9.1 Project Name: e- Communication: Dissemination of Cotton Production Technology

Dr. S.M. Wasnik (PI); Co-PIs- Dr. S. Usha Rani, Dr. O.P. Tuteja

Importance of the study: E-Communication network greatly helped the public sector organizations to disseminate timely advisory to cotton farmers. Further, propagating the relevant and need based information in local languages helped farmers take timely crop management decisions. The Cotton App developed by ICAR-CICR was well received by the cotton stake holders, as the app was simple and user friendly with all informationabout cotton cultivation, including improvement, production, and protection.

Salient findings – 2019-20:

Farmer's database
➢ A total of 1,60,661farmers were registered for three centres Nagpur (1,27,231) Coimbatore (10,768), Sirsa (22,662)

Delivery of voice messages
➢ Uploaded 91,54,264 (81,02,023, 5,49,764, 5,02,477 from Nagpur, Coimbatore, Sirsa, respectively) during theyear 2020. Noise free and clear recorded voice calls on 108 messages on cotton production and protection technologies to the farmers in Marathi, Tamil & Hindi languages.
➢ Out of 39,98,710 (35,30,341 2,41,598, & 2,26,771 from Nagpur, Coimbatore, Sirsa, respectively) was received by the farmers regarding mitigation measures for tackling extreme weather conditions like rains, agro-practices, pest attack, pink bollworm, etc.

Cotton app
- ➤ CICR Cotton app is available on Google Play store and it is free to download & use
- ➤ Till date, 5000+ users have downloaded this app, and the rating for the app is 4.1 out of 5
- ➤ The app is available in five languages namely, English, Hindi, Marathi, Gujarati, Kannada
- ➤ The CICR Cotton app includes zone wise information on
    - ▪ Varieties & Hybrids:Bt Varieties & Hybrids, etc.
    - ▪ Crop Production: Cropping system, Nutrient management, Sowing time, etc.
    - ▪ Crop protection: IPM/IRM strategies, Disease Management.
    - ▪ Farmers Outreach: e-kapas/e-communication, MGMG, FLD's, IRM, TSP. KVK
    - ▪ Facts & Figures:Area production & productivity of cotton in state, MSP, etc.

9.2 Project Name: Development of Extension Model for Promoting the Production of Extra Long Staple Cotton in India

Dr. S. Usha Rani (PI); Co-PIs- Dr.S. Manickam, Dr.K. Sankaranarayanan, Dr.M. Sabesh, Dr. M. Amutha, Dr. P. Valarmathi, Dr. S. M. Wasnik

