

Supplementary Material

1 Supplementary Data

1.1 S1 Interview questions on technical aspects

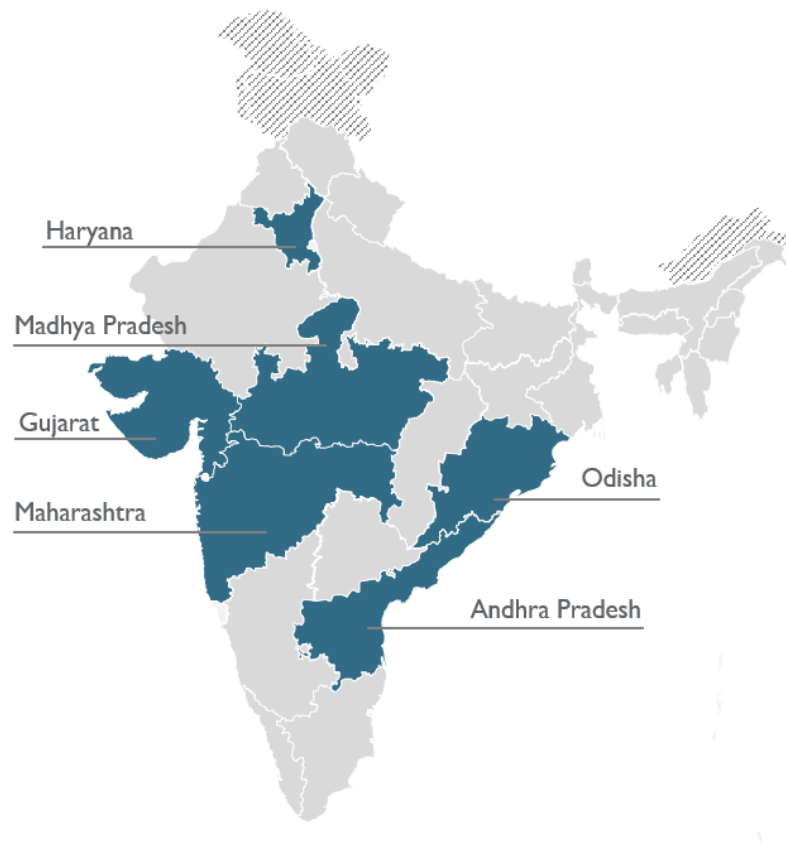
1. Farmer connection & characterization
 - a) What is your level of connection to farmers? (Extension service, researcher, lead farmer)
 - b) How are your relations with farmers?
 - c) Do you have progressive farmers?
 - d) How are the farmers contacting you? (Two-way communication, I approach farmers, farmers approach me)
 - e) Under which category will you place your farmers: Innovators, Early Adopters, Early Majority, Late Majority, Laggards?
 - f) Prevalent irrigation? (rainfed / irrigated)
 - g) Popular farming system in your area? (conventional/organic)
 - h) Which main crops are cultivated by farmers in your region?
2. Cropping systems
 - a) Which crop diversification is most prominent in your region?
 - b) What are average cotton yields achieved? Respective input cost, labour cost and income incurred by farmers of your region?
 - c) What are the five most prevalent crop rotations under practice?
 - d) Do farmers in your region practice multi-cropping (intercrops/border crops/trap crops)?
3. Diversification
 - a) Scale of diversification in cotton-based cropping systems in your region? (largely monocropping, less diverse, diverse, highly diverse)
 - b) If less diversification is practised, what do you think are the main causes?
 - c) If less diversification is practised, what do you think are the main effects of little diversification practices?
 - d) Which cotton-based cropping system do you recommend is best and most suitable in your region?
 - e) What is your recommended *crop rotation* for cotton most suitable for cotton-based cropping systems, and name the reasons for this?
 - f) What is the best *intercrop* for cotton most suitable for cotton-based cropping systems, and name the reasons for this?
 - g) What are the constraints and particularities for crop diversification you are facing in your region (e.g. market access etc.)?
4. Contextual factors
 - a) Do you think women would benefit from more crop diversification?
 - b) What are crops you recommend that would benefit the women in cotton-based farming systems, and what is the reason for your recommendation?
5. Any further comments?

