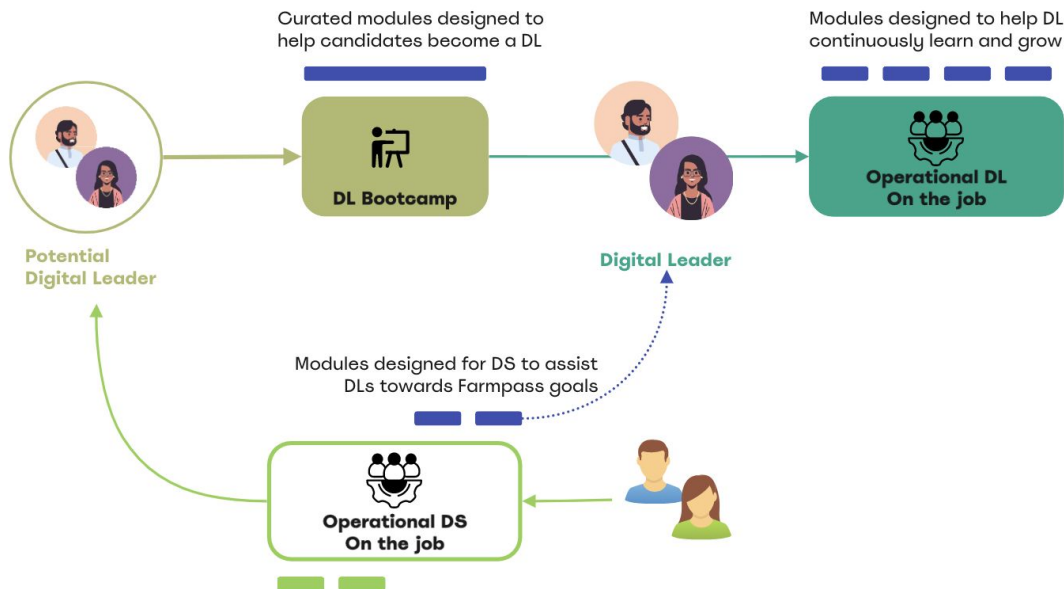
CSC/VLE



MBA and BSc Agri graduates



Experienced Agri Agent



Customer profiling sample

Farmer **aged 35-45**, Sees value in utilising technology to optimise field work,

Currently owns and **understands different IoT technologies, smartphone apps, etc**

Has undergone training on **GAP (Good agriculture practice) programs** in local Krishi vigyan kendras;

Has **limited access to extension services** and resorts to stop-gap solutions

Does **not engage in post harvest processing** due to lack of market knowledge



Sources labour from local panchayat under the MGNREGA Job card scheme

Owens between 12-15 acres of land, farms one or more horticulture crops;

practices **crop cycling and staking**;

Is **facing acute shortage of skilled labour** in crop management due to which crop is suffering.

Is **depending on seasonal fluctuation** in order to see a good profit.

Is **desperately looking for buyer linkages** in order to maximise business potential.

Insights and Interview format:

<https://docs.google.com/spreadsheets/d/1wm08NLmutDczsedvmBljXPhZAwivV65taRRcOcwnyzl/edit#gid=2047438499>



Market survey sample

Agri Insights - Nashik

- At nearly 4 acre average land holding, Nashik has one of the biggest farmland holding communities in the country. As per the Government of Maharashtra, the small landholders of Nashik are around 3,50,96 (54%), the marginal landholders are around 2,88,496 (44%) and others are 3,210 (2%).
- The total cultivable area of Nashik district is about 8,640 sq. km.** The total actual sown area of the district is approximately 6587.63 sq. km.
- There are two main agricultural seasons in Nashik district, viz. kharif and Rabi. The kharif crops are sown in June-July and harvested in October-November, while Rabi crops are sown in October or mid-November and harvested in February-March. Rabi crops are wheat, jowar and gram. **Grape, maize, cotton, moong, soyabean, onion, cauliflower, cabbage, paddy, jowar and bajra are the main Kharif crops of the region.**
- Historically rainy season crops, the millets and several of the pulses, are grown in poor reddish uplands, and, sometimes for change, in rich black-soil fields.
- Historically, the pulses are grown singly or mixed with other crops. Except safflower or kardai which is grown in red land, wheat, gram, and other cold weather crops are generally grown either in the richer or in the lighter black soils. Cold weather crops are sown after the October rains are over, and require some showers in December.
- The main vegetables grown in the district are onion, brinjal, fenugreek, lady's finger, carrot, sweet potato, potato, cabbage, tomato, radish and cauliflower.
- In Nashik district, red soils are mainly occurring in north-western portion and black soils in south-eastern parts. The red soils are mostly under forest and or marginally cultivated to millets, whereas, the black soils are cultivated to sorghum and pulses (rainfed), and grape (irrigated).
- Nashik gets an annual rainfall of above 1000mm. **Nearly 85% of the rainfall happens during the SW monsoon from June-October.** Nashik gets an average of 29 out of the 42 days of rainfall in this period.

