

**THE CONFEDERATION OF INDIAN TEXTILE INDUSTRY-
COTTON DEVELOPMENT AND RESEARCH ASSOCIATION'S
COTTON DEVELOPMENT PROJECTS
IN
LOWER RAJASTHAN
(2008-09 to 2016-17)**



Govt. of Rajasthan



Participating organisations:

- *Agriculture Department of State Govt. of Rajasthan.*
- *Confederation of Indian Textile Industry's Cotton Development and Research Association.*
- *Rajasthan Textile Mills Association, Jaipur.*
- *Bayer Crop Science, Mumbai.*



VASUNDHARA RAJE

CHIEF MINISTER RAJASTHAN

D.O. No. CM-DS(A)/(Agri)/06/28020
Jaipur, dated: 21.06.2006

Dear Patodiya

I have received your letter dated 12th June 2006 regarding cotton production and processing.

Thank you for your kind words. I would like to assure you that necessary arrangements for adequate supply of quality inputs to cotton farmers are being made.

With best wishes,

Yours sincerely,

Vasundhara Raje
(Vasundhara Raje)

Shri P.D. Patodia,
Chairman-Standing Committee on Cotton,
CITI-CDRA,
CITI-Cotton Development And Research Association,
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HIGHLIGHTS

- *The Confederation of Indian Textile Industry's "Cotton Development & Research Association (CITI CDRA)" with the blessings of Respected Smt. Vasundharaji Raje, the Hon'ble Chief Minister of Rajasthan launched Cotton Collaborative Project in 2008 to enhance cotton production and cotton yield in the rain dependent cotton growing areas of Lower Rajasthan.*
- *The project was implemented in Public Private Partnership (PPP) mode, involving the CITI CDRA, Agriculture Department of State Govt. of Rajasthan, Bayer Crop Science, Mumbai and Rajasthan Textile Mills Association (RTMA) in Banswara, Bhilwara, Rajsamand, Ajmer, Jodhpur, Nagaur and Pali districts for the past eight years.*
- *Systematic and continuous training to project farmers enabled them to adapt new production and plant protection technologies on a large scale.*
- *The officers of the State Agriculture Department, Scientists from Krishi Vigyan Kendras (KVK), Agriculture Research Stations (ARS), at Banswara and Ajmer, Scientists from Bayer Crop Science and the project coordinators were invariably involved in training the project farmers.*
- *For transferring technical knowhow to project farmer's events like awareness camps, Kisan Melas, Kisan Goshtis, Farmers Field Days, Farmers Field Schools (FFS) were conducted at regular intervals with the assistance of scientists from various institutions and officers from Agriculture Department.*
- *The CITI CDRA also implemented the Govt. of India's programme on Front Line Demonstration on Production and Integrated Pest Management in 756 villages from these districts directly benefitting 3346 farmers by way of input subsidy amounting to about Rs. 60.0 lakhs. (1.0 lakh =100000)*
- *In the collaborative project 76617 farmers having an area of 122092 hectares under cotton cultivation from 1407 villages from these districts were involved.*
- *The project boosted cotton production in Rajasthan to 17.0 lakh bales (1.7 million) in 2015 from 9.0 lakh bales (0.9 million) in 2007.*
- *Rajasthan cotton yield at 415 kgs of lint per hectare in 2007-08 reached 651 kgs of lint per hectare during 2011-12*
- *Changed cotton scene led to setting up 45 new ginning & pressing factories in the project areas.*
- *With the increase in production, 80% of the cotton requirements of local textile industry were met from local markets.*

P.D. Patodia,
Chairman, Standing Committee on Cotton, CITI

INTRODUCTION OF CITI (CDRA)

The Confederation of Indian Textile Industry (CITI) is committed and involved in cotton development activities in various cotton growing states through its extension arm the Cotton Development & Research Association (CDRA) for the past many years.

Citi believes that prosperity in textile industry can come through vibrancy focus and intensity in cotton's growth and development.

After the Govt. of India launched the Technology Mission on Cotton (TMC) the CITI CDRA'S cotton development efforts were directed in right earnest towards transfer of new production & Plant Protection Technologies by creating mass awareness among cotton growers about them and encouraging their adoption, improving availability of certified quality seeds and other inputs and establishing a linkage between cotton growers and textile industry.

INVOLVEMENT OF STATE AGRICULTURE UNIVERSITIES AND RESEARCH INSTITUTIONS IN IMPLEMENTATION OF COTTON PROJECTS:

To begin with a farmers meeting was organised in Gondal in Gujarat State in 2002 where over 25000 farmers had participated. Subsequently, the CITI CDRA consciously involved scientists from State Agriculture Universities and Research Institutions along with the State Agriculture Departments in all its development events. These efforts were essentially directed to compliment the efforts of state agriculture departments in improving production and productivity of cotton in various cotton growing states.

ASSOCIATION OF REGIONAL TEXTILE MILLS ASSOCIATIONS IN DEVELOPMENT EFFORTS:

Leading textile mills in various states are progressively getting associated with the CITI CDRA'S efforts between 2002 to 2007-08 in improving production and yield through the Regional Textile Mills Associations. As a part of these efforts the CITI CDRA organised a series of interactive meetings of the stakeholders like Textile Mills, input suppliers, research institutions, cotton traders and cotton farmers to address the issues confronting the country in improving yield and production of cotton.

CDRA'S CONSCIOUS EFFORTS TO ESTABLISH AND STRENGTHEN LINKAGES AMONG THE STAKEHOLDERS IN COTTON VALUE CHAIN.