1.2 S2 Interview questions on market linkage and policy environment

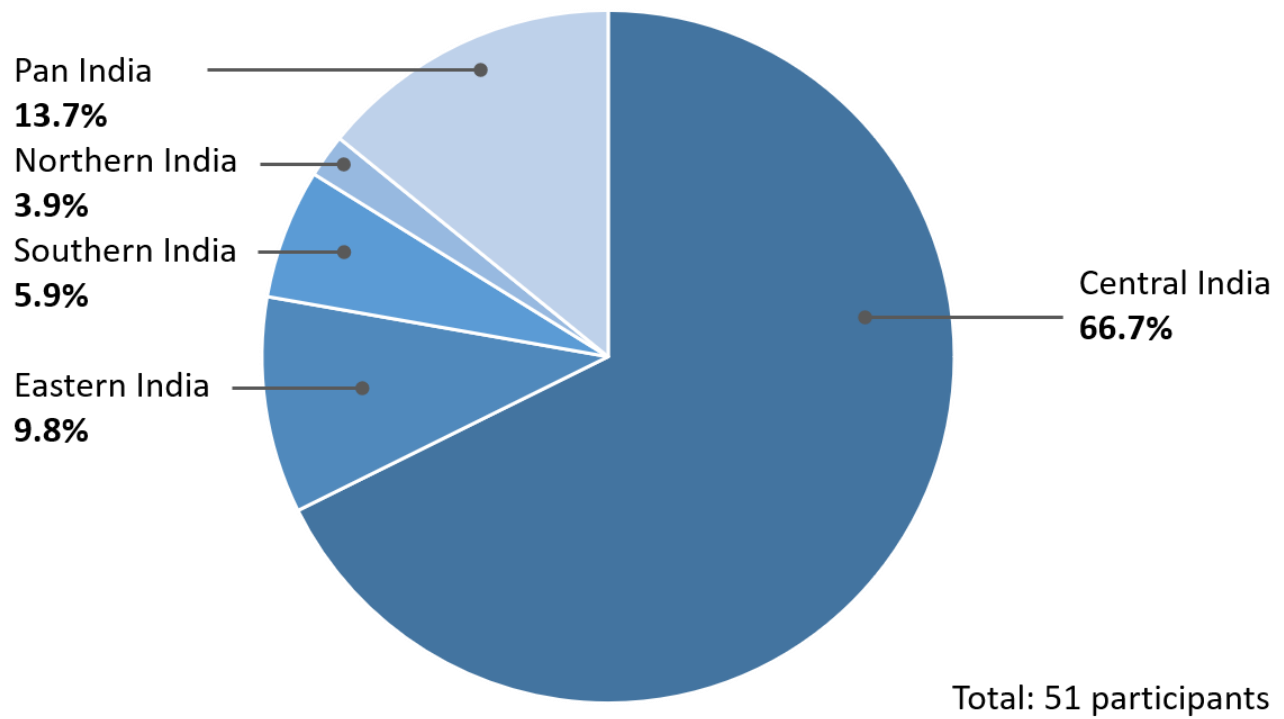
1. Which options do farmers have to sell their intercrop produce (organic cotton-based system)?
2. What policies/schemes are there to support farmers in diversifying their income or selling diversified products?
3. What can farmers do to be able to sell more products than cotton?
4. What could their partners (in certification, trading, extension) do to enable farmers to sell more products?
5. Do you see missing links in the connection of farmers to markets, and what could be done to improve that?
6. What difficulties do you face as Farmer Producer Organization buying different products? (Challenges to handle different products on the supply and demand side)
7. How much production is needed to sell the intercrop produce? (economy of scale)
8. Are there minimum production quantities necessary to trade crops successfully? (specifically from one sourcing region or even farm)
9. How are those trading platforms structured? Does every farmer need to transport their produce to the FPO's main quarter? Is there an intermediate transport, or do the FPOs pick it up at every farm?
10. What products are undersupplied on local markets that could perhaps be supplied by farmers in the area?
11. Alternatively, what markets exist for products that target farmers do or could produce?
12. What are the risks associated with the identified markets?
 - a. Low commodity prices?
 - b. Limited demand?
 - c. Rapid price fluctuations?
 - d. Competition from other existing or potential suppliers?
 - e. High marketing costs that may make supply uncompetitive?
 - f. Quality and certification standards that may be difficult to meet?
13. Are the identified markets presently being supplied, and if so, would the proposed linkage affect the livelihoods of other farmers by removing their market opportunities or leading to oversupply and lower prices?
14. How are farmers linked to buyers? What is the type of market linkage?
 - a. Farmer to domestic trader
 - b. Farmer to retailer
 - c. Linkages through a leading farmer
 - d. Linkages through cooperatives
 - e. Farmer to agro-processor
 - f. Farmer to exporter
 - g. Contract farming
15. What marketing strategies would you recommend to overcome barriers?
16. Are Participatory Guarantee Systems in practice?