S.No.	District Name	Average size per holding (in ha.)					
		Marginal	Small	Semi-medium	Medium	Large	All holdings
1	Nashik	0.51	1.42	2.67	5.64	14.46	1.53
2	Pune	0.44	1.42	2.71	5.72	16.47	1.36
3	Ahmednagar	0.5	1.41	2.66	5.54	16.31	1.32

District-wise Distribution of Average size per holding (in ha.)

Agri Insights - Nashik

- Nashik has 17 APMCs with Lasalgaon and Pimpalgaon-Baswant serving as the major markets for not just the district, but the state itself.
- From the total cropped area in the district rice, bajara and maize are major food grains occupying about 15.32%, 15.95% and 10.375 respectively. Besides this, 18.28% area is under vegetables, 25.28% area is under pulses, and 13.01% area is under oilseeds.

Taluka	Rice	Wheat	Bajra	Sugarcane	Vegetables	Oil seeds
Surgana	65.9	1.11	0.01	0.02	0.65	7.02
Kalvan	9.89	8.09	10.29	5.41	14.16	10.63
Deola	0	3.1	34.2	1.07	19.39	2.32
Baglan	2.66	4.07	44.29	3.71	9.21	2.72
Malegaon	0.03	3.83	47.8	1.22	11.4	6.22
Nandgaon	0	0	0	0	90.27	2.27
Chandwad	0.1	1.87	31.34	0.12	27.62	4.13
Dindori	16.38	14.03	0.27	5.82	0.97	16.4
Peth	64.57	3.84	0	0.35	0.5	7.73
Trambak	66.73	1.94	0	0.33	2.06	10.76
Nashik	0	15.5	1.18	0.7	17.61	28.69
Iggatpuri	0	0	0	14.62	24.55	22.96
Sinnar	3.42	0	42.57	5.68	13.14	16.26
Niphad	0.12	14.69	4.76	12.58	19.7	10.3
Yeola	0	0	22.55	0.75	23.02	6.52

The above table indicates the Area under cultivation for each category of crops. District Socio-economic review 2016-17.

Agri Insights - Nashik

- As far the chemical properties of soils in Nashik district the organic carbon content is low to medium. **Nitrogen deficiency is found in all soil samples from all the talukas of the district.**
- As per the government records, the small landholders of Nashik are around 3,50,96 (54%), the marginal landholders are around 2,88,496 (44%) and others are 3,210 (2%).
- There are a reported 1,577 villages who engage in Kharif sowing and 383 villages who sow during Rabi.
- The major source of irrigation in Nashik is the Godavari river.** The Peninsular Godavari river is known as India's one of the largest rivers. Apart from the Godavari river, Vaitarna, Bhima, Girana, Kashyapi, and Darana are important rivers that flow throughout the district.
- Kharif sowing in Nashik has been delayed in the last 3 years due to the nature of inconsistent rainfall in the talukas.** In 2021, it was reported that six talukas including Nashik, Dindori, Nandgaon, Kalvan, Deola and Yeola saw less than 50% of the rainfall in June, while Iggatpuri, Surgana and Peth saw more than 100% rain by mid-month.
- The state agricultural dept has projected Kharif sowing in 6.43 lakh hectares in 2023. As per the latest data provided by the department upto July 3rd, the sowing has only been completed on 44,000 hectare including a maximum of 23,500 hectares in Yeola and 10,300 hectare in Malegaon. Satara, Surgana, Peth, Niphad and Sinnar have all tallied less than 400 hectares of sowing till the second week of July. **This year, sowing for Kharif is yet to begin in Trimbakeshwar, Iggatpuri, Nashik and Dindori due to inadequate rain** (as reported in July).
- Nashik has one of the most robust post-harvest storage facilities in the country. This is evidenced by the **reported post-harvest onion losses at 6.94%** of the entire yield post farmgate.