Cotton being the mainstay of the textile industry in the country, the CCITI CDRA made strenuous efforts to identify the issues which created bottlenecks in improving productivity, quality and production of cotton in the country and to effectively address them by organizing a series of joint and interactive meetings of seed producers, distributors, cotton traders, research institutions, textile mills and connected govt. departments and agencies both at the Centre and State level. To

begin with , the CITI CDRA organized a joint meeting in December 2002 where high level officials of the Central and State Govts., representatives of textile industry and textile research associations, cotton seed producers, cotton trade and media participated in large numbers . These efforts not only created awareness among the concerned authorities /agencies regarding the problems faced by the different segments on cotton fronts but also helped in finalizing strategies to effectively deal with the issues. The environment of research organisations, various govt. agencies /organisations and regional mills associations came handy in giving momentum to the CITI CDRA's efforts to create awareness at the grass root level.

ASSOCIATION OF THE CDRA WITH IMPLIMENTATION OF MINI MISSIONS UNDER TMC:

After the Govt. of India launched the Technology Mission on Cotton (TMC) in 2000 and took up its implementation through four Mini Missions, the CITI CDRA successfully pleaded with the Govt. of India , the need for associating various stakeholders in cotton with the implementation of Mini Missions , particularly Mini Mission II for transfer of technology , Mini Mission III pertaining to modernisation of ginning & pressing factories and Mini Mission IV for upgrading market yards. These efforts yielded the desired result and Govt. of India agreed to associate NGOS like CITI CDRA and Cooperatives in implementing their Mini Missions, under the TMC in 2005-06. Thus the CDRA got involved in the implementation of Front Line Demonstration (FLD) Programme on Cotton Production and Pest Management sponsored by Ministry of Agriculture, Govt. of India from 2005-06 to 2013-14. For the first three years from 2005-06 the FLD programme was implemented in Vidharba region of Maharashtra State involving 2739 farmers and 26 villages from Nagpur and Buldhana districts . These farmers benefitted from input subsidy amounting to Rs. 55 lakhs (approx)._.

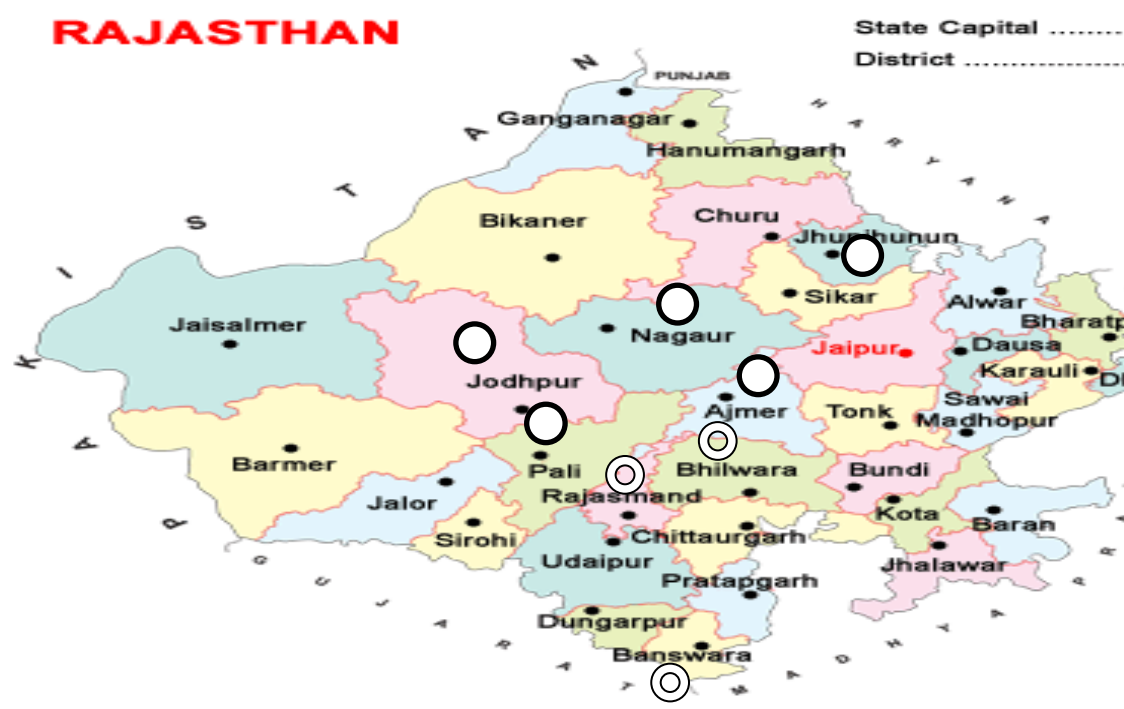
COTTON DEVELOPMENT ACTIVITIES IN RAJASTHAN:

The CITI CDRA has been consistently propagating the cause of increasing cotton yield in the country in general and in rain fed areas in particular. Among the northern cotton growing states cotton yield in Rajasthan was found comparatively lower than that of Punjab & Haryana . Lower yield in Rajasthan was attributed to lower yield in rain fed cotton growing areas of Southern & Central Rajasthan .Therefore, the CITI CDRA took up the matter with State Govt. of Rajasthan from time to time, bringing to their notice the above fact and need to improve cotton yield particularly in rain fed areas of Southern & Central Rajasthan. The then Chief Minister Mrs. Vasundharaji Raje vide her letter dtd 21.6.2006 , followed by another letter dated 3.5. 2008 appreciated the concern of the CDRA and desired it to propose an action plan to improve the situation.