Importance of the study: As India accounts for 40% of the global share in the fine and super fine cotton yarn trade, it is important to identify the constraints of ELS cotton production and suggest solutions. There are good varieties, hybrids and other technologies available for improving the production of ELS cotton. But, diffusing them to end users through an appropriate tailor-made diffusion model, documenting the concerns of end users regarding cultivation and marketing of ELS cotton and providing empirical evident data for finalizing the policy are the pre-requisites. Similarly, the concerns of other stakeholders in ELS cotton and their expectations from the research and policy sectors also need to be collected, documented and brought to the attention of the concerned. Hence, to provide a comprehensive review of evidence on ELS cotton production sector considering information from published literature, document the concerns of stakeholders, provide empirical evidences from the potential ELS cotton growing districts and develop an extension model appropriated for promoting ELS cotton in India, an extension research has been planned.
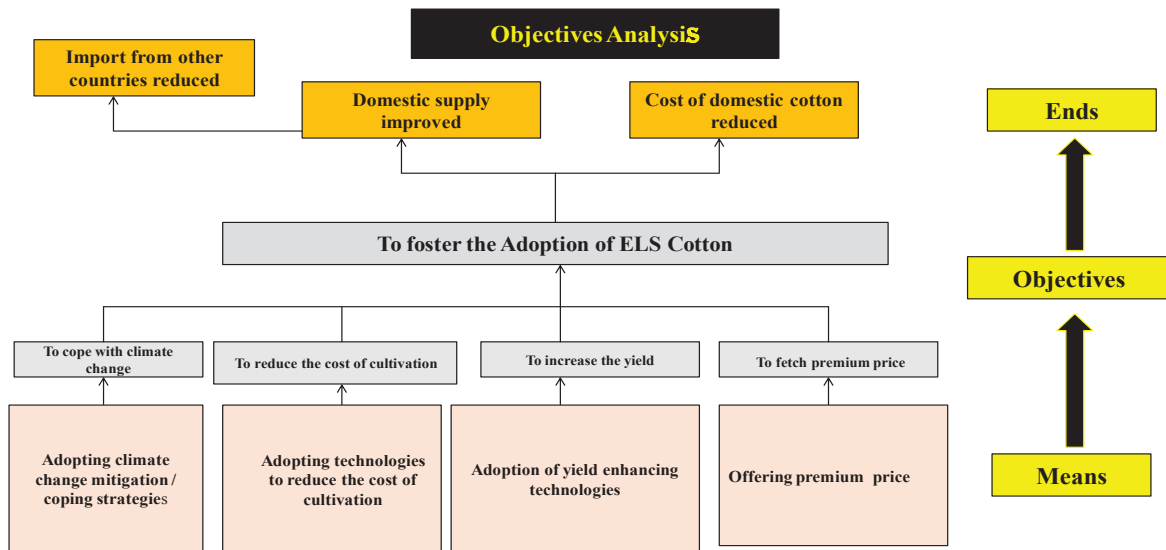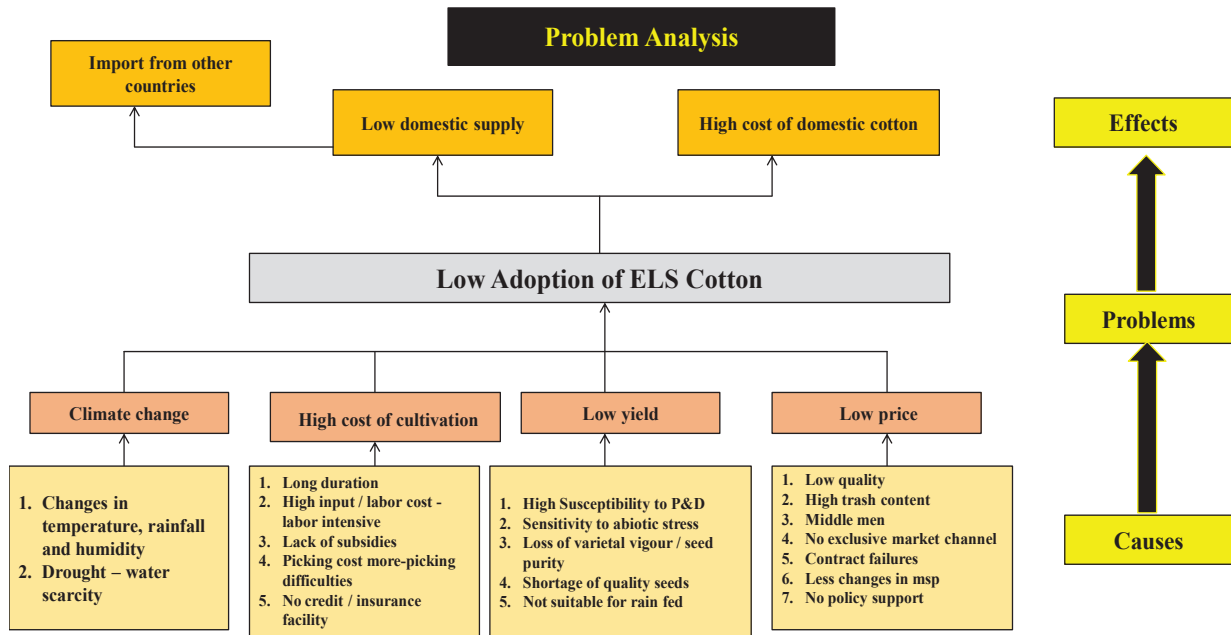
Salient findings
Perspectives of ELS cotton growers on constraints faced in ELS cotton cultivation were collected through PRA - Problem tree technique by conducting five Focus Group Discussions (FGDs) in Tamil Nadu and Karnataka. The major reasons for low adoption of ELS cotton are the high cost of cultivation, low yield, low price and climate change. The root causes for the reasons cited above are changes in climatic pattern, long duration, high input/labor (including picking) cost, lack of subsidies, picking difficulties, no credit/insurance facility, high susceptibility to P&D, sensitivity to abiotic stress, loss of varietal vigor/seed purity, shortage of quality seeds, low quality, high trash content, middle men, no exclusive market channel, contract failures and lack of policy support.
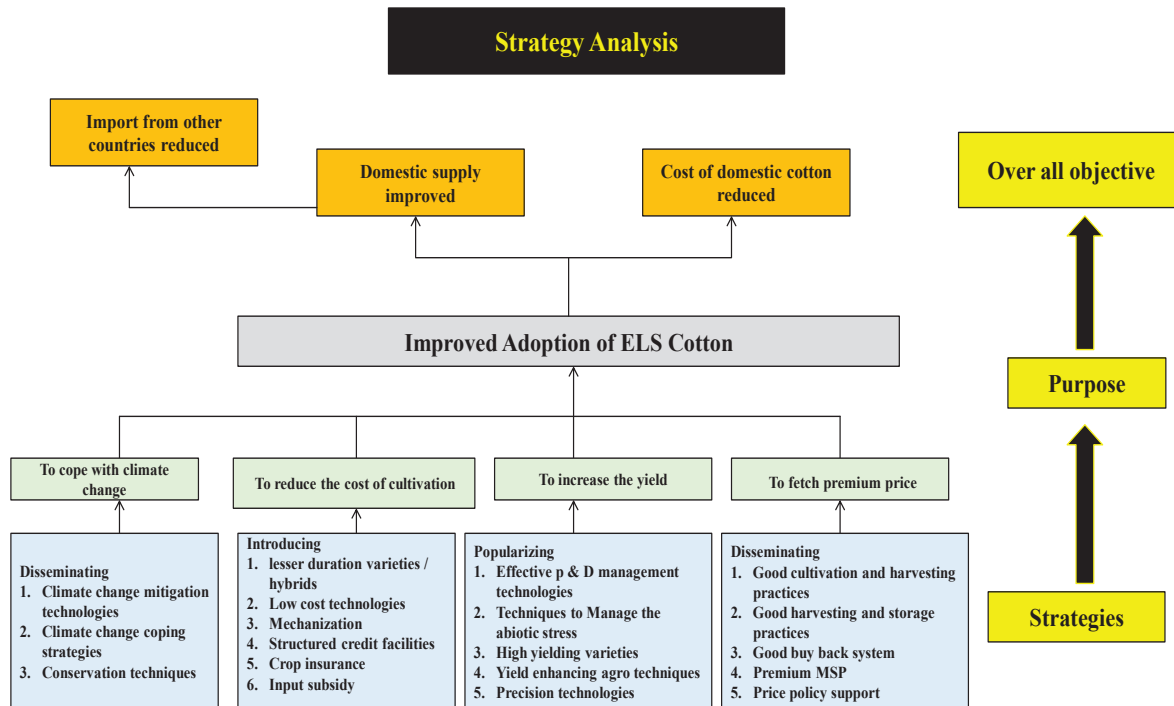The objective analysis revealed means to foster the adoption of ELS cotton in India. They were adopting climate change mitigation/coping strategies, adopting low-cost technologies, adopting yield enhancing technologies to increase the yield, reducing the imports, increasing the domestic supply and reducing the cost of domestic ELS cotton.

