

# ANNUAL REPORT

2015-16



An Initiative of TATA TRUSTS

## REVIVING GREEN REVOLUTION CELL

(Associate Organization of TATA TRUSTS)

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## PREFACE

The era of 90s of the last century witnessed noticeable reduction in agricultural production and income of farmers in Punjab. It has since then become a cause of serious concern for national food security and economic viability of agriculture in the most productive state of Punjab. A large scale adoption of Rice-Wheat Cropping System became a serious cause of fast deteriorating soil health and depletion of water resources. It thus became inevitable to divert substantial area under these crops to other less water requiring crops like cotton, maize, pulses oilseeds etc. for sustaining the production potential of Punjab soils. But all efforts to diversify agriculture failed to reverse this status of agriculture in Punjab. It was at this stage that Sir Ratan Tata Trusts & Allied Trusts, Mumbai started the initiative on “Reviving the Green Revolution” through financial support to Punjab Agricultural University during Phase-I (2002-2005) for validation and popularization of IPM technology in Cotton. In view of its great potential the cotton IPM was then taken up for upscaling through Department of Agriculture in Phase-II from 2005-2008 and Phase-III in 2008-2011. The Trusts established a centralized body in the form of Reviving Green Revolution Cell in 2008 for an active participation of Trusts for the betterment of agriculture and farming community of Punjab. The operation of projects especially on IPM in Cotton and Basmati has been so successfully that a Regional Center of the RGR Cell has been established at TNAU Campus, Coimbatore to replicate the success stories of Punjab to other states of Southern and Central India. Agencies like WWF-India have also joined hands with RGR Cell for further supporting cultivation of Better Cotton with reduced input use and optimum resources utilization.

The RGR Cell directly operates most of the projects like Integrated Productivity Management on Cotton-Wheat and Basmati based Cropping Systems, Nutrition gardening and linkage of farmers with market in Punjab. The RGR Cell has now undertaken a new initiative on mobile based agro-advisory for long term sustainability of impact of Trusts’ supported initiative. All other Trusts’ supported projects in other agricultural institutes and organizations in Punjab and Tamil Nadu are also executed through RGR Cell with a responsibility of regular field visits and review of ongoing projects. In addition, the RGR Cell provides technical support to other agriculture based interventions under other associated organizations of the Trusts. This Annual Report of the RGR Cell is compilation of all such activities undertaken by the RGR Cell (Punjab) during 2015-16. The technical support provided by Mr. Baljinder Singh Saini, Assistant Development Manager (RGR) in preparation of this report is highly appreciated. I owe my personal gratitude to Dr. A.S. Dhatt, Senior Agriculture Advisor, Tata Trusts; Dr. A.S. Sohi, Advisor Agriculture; all Consultants; Agriculture Development Officers; Field Officers and Grant Manager for gainful utilization of the grants and for providing the technical input for the preparation of this report. A special mentioned needs to be made of generous cooperation and support of Director of Agriculture, Government of Punjab and Director of Horticulture, Government of Punjab, for all the financial & operation support in the implementation of the projects. The financial support of Tata Trusts for functioning of the RGR Cell is acknowledged with great sense of gratitude.



G.S. Chahal  
Executive Director

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## INTRODUCTION

### Reviving the Green Revolution (RGR) Initiative

The advent of Green Revolution during 1970s resulted in a phenomenal increase in agricultural production that made India food sufficient. Punjab alone witnessed an eight-fold increase in food production from 30 lakh tons in 1961 to 2.53 crore tons by 2000. The technologies that accompanied the Green Revolution, however, led to excessive use of agrochemicals and overexploitation of subsurface water, especially for cultivation of rice, which made agricultural production of Punjab unsustainable and grossly uneconomical. The State Government constituted the Johl Committee in 1985, under the Chairmanship of noted economist Dr. S. S. Johl to provide solutions. The report suggested the replacement of at least 150,000 hectares under paddy to lesser water intensive crops such as Basmati, Cotton, Maize, Vegetables, etc. However, due to lack of political will, these were never implemented on a scale which could fulfill the purpose of setting up the Committee. This notwithstanding, some alternative crops could be adopted with assurance of their economic viability, provided it was well demonstrated to farmers. The most viable alternative for diversification in agriculture was to divert area under paddy cultivation to Cotton. However, the scourge of pests reared its ugly head and recurrent attacks resulted in heavy crop loss, low yields and even failure of Cotton crop. The farmers countered this through a two to threefold increase in number of pesticide sprays that not only resulted in increase in pesticide residue and environmental damage,

but also increased cost of production with very low economic returns.