Sowing window	Onion	Maize	Lowland Paddy	Wheat
Kharif	3rd week of July to 2nd week of August	2nd week of July	2nd to 3rd week of June (rainfed only)	-
Rabi (mainly irrigated)	3rd week of September to 2nd week of October	-	-	1st to 3rd week of November

The above table indicates the approximate sowing calendar according to the season.

Market survey sample

Market Info - Nashik

Lasalgaon market: (considered largest onion market in Asia)

Main market Yard, Kotamgaon Road, Lasalgaon, Tal- Niphad, Dist- Nashik, 422306.

Commission - Onion--4%, Grain-3%, Fruit & Vegetable-6%

60% of the commodities are dispatched to outside markets.

Sr. No.	Commodity name	Season	Peak season
1	Onion	All year	Nov-May
2	Maize	All year	Nov-Jan
3	Tomato	Aug-Dec	Aug-Oct
4	Soybean	All year	Oct-Dec
5	Grapes	Dec-Apr	Feb-Mar
6	Wheat	All year	Apr-July
7	Pearl millet	All year	March-April-May
8	Green gram	Aug-Dec	Aug-Oct
9	Sorghum	All year	Feb-Apr
10	Potato	All year	Mar-Jun

Yeola market:

Yeola-Manmad Road, Yeola Tal., Yeola Dist., Nashik 423401.

Commission - Fruits&Vegetables 6%, Others 3 to 4%.

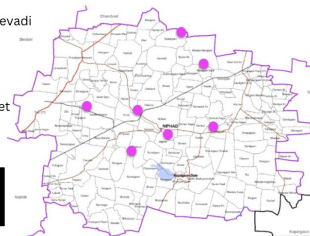
System of sale is open auction for all commodities.

Sr. No.	Commodity name	Season	Peak season
1	Onion	Nov-Mar	Nov-Mar
2	Wheat	Oct-Feb	Oct-Feb
3	Bajra	Jun-Sep	Jun-Sep
4	Soybean	Nov-Mar	Nov-Mar

Touchpoints - Niphad and Dindori

The local touch point identified

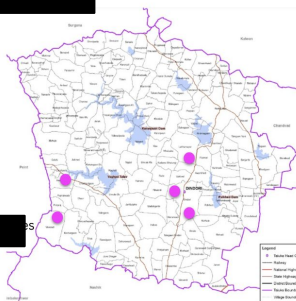
- Krishi sanshodhan kendra, kundevadi
- KGDM College, Niphad
- Janshanti FPC
- Balaji KSK
- Lasalgaon onion market
- Khangaon najik vegetable market
- Khadakmalegaon
- ATMA Niphad



Touchpoints on the Niphad map

The local touch point

- Taluka krushi vibhag office
- Senior college dindori
- KDSP College of agriculture, Dindori
- Maulikrupa agro services
- Agri chawala
- ATMA Dindori
- KSK outreach call centre



Touchpoints on the Dindori map

Insights from the field - Nashik

- There are also **local entrepreneurs (a new type of local business owner persona for the program)** engaging in enterprising activity such as growing new varieties of fruits. Eshwar Pawar of Ware in Dindori Taluka, a place known for its vineyards. The sight of strawberries sold on the Nashik-Saputara road is a novelty. It all began when Pawar planted 4,000 seedlings of the Winter Dawn variety at Rs 10 apiece in August 2016. The returns: Rs 10 lakh. He now sells around 20,000 kg a day during the peak season. Inspired by his success, many have jumped into the fray.
- The second-half of August and September months are extremely slow months (for commercial activity) in this belt due to multiple holidays occurring together. There are 7 additional holidays between August 15th to October 2nd, not considering the usual weekends.
- The field team witnessed an Anti-Bayer campaign in Nashik and Niphad on August 29th to 31st for price increase in Movento, especially used in Grapes.
- We have seen a **high instance of people with experience in agri extension work**, and interest from agri company employees. Especially, given the drought like season resulted in low sales achieved overall, hence applicants were looking for other income opportunities.
- **Nashik cluster has high adoption of digital agri services, hence candidates were expected to be aware of apps and tech services for farmers.**
- They were also expected to have **high motivation** for working in the agri sector, unlike areas where careers in agri are not considered aspirational.
- Present day Yeola town in Nashik, Maharashtra is the largest manufacturer of Paithani. Hence the only FPC in yeola showing up on Google was paithani saree FPC.
- Due to the presence of many local agri institutions, the average age of the applicants was significantly lesser than Satara and Pune (around 23).

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