The strategy analysis revealed the strategies viz., disseminating climate change mitigation technologies, climate change coping strategies (including conservation techniques), introducing early maturing varieties/hybrids, low-cost technologies (production, biotic and abiotic stress management), mechanization, structured credit facilities, crop insurance and input subsidy, precision technologies to increase the yield, disseminating good cultivation and harvesting practices, good harvesting and storage practices, good buy back system, premium MSP and price policy support need to be implemented to foster the adoption of ELS cotton.

Perspectives of ELS Cotton Growers on Constraints Faced in ELS Cotton Cultivation – PRA (Problem tree technique)

Problem Analysis

Import from other countries

Low domestic supply

High cost of domestic cotton

Effects

Low Adoption of ELS Cotton

Problems

Causes

Climate change
1. Changes in temperature, rainfall and humidity
2. Drought – water scarcity

High cost of cultivation
1. Long duration
2. High input / labor cost - labor intensive
3. Lack of subsidies
4. Picking cost more-picking difficulties
5. No credit / insurance facility

Low yield
1. High Susceptibility to P&D
2. Sensitivity to abiotic stress
3. Loss of varietal vigour / seed purity
4. Shortage of quality seeds
5. Not suitable for rain fed

Low price
1. Low quality
2. High trash content
3. Middle men
4. No exclusive market channel
5. Contract failures
6. Less changes in msp
7. No policy support

Objectives Analysis

Import from other countries reduced

Domestic supply improved

Cost of domestic cotton reduced

Ends

To foster the Adoption of ELS Cotton

Objectives

Means

To cope with climate change

To reduce the cost of cultivation

To increase the yield

To fetch premium price

Adopting climate change mitigation / coping strategies

Adopting technologies to reduce the cost of cultivation

Adoption of yield enhancing technologies

Offering premium price

Strategy Analysis

Import from other countries reduced		Over all objective
Domestic supply improved	Cost of domestic cotton reduced	