ACTION PLAN:

The CITI CDRA along with Bayer Crop Science , Mumbai (BCS) proposed to the State Govt. of Rajasthan a project for enhancing cotton yield by adopting an inclusive growth model in public private partnership format (PPP) involving the key stakeholders in cotton value chain. The proposal, inter-alia , contemplated participation of agriculture department of State, CITI CDRA , BCS , Krishi Vigyan Kendras (KVKS) and Agriculture Research Stations (ARS) Banswara and Ajmer , in dissemination of technical know how among cotton growers through systematic training and guidance to them on the latest practices of cotton cultivation , effective management of pests and diseases of cotton has also integrated nutrient management by holding Kisan Melas, Farmers Meet, Farmers Field Schools, Awareness Camps and Mass Awareness events. The State Govt proactively considered the proposal in June 2008 and cotton collaborative project was launched in 2008-09 cotton season.

PROJECT AREAS:



◎ Phase-I – Banswara, Bhilwara and Rajsamand districts. (2008-09 TO 2011-12)

○ Phase-II- Ajmer, Jodhpur, Jhunjhunu, Nagaur and Pali districts (2012-13 TO 2015-16)

IMPLEMENTATION OF THE PROJECT:

The project was implemented in two phases . In the first phase (2008-09 to 2011-12) tribal district of Banswara and districts of Bhilwara and Rajsamand were covered, involving an area of 9900 hectares from 710 villages with 34217 participating farmers . In the second phase (2012-

13 to 2015-16) the project was implemented in Ajmer, Jodhpur, Nagaur and Pali districts in 87875 hectares with 42400 participating farmers from 697 villages. Apart from CITI CDRA , State Agriculture Department, Rajasthan Textile Mills Association (RTMA) and Bayer Crop Science (BCS) were involved in the execution of the project. The infrastructure for the project was financed by the CITI CDRA, RTMA and Bayer Crop Science.

STRATEGY ADOPTED FOR IMPLEMENTING THE PROJECTS:

In keeping with the guidelines issued by the Govt. of India in the Ministry of Agriculture which emphasised on introduction of effective system to develop closer coordination with state functionaries , Panchayat Raj Institutions, Indian Council of Agriculture Research (ICAR) and State Agriculture Universities (SAUS) I,, the CITI CDRA adopted a well thought out strategy while implementing FLD programme as also the cotton collaborative programme which inter-alia, aimed at the following :

INFRASTRUCUTURE TO EXECUTE PROJECT:

The CITI CDRA alongwith BCS created an infrastructure in each district to supplement the available infrastructure of the State Agriculture Department in the project areas for implementing the projects. The infrastructure so created comprised of project coordinators, project officers and scouts.

CLOSE COORDINATION WITH STATE AGRICULTURAL DEPT. AT DISTRICT LEVEL.

Office of the district Dy. Director of Agriculture (Extension) was actively associated with the selection of villages, selection of beneficiary farmers in keeping with guidelines for implementation of social component plan (SCP) for Scheduled castes (SC) and Tribals Sub-plan for Scheduled Tribes (ST) and Gender Budgeting giving preference to women cotton growers.

INVOLVEMENT OF SCIENTISTS OF KVKS/ARS/ARSS.

Scientists from Krishi Vigyan Kendras (KVK) of Bhilwara, Rajsamand, Banswara , Ajmer and Nagaur as also Agriculture Research Stations (ARS) at Banswara and Ajmer , functioning under Maharana Pratap Agriculture University, Udaipur and Swami Keshvanand Rajasthan Agriculture University , Bikaner respectively were invariably involved in awareness programmes, farmers field visits, Kisan Goshtis and Kisan Melas with a view to disseminate the knowledge regarding new technologies on cotton crop management in general and effective pest management in particular among the project farmers



Visit of scientists from Krishi Vigyan Kendra (KVK), Ajmer to the Project farm.

TRAINING TO THE SCOUTS:

Scientists from KVKS and ARS as also officers from Dept. of Agriculture, Scientists from Bayer Crop Science, Mumbai and Project Coordinators imparted training to the scouts periodically. The training covered the whole gamut of cotton cultivation including Integrated Nutrient Management (INM) and Integrated Pest Management (IPM). They were provided with literature regarding latest technologies of cotton. Every fortnight trainings were organised by Project Officers/ Project Coordinators for the scouts so as to cover specific areas of inspection/survey/observation to be carried out during the next fortnight.

TRAINING TO PROJECT FARMERS:

Fortnightly training camps, Farmers Field School days were organised for project farmers to provide them crop stage based training depending on the situation. They were provided practical training on identification of cotton pests, symptoms of damage and management of these pests. The trainings focussed on safe use of pesticides, Economic Threshold Level (ETL) of pests, ecofriendly insects and their conservation. Literature was provided on different aspects of cotton cultivation. Project farmers benefited from institutional and out of campus training provided by the project coordinators with the assistance from officers of State Agriculture Department, Scientists from KVKS, ARS Banswara/Ajmer and also scientists from BCS. For transferring technical knowhow 2640 events like awareness camps, Kisan Melas, Kisan Goshtis, Farmers Field Days, Farmers Field Schools were conducted with the assistance from scientists and officers from

Agriculture Department. 231538 farmers participated in the above events for the transfer of technical knowhow.

MASS AWARENESS:

To create atmosphere conducive for changing the mind set of project farmers the CITI CDRA and other participating organisations not only systematically organised trainings of project farmers , ensured day to day contacts with the project farmers through trained scouts but also organised Kisan Melas on a large scale during this period .