2 Supplementary Figures and Tables

2.1 Supplementary Figures



Supplementary Figure S1: Study area, focused on the main cotton-producing states in India.



Supplementary Figure S2: Regional distribution of all stakeholders interviewed for the ‘technical’ and the ‘market’ stakeholder interviews.

2.2 Supplementary Tables

Table S1: List of reviewed policy documents

No.	Reviewed Policy Document	References
1.	Food Safety and Standards - Organic Foods	Food Safety and Standards (Organic Foods) Regulation, 2017, 1 (2021). https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Organic_Food_05_06_2022.pdf
2.	FPCs Assessment Report	GIZ. (2019). Assessment of Farmer Producer Companies (FPCs) in Karnataka. https://www.fpojuction.com/thematic-details/Assessment-of-Farmer-Producer-Companies-(FPCs)-In-Karnataka
3.	BPKP – Guidelines	Government of India. (n.d.). Bharatiya Prakritik Krishi Paddhati (BPKP). https://naturalfarming.niti.gov.in/wp-content/uploads/2021/09/Guidelines_of_BPKP.pdf
4.	NPOP – Guidelines	Government of India. (2014). National Programme for Organic Production (NPOP) (pp. 1–221). Department of Commerce, Ministry of Commerce and Industry. https://apeda.gov.in/apedawebsite/organic/organic_contents/national_programme_for_organic_production.htm
5.	NPOP - Training Manual	Government of India. (2018). National Programme for Organic Production: A Training Manual. Agricultural and Processed Food Products Export Development Authority (APEDA) Ministry of Commerce and Industry, Government of India. http://apeda.gov.in/apedawebsite/organic/ORGANIC_CONTENTS/National_P
6.	NMNF - Operational Guidelines	Government of India. (2022). National Mission on Natural Farming: Operational Guidelines (pp. 1–22). Integrated Nutrient Management Division Department of Agriculture & Farmers Welfare Ministry of Agriculture & Farmers Welfare. https://naturalfarming.dac.gov.in/uploads/Final_Guidelines.pdf