Amidst this bleak scenario, the Trusts<sup>1</sup> operationalised its “**Reviving the Green Revolution (RGR)**” initiative in Punjab in 2002, to seek solutions to arrest the stagnation in agriculture in Punjab that had set, due to the above said reasons. It is aimed at bringing diversification in agriculture by shifting some area from predominant cropping system of paddy-wheat cultivation to popularize less water consuming crops as an economically viable alternative to paddy; reduction in cost of production; value addition to crops to increase profitability from farming; conservation of natural resources especially soil health and sub-surface ground water; and protecting the environment from pesticides and pollution caused by crop residue burning.

The financial support of the Trusts (2002-15) to Punjab Agricultural University, Ludhiana; Department of Agriculture, Government of Punjab; and the RGR Cell<sup>2</sup> to promote “**Diversification**” led to standardization and adoption of Integrated Pest Management (IPM) technology in Cotton and Basmati rice for profitable cultivation of these crops, in place of rice. Large scale demonstration of IPM has led to increase in income from Rs. 46,000 to Rs. 173,000 per household for Cotton and from Rs. 150,000 to Rs. 300,000 for Basmati. Since the entire Cotton and Basmati growing areas of Punjab are sown under Wheat crop during the Rabi season, the extension of the Integrated Productivity Management Approach in Cotton-Wheat and Basmati-Wheat based cropping

<sup>1</sup>Tata Trusts

<sup>2</sup>The Reviving Green Revolution (RGR) Cell is a Registered Society under the Societies Act.

systems has further enhanced the income of the project farmers to Rs. 281,192 and Rs. 440,000 under two Cropping Systems, respectively. The successful operation of these interventions under Cropping Systems approach has been demonstrated in four Clusters of 100 villages each under Cotton-Wheat and Basmati based cropping systems.

Since the beginning of the initiative in 2002, it has resulted in adoption of 1,200 Cotton-growing villages for demonstration of Cotton IPM technology at village level and leading to mass scale impact. One educated youth from each adopted village was trained and deployed as a Scout for providing readily available agro-advisory during, as well as after completion of projects. Similarly 150 villages (across the Basmati belt in Punjab) were adopted each year (2009-12) for popularization of IPM in Basmati. Village level demonstrations were conducted to popularize cultivation of Groundnut, Moong, Maize, and Vegetables. Five Self Help Groups (SHGs) of farmers were established, which now are registered as Producer Companies, for adequate and profitable marketing (which was the main hurdle in the adoption of these crops). A total of 1,000 Nutrition Gardens were also established for year round availability of home grown vegetables for enhanced consumption and nutrition of each family.

### Impact created through the initiative

- Cultivation of Cotton was revived and annual production increased to over 20 lakh bales (compared to 10.8 lakh bales at the start of the project), which generated additional annual revenue worth Rs. 750 crore to the economy of the State.
- An effective pest control was achieved even with 40-45% reduction in use of pesticides, giving an additional income of Rs. 11,500/ per ha, with an additional income of Rs. 57.50 crores from an area of 50,000 hectares, covered each year under the project.
- Additional employment worth Rs. 75 crores per annum was generated for picking of Cotton for women of landless families.
- Adoption of the new Clustering Approach amidst clusters of 100 contiguous villages for the entire Cotton-Wheat cropping system provided an additional income of Rs. 2.3 lakhs per household over the baseline income.
- The Basmati IPM project provided an additional income of Rs. 17,000 per hectare over an area of 50,000 hectares under Basmati with additional annual income of Rs. 85 crores to the Basmati growing farmers in project areas.
- Cleaner environment due to reduced use of pesticides under IPM led to an increase in honey bee colonies from 9,700 to 30,000 and consequent increase in honey production from 1,780 tons to 14,000 tons during this period.
- The Indian Cotton Textile Industry honored the Trusts with a Special Award at the Indian Cotton Conference during November 2013 for their contribution towards enhancing social welfare of Cotton farmers.
- Each Nutrition Garden provided, on an