Date	Place	Chief guest	No. of farmers participated	Participation of Trade, Industry and commerce	Special guests
19.10.2011	Potla village, District: Bhilwara	Shri Mukund Chaudhary, Vice Chairman, CITI	2000	Local Textile Mills, Cotton Traders, G & P factories , Commission Agents	-
6.12.2011	Village: Badi Badwas, Kushalgarh district: Banswara	Hon. Minister for Tribal Welfare and Panchayat Raj, Govt. of Rajasthan	Over 4000	Textile Mills, Cotton Traders, Scientists of KVK, Adityas	Shri A.B.Joshi IAS, Textile Commissioner, Shri B.K.Sharma, CMD , Cotton Corpn. of India , Dr. Grimmig ,Head Business Development, Bayer Crop Science, Shri Suresh Kotak, Chaiman, Indian Society for Cotton Improvemwent
26.7.2013	Village Soyala , Dist: Jodhpur	Dr. A.K.Dahama, Vice Chancellor Swami Keshvanand Rajasthan Agriculture University Bikaner	About 5000	Textile Mills, Cotton Traders, Scientists of KVK, Adityas	Shri Manaram Chaudhary, Jt.Director of Agriculture, Jodhpur
31.10.2014	Village: Picholiya Dist: Ajmer	Smt.MadhubParoda Ex- Zilla Parishad Pramukh, Ajmer	Over 600	Textile Mills, Cotton Traders, Scientists of KVK, Adityas	Dr. Urusula Holzhusera, Counsellor, Food and Agriculture, Embassy of Federal Republic of Germany, New Delhi., Dr. N.S. Rathore, Membe, r Kisan Ayog , Rajasthan
28.10.2015	Bijay Nagar, Dist: Ajmer	Shri M.B.Lal Ex CMD CCI and Advisor Technology Mission on Cotton GOI	More than 3000	Local Textile Mills, Ginners, Cotton Traders, Adityas, Scientists of KVK and Dy.Director of Agriculture Ajmer	Shri Suresh Kotak, Chaiman Indian Society for Cotton Improvement.



Dr. R.G.Sharma, Dy. Director of Agriculture (Extension), Jodhpur district participating in training programme at Jodhpur.

KISAN MELA AT POTLA , DIST: BANSWARA



Guests at the Farmers Meet at Sawariyaji mandir, Potla , Dist: Bhilwara (L to R): Shri Suresh Kotak , Chairman, Indian Society for Cotton Improvement, Dr. Grimmig, Head , Business Development, BCS. Shri Mukul Choudhary,Vice Chairman , CITI , Shri P.D.Patodia,Chairman Standing Committee on Cotton , CITI, Shri R.L.Nolkha, Chairman, Rajasthan Textile Mills Association and Shri Shirish Shah, Partner , Bhaidas Currsandas & Sons- 19th October 2011.



Shri R.L.Nolkha, Chairman, Rajasthan Textile Mills Association welcoming Ms. Ursula Holzhusera, Counsellor, food and Agriculture, Embassy of Federal Republic of Germany, New Delhi at Kisan Mela held at Picholiya village in Ajmer district in October 2014.

FARMERS GATHERING AT BADIBADWAS, KUSHALGARH, DIST: BANSWARA



A view of farmers gathering at farmers meet at village Badi Badwas , Kushalgarh , district Banswara held on 6th December 2011.



A view of farmers gathering at Farmers Meet at village Soyala, Dist: Jodhpur held on 26th July 2013

KISAN MELA AT BIJAYNAGAR, DIST: AJMER



Shri J.C.Ladda, Shri D.P.Mangal, Shri R.L.Nolkha, Shri P.D.Patodia, Shri M.B. Lal, Shri Suresh Kotak and Shri Bhnwar Singh Palada are seen on the dias the occasion of Kisan Mela at Bijaynagar (Ajmer district) on 28.10.2015



A view of farmers gathering at Kisan Mela held at Bijaynagar on 28.10.2015

MONITORING OF THE PROJECT:

A. Project monitoring at district level-

A team comprising of the following was constituted in each district to monitor the progress of the project on monthly basis:

1. Dy. Director Agriculture (extension) – Chairman.
2. Scientists from KVKs /ARS.
3. Asstt. Director Agriculture attached to the concerned Zilla Parishad
4. Project Coordinator-Member Secretary.
5. Territory Manager of BCS.

B. Project Review at State Level:

A review of the project was taken periodically at State level by the Commissioner for Agriculture/ Director of Agriculture, with the participation of the following:

1. Commissioner for Agriculture/Director of Agriculture.
2. Dy. Directors of Agriculture (Extension) of the concerned district.
3. Representative of CITI CDRA
4. Representative of RTMA
5. Representative of BCS



CITI-CDRA- BCS monitoring team discussing problems of cotton growers after farm visit in Rol Chandavat of Nagaur district

II. FRONT LINE DEMONSTRATION PROGRAMME ON COTTON PRODUCTION TECHNOLOGY (PT) & INTEGRATED PEST MANAGEMENT (IPM)

After implementing Front Line Demonstration Programme in Maharashtra from 2005-06 to 2007-08 the CDRA shifted the programme to Southern & Central Rajasthan and implemented it from 2008-09 to 2013-14 alongwith the Cotton Collaborative Project. After the Govt. of India's decision to discontinue association of NGOS and Cooperatives from implementing FLD programme from 2014-15 , the CITI CDRA in association with Bayer Crop Science continued the FLD programme in Ajmer, Jodhpur, Nagaur , Pali and Jhunjhunu districts in 2014-15 and 2015-16

OBJECTIVES: -

FLDS ON PRODUCTION TECHNOLOGIES:

1. To Transfer modern / improved cotton production and plant protection technologies among cotton farmers by imparting training to the farmers, organizing field visits, arranging field days and kisan melas and conducting awareness campaigns;
2. To demonstrate high yielding varieties and hybrids including approved Transgenic Cottons (Bt Cottons) suited for various agro-climatic conditions in districts of Central and Southern Rajasthan.