7.	PKVY - Operational Manual	Government of India. (2017). Paramparagat Krishi Vikas Yojana (PKVY): Manual for District-Level Functionaries. In Manual (pp. 1–23). Ministry of Agriculture and Farmers Welfare. https://www.indiaspend.com/h-library/paramparagat-krishi-vikas-yojana.pdf
8.	Model Organic Farm - Guidelines	Guideline for Model Organic Cluster Demonstration and Model Organic Farm under Paramparagat Krishi Vikas Yojana (PKVY) (April 2017). Available from http://agricoop.nic.in/sites/default/files/model%20organic%20cluster%20demonstration%20and%20model%20organic%20farm%20guidelines%20dated%2003.04.2017.pdf
9.	NPOF - Consolidated report	Government of India. (2011). Network project on organic farming. In Consolidated report 2004-11 (pp. 1–218). https://iifsr.icar.gov.in/icar-iifsr/npof/data/uploads/files/npof_consolidated-report_2004-2011_final.pdf
10.	NPOF - Guidelines	Government of India. (2010). Guidelines on National Project on Organic Farming. In Guidelines (pp. 1–35). Ministry of Agriculture & Farmers Welfare. https://agriwelfare.gov.in/sites/default/files/gnpof11511.pdf
11.	Organic Farming Policy – Karnataka	Government of Karnataka. (2017). Organic Farming Policy - 2017. In Policy Document (Issue G.O. No. AGD/48/ACT/2017, pp. 1–28). Department of Agriculture, Government of Karnataka. http://www.indiaenvironmentportal.org.in/content/444216/karnataka-organic-farming-policy-2017/
12.	Organic Farming Policy – Madhya Pradesh	Government of Madhya Pradesh. (2010). State Policy on Organic Farming in Madhya Pradesh. https://ums.rvskvv.net/TaskForce/Organic_farming_policy_MP.pdf
13.	Organic Farming Policy – Rajasthan	Government of Rajasthan. (2017). Rajasthan Organic Farming Policy (pp. 1–15). Government of Rajasthan. https://cuts-cart.org/pdf/Rajasthan_Organic_farming_Policy-2017.pdf
14.	Organic Farming Policy – Sikkim	Government of Sikkim. (2011). State Policy on Organic Farming Government of Sikkim. In Policy Brief (pp. 1–32). Sikkim Organic Mission, Food Security & Agriculture Dev. Department. https://scstsenvis.nic.in/WriteReadData/links/Sikkim%20Organic%20Policy%202015-401740061.pdf
15.	Organic Farming Policy – Odisha	Odisha Organic Farming Policy, 1 (2018). https://agri.odisha.gov.in/sites/default/files/2021-05/Notification%20on%20Odisha%20Organic%20Farming%20Policy%202018%20%281%29.pdf
16.	MOVCDNER - Operational Guidelines	Government of India. (2018). Mission Organic Value Chain Development for North Eastern Regions (MOVCDNER): OPERATIONAL GUIDELINES. In Operational Guidelines (pp. 1–34). Integrated Nutrient Management Division, Department of Agriculture, Cooperation and Farmer's Welfare. https://movcd.dac.gov.in/resources/Guidelines/MOVCD-NER_Guidelines.pdf