average, 300 kilograms of vegetables, thereby leading to savings of Rs. 7,300 per household per year - an amount which each family would have otherwise spent for purchasing vegetables from the market.

Besides the direct impact, the initiative was successful in creating indirect impact with the Trusts' Associate Organizations through conducted field visits in implementation of agriculture-related projects as well as review and substantial improvement in the quality of finalized Annual Work Plans through provision of technical inputs.

### REVIVING GREEN REVOLUTION CELL

The Cell, established in 2008, is now a registered body housed in PAU with formal institutional structure and is responsible for prioritization of thrust areas of funding by the Trusts in the country, besides monitoring progress of ongoing projects. The most critical gaps limiting income from commonly used agricultural practices of a particular area are identified where suitable interventions have an obvious scope for noticeable enhancement in livelihood of small and marginal farmers. The most appropriate agricultural interventions are then identified and validated through the concerned local Agricultural Research Institute like PAU (Punjab Agricultural University) in Punjab and TNAU in Coimbatore. The further large scale popularization of such technologies is then taken up in collaboration with State Departments of Agriculture (DoA), Directorate of Horticulture (DoH), other partner Organisations of the Trusts such as PAU and other agencies such as WWF, India. All such activities are undertaken under the technical guidance and

supervision of the RGR Cell as Nodal Agency.

### Key Objectives/Mandate of RGR Cell

- Support large scale activities for adoption of technologies by the farmers in prime areas of concern in agriculture
- Support development departments of state governments and the private sector in frontline extension activities for increasing agricultural productivity and augmenting economy of farmers
- Support activities that build market linkages of farmers, growth of subsidiaries and encourage agro-based entrepreneurship
- Support researchable issues in agricultural universities to fill in the gaps of agricultural technologies developed. Cell is now responsible for prioritization of thrust areas of funding in PAU and TNAU, besides monitoring progress of ongoing projects. Besides implementing key projects on promoting crop diversification, the Cell also act as an idea incubator for developing potential sustainable agriculture technologies.