3. To increase yield, reduce cost of pesticides and production cost and improve the income of cotton growers through Integrated Nutrient Management (INM), Integrated Pest Management (IPM), use of bio-fertilizers, use of bio-pesticides, water management, inter-cropping system, encouraging installation of drip irrigation, etc.;
4. To promote quality consciousness among cotton farmers through improved practices for picking of kapas in fields, its storage and transportation for marketing to market yards.
5. Main aim was to enlighten the cotton farmers through transfer of knowledge in respect of the above so as to help them to improve their economic conditions.



Nursery for filling the gaps for ensuring optimum plant population.



DR. R.S.Tripathi , Project Coordinator alongwith Shri P.S.Bhati , Project Officer, Pali district discussing gap filling with project farmer.

FLDS ON INTEGRATED PEST MANAGEMENT (IPM):

Objectives were as under:

1. To create awareness amongst cotton growers about the IPM Technology and its components, thereby ensure reduction in plant protection cost, making cotton cultivation profitable.
2. To disseminate IPM Technology.
3. To reduce pesticide consumption on cotton crop, and increase in net profit to cotton growers .
4. Need based use of insecticides on the basis of need based use of insecticides on ETL basis through farmers trainings and field visits/monitoring.
- 5.To propagate use of bio-pesticides, low cost technology like use of perm on traps, Yellow sticky papers, bird purchasers, etc to reduce cost of plant protection



Shri Sushil Desai, Asstt. Gen. Manager, BCS Shri S.A.Ghorpade, Advisor, CITI CDRA, Shri C.S.Sharma Regional Manager, BCS Jaipur inspecting the project plot with ridges and furrows..

Technology Demonstrated under FLDs for production technology:

The production technology to be demonstrated at the above Front Line Demonstration Villages was recommended / approved by Zonal Research and Extension Advisory Committees attached to the Swami Keshavanand Rajasthan Agricultural University, Bikaner and Agriculture Department. The technologies to be adopted under FLDs on P.T. were discussed with the scientists of ARS/KVKs and finalized for demonstration in the FLD Villages . These included the following:-

- a) Introduction of better performing Bt. Cotton hybrids for sowing along with refugee crop;
- b) Intercropping of Moth Bean in root-rot affected areas, particularly in Jodhpur District
- c) Adopting gap filling to ensure proper plant population for maximizing yield.
- d) Encourage adaption of Integrated Nutrient Management (INM) including use of micro-nutrients based on soil tests.
- e) Weed free clean cotton cultivation including cleaning of borders, free from parthenium and other weeds;
- f) ETL based pest and disease management through continuous surveillance by scouts and farmers;
- g) Preparation of ridges and furrows at the time of last hoeing for in-situ moisture conservation and run-off excess rain water;
- h) Arresting terminal growth by nipping of terminal shoots at shoulder heights i.e.10th-12th node
- i) Checking flower and boll shedding through P.G.R., use of Zinc Sulphate and N.A.A. (Plano fix);
- j) Need based use of pesticides including use of bio-pesticides;
- k) Training the farmers regarding safe use of pesticides;
- l) Clean harvest of cotton for better quality of lint , by taking care at kapas picking, storage and transportation to manage trash in lint cotton;
- m) Adoption of low cost technologies like use of pheromone traps, installation of bird perches, yellow sticky traps, light traps, use of bio-pesticides and clipping of spotted boll worms infected terminal shoots as and when noticed.



Shri R.L.Nolkha, Chairman, RTMA alongwith Shri S.A.Ghorpade, Advisor, CITI CDRA and Shri P.N.Sharma, Project Coordinator , Bhilwara during field visit at village Satlias, Bhilwara District

Technology demonstrated under FLDS on IPM:

- a. Keeping cotton fields weed free including borders ,
- b. Sowing of Okra as border crop, maize, cowpea as trap crops.
- c. Installation of bird perches 2-3 per acre.
- d. Installation of Perm on Traps with different lures for boll-worms.
- e. Installation of Yellow Sticky traps for whiteflies;
- f. Use of bio-agents including Trichogramma;
- g. Use of bio-pesticides (Neem Oil, Neem Leaf extract 10% and Neem Kernal NSKE 5%)
- h. Clipping of spotted boll worms shoots as and when noticed.
- i. Hand picking and destruction of boll worm larvae in case of heavy infestation;
- j. ETL based pest and disease management.



Shri Mana Ram Chaudhary, Joint Director, Agriculture, Jodhpur Division, addressing the farmers rally at Soyala Village.

Agencies involved in execution:

Following agencies were involved in implementing the FLD programme:

1. Directorate of Cotton Development, Ministry of Agriculture , Govt. of India
2. State Agriculture Department at the district level.
3. Confederation of Indian Textile Industry's Cotton Development & Research Association (CITI CDRA)
4. Krishi Vigyan Kendra (KVK) in the district.

- 5 Agriculture Research Station (ARS) of the State Agriculture University
- 6 Zilla Parishad



Visit of Dr. G.N. Mathur, Chief Scientist, KVK, Ajmer to one of the FLDs in Bhanvata village in Ajmer district.



Interaction with FLD farmers on low cost technologies at Barod (Desuri Cluster) of Pali district.



Visit to FLD plot by Shri Sushil Desai, Associate General Manager , BCS in Padanga village of Bhinay cluster, Ajmer district for inspecting pest infestation.