Improved Adoption of ELS Cotton

Purpose

To cope with climate change	To reduce the cost of cultivation	To increase the yield	To fetch premium price
Disseminating 1. Climate change mitigation technologies 2. Climate change coping strategies 3. Conservation techniques	**Introducing** 1. lesser duration varieties / hybrids 2. Low cost technologies 3. Mechanization 4. Structured credit facilities 5. Crop insurance 6. Input subsidy	**Popularizing** 1. Effective p & D management technologies 2. Techniques to Manage the abiotic stress 3. High yielding varieties 4. Yield enhancing agro techniques 5. Precision technologies	**Disseminating** 1. Good cultivation and harvesting practices 2. Good harvesting and storage practices 3. Good buy back system 4. Premium MSP 5. Price policy support

Strategies

9.3 Project Name: Impact analysis of shift in global cotton trade on Indian cotton scenario

Dr. Isabella Agarwal (PI)

Importance of the study: The global cotton market is shifting rapidly, from historical producers and consumers to new markets. The transition period would also induce changes in cotton trade flows resulting in new importers and exporters on the world market. In comparison to other countries, India is a far better and stable sourcing destination for international buyers. Empirical analysis and outcome of this study would give an insight of where India stands in the global cotton trade scenario and what are the measures to be taken to bring it to the forefront and benefit all the stakeholders in the cotton value chain to the maximum extent possible.

Salient findings

- Cotton farm profitability was seen in the cotton-growing states during most of the years (Table 9.3.1). A profit margin of 35 to 52% profit margin over Cost C2 was registered over the years.

- A unit increase in domestic production of cotton would increase the demand for Indian cotton by 6.02%.

- TFP growth rate during 2010 to 2016 was in decreasing trend (-6.8%) in almost all the cotton-growing States except Tamil Nadu to the tune of 4.84%.

- NPC explains the comparative advantage of Indian cotton mainly amongst China and Pakistan.

- Thailand and Taiwan were less stable in our cotton export, which must be taken care.

- RSCA indices reveal India's comparative advantage has started increasing over years after 2016.

- Commodity composition effects suggest that India concentrates on slow growth markets for Cotton (Table 9.3.2). The results of market distribution effects show that Indian export of Cotton is concerted in

the markets where demand is rising faster than world demand.

- India, rather than relying on China for its raw cotton exports, itmust concentrate on other potential importers such as Vietnam, Bangladesh, Pakistan, Indonesia and other country's group, which includes Hong Kong, Thailand and Malaysia, which depends on imports to meet the requirements of their export focused garment industries.

- In future. India needs to establish world class-manufacturing units along the cotton value chain to exploit the opportunities to produce finished products from raw cotton and export the same. This would absorb surplus domestic cotton and in turn provide additional employment opportunities.

Table 9.3.1:State wise Cotton Farm Profitability

States	Value of Product (VOP) Rs.		Ratio of VOP to Cost A2		Ratio of VOP to Cost C2	
	2004-2010	2010-2017	2004-2010	2010-2017	2004-2010	2010-2017
Andhra Pradesh	42132.27	66604.35	1.99	2.00	1.13	0.95
Gujarat	44101.97	82930.57	2.36	2.76	1.35	1.30
Haryana	40536.28	62792.25	2.68	2.85	1.15	1.01
Karnataka	20212.17	60558.63	1.95	2.61	1.18	1.21
Madhya Pradesh	31238.38	56341.07	2.18	3.01	1.12	1.06
Maharashtra	26068.83	67014.13	1.50	1.90	1.00	0.99
Odisha	33233.45	44841.07	2.40	2.33	1.21	0.94
Punjab	49773.12	70070.65	2.40	2.19	1.20	1.03
Rajasthan	36174.18	89909.22	4.27	5.21	1.52	1.48
Tamil Nadu	34431.43	78127.17	1.85	2.57	1.02	1.04

Table 9.3.2:Constant market Share analysis

Particulars	2011-2014	%	2015-2018	%
World Trade Effect	13238677	-15.37	47120288	53.29
Commodity Composition Effect	-8627779	114.54	41326011	46.74
Market Distribution Effect	15524605	-18.03	5958616	6.74
Competitiveness Effect	16243826	18.86	-5980061	-6.76
Change in exports	86108322	100.00	88424855	100.00