17.	Organic Agriculture Act - Uttarakhand	Uttarakhand Organic Agriculture Act, 2019, 1 (2019). https://highcourtofuttarakhand.gov.in/files/Organic_Agriculture_Act,_2019.pdf
18.	Organic Farming Case Study - Uttarakhand	Shanker Meena, V., & Sharma, S. (2015). Organic farming: A case study of Uttarakhand Organic Commodity Board. <i>Industrial Pollution Control</i> , 31(2), 203–208. www.envirobiotechjournals.com
19.	PGS - India Organic certification Programme	Sharma, G., & R, S. (n.d.). Introduction to revised Participatory Guarantee System (PGS)-INDIA Organic certification Programme (pp. 1–14). https://pgsindia-ncof.gov.in/uploads/docs/1654670993881210202199632Final%20%20Article%20E%20Module%20Srinivas.pdf
20.	Organic Certification Guide: Jharkhand	Singh, P. (2012). Organic Certification: An Introduction (pp. 1–16). Jharkhand State Horticulture Mission and Organic Farming Authority of Jharkhand. http://www.organicjharkhand.in/Dimg/2387_10-12_%20javic%20prmanikaran.pdf
21.	Indian Organic Sector: Vision 2025	YES Bank, & Ingenus Strategy and Creative Research. (2016). Indian Organic Sector: Vision 2025 (pp. 1–68). YES BANK. https://commerce.gov.in/wp-content/uploads/2020/02/MOC_636016030908099515_Indian_Organic_Sector_Vision_2025_15-6-2016.pdf
22.	NBAP – Action Plan	Government of India. (2019). Implementation of India’s National Biodiversity Action Plan: An Overview (pp. 1–198). Ministry of Environment, Forest and Climate Change, Government of India. https://www.cbd.int/doc/world/in/in-nbsap-other-en.pdf
23.	NSMA - Operational Guidelines	Government of India. (2014). National Mission for Sustainable Agriculture (NMSA) Operational Guidelines (pp. 1–100). Department of Agriculture & Cooperation, Ministry of Agriculture. https://nmsa.dac.gov.in/pdfdoc/NMSA_Guidelines_English.pdf
24.	SHM - Operational Guidelines	Government of India. (2016). Operational Guidelines for implementation of Soil Health Management (SHM). https://nmsa.dac.gov.in/pdfDoc/SHM_Guidelines472016.pdf
25.	NFSM - Implementation Manual	Government of India. (2017). National Food Security Mission (NFSM) Manual for District-Level Functionaries. https://www.darpg.gov.in/sites/default/files/National%20Food%20Security%20Mission.pdf
26.	NMOOP - Operational Guidelines	Government of India. (2014). <i>National Mission on Oilseeds and Oil Palm (NMOOP) Operational Guidelines</i> (pp. 1–55). Oilseeds Division, Department of Agriculture & Farmers Welfare, MoA & FW. https://agriwelfare.gov.in/Documents/NMOOP2014.pdf

27.	RKVY - Operational Guidelines	Government of India. (2017). <i>Rashtriya Krishi Vikas Yojana-Remunerative Approaches for Agriculture and Allied sector Rejuvenation Operational Guidelines</i> (pp. 1–38). Ministry of Agriculture & Farmers Welfare. https://rkvy.nic.in/static/download/pdf/RKVY_14th_Fin_Comm.pdf
28.	PMKSY - Operational Guidelines	Government of India. (2017). Pradhan Mantri Krishi Sinchayee Yojana (PMKSY). In <i>Implementation Guidelines</i> (pp. 1–56). Ministry of Water Resources, River Development and Ganga Rejuvenation. https://pmksy-mowr.nic.in/aibp-mis/Manual/MoWR%20-%20PMKSY-booklet%20final.pdf
29.	eNAM – Operational Guidelines	Government of India. (2016). Operational Guidelines for Promotion of National Agriculture Market (NAM) through Agri-Tech Infrastructure Fund (ATIF) (pp. 1–28). Ministry of Agriculture and Farmers’ Welfare. https://enam.gov.in/web/docs/namguidelines.pdf
30.	MKSP - Guidelines	Government of India. (2010). Mahila Kisan Sashaktikaran Pariyojana (MKSP) (pp. 1–18). Ministry of Rural Development. https://usrlm.uk.gov.in/files/EOI_for_Mahila_Kisan_Shshaktikaran_pariyojana.pdf
31.	MANAGE – Info	Saravanan, R., Ashwini, D. and Darshan, N.P., 2020. Agricultural Extension and Advisory Services: Serving Farming Community by Agripreneurship Amid COVID-19. Working Paper 4, MANAGE Centre for Agricultural Extension Innovations, Reforms and Agripreneurship, National Institute of Agricultural Extension Management (MANAGE), Rajendranagar, Hyderabad. https://www.manage.gov.in/publications/working%20papers/MANAGE_Working%20Paper%204-2020.pdf
32.	KVK - ICAR	Indian Council of Agricultural Research. (2006). Handbook of Krishi Vigyan Kendras (KVKs). Directorate of Extension, ICAR. https://kvk.icar.gov.in/