Dr. R.S.Tripathi , Project Coordinator with Shri R.S.Rathore , Project Officer discussing Project activities with project farmers.

District wise Front Line Demonstration:

3100 FLDs on Production Technology and 3 FLDS on Integrated Pest Management were implemented in 756 villages in 8 districts during the period from 2008-09 to 2014-15. For the first seven years, the programme was implemented with the financial assistance from Govt. of India, and in 2014-15 and 2015-16 it was implemented with financial assistance of the CITI CDRA and BCS Mumbai

Beneficiary Farmers:

3346 cotton farmers from eight districts of Lower Rajasthan were the direct beneficiaries of input subsidy provided under Govt. of India's Front Line Demonstration Programme from 2008-09 to 2013-14 and in 2014-15 and 2015-16 input subsidy was provided by the CITI CDRA and BCS Mumbai . The year wise beneficiaries of the FLD programme sponsored by Govt. of India were as under:

Year	SC	ST	WOMEN	OTHERS	TOTAL
2008-09	185	633	457	171	1446
2009-10	101	229	216	54	600
2010-11	32	83	92	43	250
2011-12	43	150	89	18	300
2012-13	14	5	22	209	250
2013-14	46	8	41	155	250
2014-15*	36	6	41	167	250
2015-16*	36	4	33	177	250
Total	493	1118	991	994	3596

*FLD programme financed by CITI CDRA and BCS Mumbai.

Compliance of Govt. of India's norms:

Govt. of India norms for extending the benefit of FLD programme provide for 53% participation of farmers belonging to Schedule Caste and Scheduled Tribes and Women farmers.. In case of FLDS programme implementd by the CITI CDRA the beneficiary farmers belonging to the above categories of farmers accounted for 72% of the total farmers involved in the FLD programme. Apart from the direct beneficiaries, 23250 non project farmers also received indirect benefit of the FLD programme.



Mrs. Patodia , Shri P.D.Patodia, Chairman , Standing Committee on Cotton , CITI , Shri R.L.Nolkha ,Chairman, Rajasthan Textile Mills Association and Shri Jhanwar, Sr. Vice President (Raw Materials), Maharana Shri Umaid Mills, Pali interacting with project farmers at Devaliya Khurd, Dist . Ajmer



Project farmers discussing their difficulties with the visiting team at Devaliya Khurd.

High Density Cotton Planting system Trials in Rajasthan:

During the last decade and half India has more than doubled its production from 136 lakh bales in 2002 to 398 lakh bales in 2014 after the introduction of Bt cotton. From a yield of 308 kgs of lint per hectare in 2001-02, the average yield went up to 554 kgs of lint per hectare in 2007-08 and stagnated around 500 to 550 kgs of lint per hectare in the past eight years, despite the area under Bt cottons accounting for over 94% of the total area under cotton. To overcome this stagnation, change in agronomic management and cropping systems are considered as the most promising strategy, the thinking being that increasing the planting density could be one of the ways to increase yield and improve inputs efficiency. Thus, after implementing the cotton development projects for four years in Banswara, Bhilwara and Rajsamand districts from 2008-09 to 2011-12 the CITI CDRA realised that though yield and production registered an appreciable increase in Rajasthan (production at 18.0 lakh bales in 2011-12 and yield at 785 kgs of lint per hectare in 2013-14), further increase in yield warranted a different strategy .

In keeping with the above, the CITI-CDRA and BCS setup preliminary trials on high density planting (HDPS) in the districts of Ajmer, Jodhpur, Nagaur and Pali where cotton collaborative project for enhancing cotton yield was implemented by CITI-CDRA in association with the Agriculture Dept. of Govt of Rajasthan, Bayer Crop Science and Rajasthan Textile Mills Association from 2012-13 onwards.



Four Different spacing treatments of High Density Trials.

Outcome of the Trials:

The average performance of the HDPS trials during two years (2012-13 & 2013-14) at 21 different locations in Ajmer, Jodhpur, Nagaur and Pali districts revealed that closer spacings accommodating higher number of plants per hectare gave higher yield as compared to the conventional spacing with lower plant population per hectare as would be evident from the following:

Yield in quintals of Kapas per hectare:

Year	No. of locations	90x60 cms (conventional)	60x45 cms (state recommendation)	80x30 cms	80x15 cms
2012-13	2	24.72	33.44	36.36	47.43
2013-14	19	27.93	32.83	37.42	32.01
Average	21	26.33	33.14	36.89	39.72
Average increase in production over check.		-	25.86%	40.11%	50.85%

Adaptive Trials on State Govt. Farms:

Encouraged by the above results the CITI CDRA persuaded State govt. to take up such trials at its Adaptive Trial Centre (ATC) and State Govt. took up such trials at ATC, Ajmer during 2014-15 and again in 2015-16 at two places i.e. one at ATC Tabiji, Ajmer and another at ATC, Karanpur, Sriganga nagar district. The results of these trials revealed that treatment 80cmsx 15cms with plant population of 83333 per hectare gave highest yield (26.14 q /ha),an increase of 50.85% over the production in check plots with conventional planting. Thus , the outcome of the preliminary trials conducted by CITI CDRA on High Density Planting system (HDPS) in 2012-13 and 2013-14 that the treatment with higher plant population gave higher production as compared to other treatments with lower plant population stood verified.

Impact of the CITI CDRA'S cotton development projects in Rajasthan: (2008-09 to 2015-16).

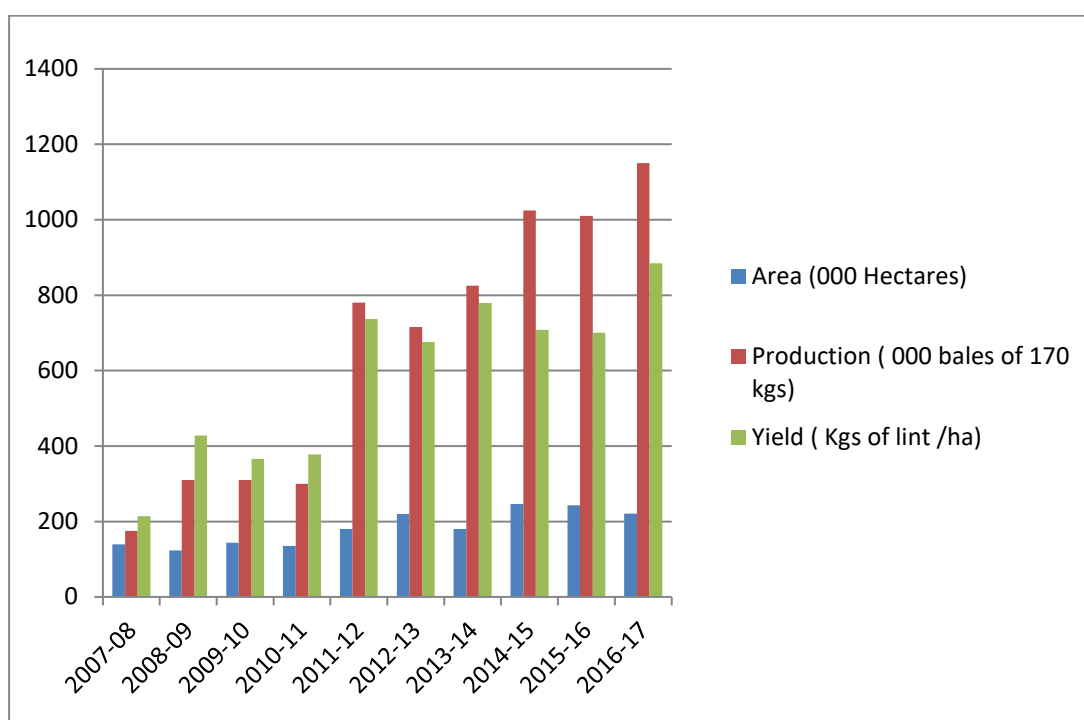
Transformation of Cotton Scene in Lower Rajasthan:

When the CDRA started its cotton projects in Rajasthan in 2008-09, Lower Rajasthan contributed 1.75 Lakh bales, out of the total state production of 9 Lakh bales, the major share of cotton production coming from Upper Rajasthan (Sriganganagar & Hanumangarh Districts). However, consequent upon the implementation of cotton projects by the CDRA from 2008-09 onwards, cotton scene underwent a sea change, as would be evident from the following data which shows that major share of cotton production of Rajasthan came from Lower Rajasthan.'

Year	Production in Lower Rajasthan (in lakh bales)*	Production in Upper Rajasthan (In lakh bales)	Total State Production (In lakh bales)**	% share of Lower Rajasthan in State Production
2007-08	1.91	7.09	9.0	21
2008-09	3.13	4.37	7.5	42
2009-10	3.15	8.85	12.0	26
2010-11	3.11	6.99	10.10	31
2011-12	7.89	9.11	17.0	46
2012-13	7.50	8.50	16.0	47
2013-14	7.01	6.99	14.0	50
2014-15	10.25	6.75	17.0	60
2015-16(p)	10.0	5.0	15.0	67
2016-17(P)	11.50	7.50	18.0	64

**Northern Indian Cotton Association ** Cotton Advisory Board.*

Noticeable increase in area, production and yield of cotton in Lower Rajasthan.



Source : Northern India Cotton Association Ltd for 2007-08 to 2012-13 and Cotton Association of India for 2013-14 to 2015-16 & for 2016-17 estimated.

Rajasthan Takes over Punjab & Haryana in cotton yield:

The disparity in cotton yield in Punjab & Haryana vis-à-vis Rajasthan not only disappeared during the past 7 years of CDRA'S operations in Lower Rajasthan but also it took over cotton yield in states of Punjab & Haryana during 2015-16 as would be evident from the following data:

Yield –Kgs of Lint per hectare:

Year	National Average	Punjab	Haryana	Rajasthan
2007-08	554	583	598	415
2008-09	524	554	523	422
2009-10	503	507	425	459
2010-11	513	593	487	513
2011-12	512	607	690	651
2012-13	525	744	720	642
2013-14	566	800	761	606
2014-15	511	526	603	593
2015-16 (P)	482	320	415	569
2016-17(P)	568	598	683	693

*Source : Cotton Advisory Board, Govt. of India

Turn around in cotton yield and production of Rajasthan:

The execution of these projects enhanced cotton production in Lower Rajasthan from 1.75 lakh bales in 2007-08 to 10.25 lakh bales in 2014-15, an increase of 586%. This boosted cotton production of Rajasthan from 9.0 lakh bales in 2007-08 to 17.0 lakh bales in 2014-15, an increase of 89%. Cotton yield in Rajasthan also increased from 415 kgs of lint per hectare in 2007-08 to 651 kgs in 2011-12, an increase of 57%.

Premium quality of cotton from Lower Rajasthan.

Quality of cotton in Rajasthan , particularly Lower Rajasthan commanded a premium in as much as a sizeable quantity of Kapas (seed cotton)from Rajasthan flowed to Gujarat mainly for mixing it with Shankar cotton which is an internationally recognized brand. On account of local availability of quality cotton , cotton yarn made out of it attracted demand both in domestic and overseas markets.



Bountiful harvest

Profound economic impact on the economy of Rajasthan:

The resurgence of cotton in Rajasthan had a far reaching impact on the economy of the State as would be seen from the following.

- 1) Huge Financial benefit to Cotton Growers:** In monetary terms the benefit to cotton growers on account of increase in production from 9.0 lakh bales to 17.0 lakh bales works out to about Rs. 1720 Crores.
- 2) Seasonal employment to about 3.75 Lakh persons:** The setting up of 45 Ginning & Pressing factories in Lower Rajasthan to cope up with increased cotton production provided additional seasonal employment to about 3.75 lakh persons.
- 3) Reduced Dependence of Local Textile Mills on cotton from other states:** The local textile mills' dependence on other states for sourcing their cotton requirement was reduced from 80% to less than 20% during the past 5 years. The spinning mills in Rajasthan which hitherto spent about Rs. 700-800 per candy on transportation cost for bringing cotton from neighbouring states saved on transportation cost because of increased availability of cotton locally. This strengthened them financially which in turn gave them a competitive edge over spinning mills from other states while selling yarn in domestic and export markets.
- 4) Higher Kapas rates benefit cotton growers:**

With the increase in demand from local textile mills, cotton farmers from Rajasthan received Rs. 150 to 250/- per quintal of kapas more than then the ruling kapas rates in other rates.
- 5) Impetus to Textile Sector in Rajasthan:** The impetus which the textile sector in Rajasthan received due to the turnaround in cotton production would be evident from the following:
 - a. the number of spinning units increased from 55 (Non SSI -47 + SSI -8) in 2007-08 to 67 (Non SSI -50 + SSI -17) in 2015-16, increase in spindalage being 1019306 spindles.
 - b. Composite units rose to 12 in 2015-16 from 9 in 2007-08. Production of cotton yarn increased from 104062 tonnes in 2007-08 to 132568 tonnes in 2013-14,
 - c. Production of fabrics rose to 2417.22 lakh meters in 2013-14 from 738.17 lakh meters in 2007-08.
 - d. The exports of cotton related items from Rajasthan rose to Rs. 2963 crores in 2013-14 from Rs. 1578 crores in 2007-08.

- e. The Apparel industry in the State got a boost with the increase in its capacity from 1803.83 mn. pcs in 2007-08 to 2278.42 mn. Pcs in 2013-14.
- f. Employment in textile industry increased from 841000 workers in 2007-08 to 920000 workers in 2014-15, providing additional employment to 79000 workers.
- g. **Thus, the turnaround in cotton production in Rajasthan has proved to be the harbinger of Resurgent Rajasthan.**

Future Programmes:

1. Project to improve quality & production of Extra Long Staple Cottons.

In 2016-17 the CITI CDRA has embarked upon a project in Banswara district of Lower Rajasthan to give impetus to production of ELS cottons like DCH 32, for meeting the increasing demand from the textile industry for super fine cottons which are now in short supply locally , warranting imports of atleast 5.0 lakh bales at high prices prevailing in the international market. Thus the CITI CDRA has taken up an onerous task of gradually improving production of ELS cotton to serve the textile industry.

2. Front Line Demonstration programme for identifying suitable hybrids for Banswara district.

To identify ELS hybrids / Bt cottons suitable for cultivation in Banswara district , FLD programme is taken up in 250 plots in 5 clusters of Banswara district with the financial support of State Govt. of Rajasthan. Besides, demonstration plots of prominent seed producers of ELS cotton like SIMA CDRA , Mhyco, Bayer Crop Science and Nuziveedu are also taken up in the project areas.

3. Project to address issue of adulteration and contamination in ELS cottons.

The CITI CDRA is also working on a project for addressing the issue of adulteration and contamination in ELS cottons to make them contamination free and to improve the quality parameters of ELS cotton grown in the country.

DREAM:

WE HAVE A DREAM TO TRANSFORM RAJASTHAN AS CALIFORNIA OF INDIA. CALIFORNIA HOLDS A PRIME POSITION IN HIGHYIELD COVETED LONGSTAPLE AND EXTRA LONG STAPLE PIMA COTTON.



Shri Prajapati, Scout, Shri Sushil Desai Associate GM , BCS, Dr. R.S.Tripathi Project Coordinator, Shri S.A.Ghorpade, Advisor, CITI CDRA, Ms. Jasmer Dhingra of IDH and Farmers are seen in project farm.



Ready for harvesting

Cotton Development activities of CITI CDRA during the year 2017-18

Following projects are implemented by the CITI CDRA:

Project Details	State	Districts	Purpose
I. Cotton Collaborative Project in association with State Agriculture Department, Bayer Crop Science and Regional Textile Mills Association.	Rajasthan	Banswara,	Promoting ELS cotton second year of the project
		Jodhpur districts	For consolidating gains in yield and production -5 th and last year of the project.
	Maharashtra	Wardha	For improving yield and quality of cotton -3 rd year
	Madhya Pradesh	Ratlam district	Promoting ELS cotton-1 st year
II. Front Line Demonstration a. Sponsored by State Govt. of Rajasthan with CITI CDRA supporting project. b. Promoted by CITI CDRA with assistance from SIMA CDRA , Bayer Crop Science, Neeziveedu and Mhayco	Rajasthan	Banswar85 FLDS in 9 villages	For promoting ELS cotton-2 nd Year
	Rajasthan	Banswara 56 FLDS	Promoting cultivation of ELS cottons to improve production. Seeds provided by Seed Companies.
	Madhya Pradesh	Ratlam 20 FLDS sponsored by BCS- Minerva seeds	



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