### Organizational Set-up

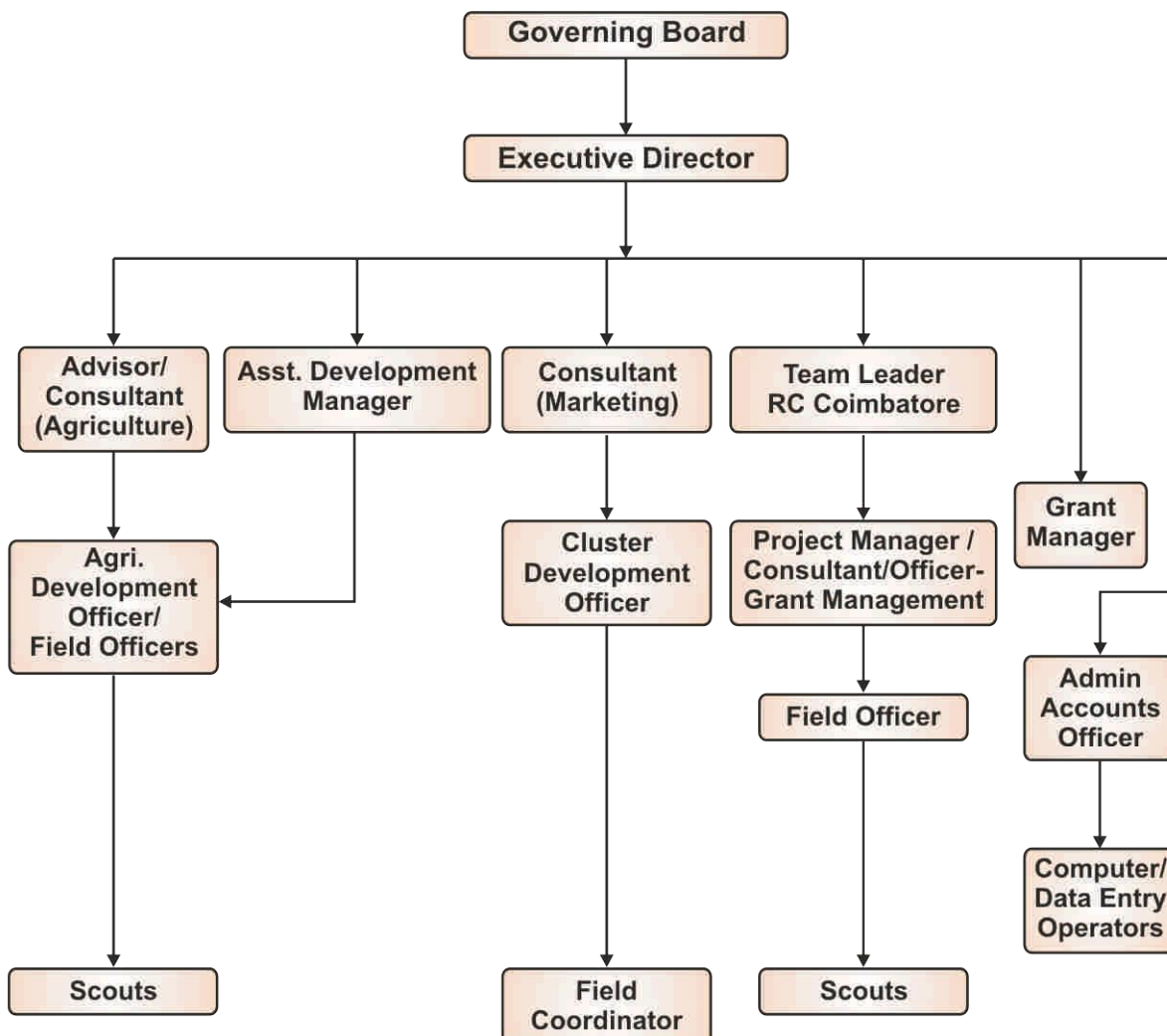
The RGR Cell, Ludhiana is headed by Executive Director (ED) and supported by Assistant Development Manager (RGR) from the Trusts. The Cell's annual budget during 2015-16 was around Rs 3.0 million, which included the budget for the fully functional Regional Centre (RC) established in 2010 at TNAU, Coimbatore to provide impetus to RGR Initiative in Tamil Nadu. This budget is excluding that on projects being implemented by RGR

Cell. The ED also functions as the Secretary of the Governing Body of RGR Society. With respect to the RGR programme, the ED, reports to the Program Director, Tata Trusts and the Governing Body of the RGR Cell. The total staff in RGR (Punjab) at present is twenty seven, including a Senior Advisor Agriculture, an Advisor-Agriculture, three Consultants, five Agriculture Development Officers, one Cluster Development Officer, seven Field Officers, one Grant Manager, one Administrative and Account

Officer, four Computer / Data Entry Operators and an Office Assistant. The Regional Centre, RGR Cell in Coimbatore, Tamil Nadu is supervised by Sr. Development Officer from the Trusts under the guidance of Executive Director, RGR Cell.

The total staff in RGR (Tamil Nadu) at present is seven, including One Project Lead-Extension, One Consultant, two Field Officers, One Officer-Grant management, One Account Assistant and Computer Operator based in Coimbatore.

**The Hierarchical HR Structure of Reviving Green Revolution Cell is as follows:**





## Board Meetings

Reviving Green Revolution Cell held its 18th & 19th Governing Body Meeting on August 04, 2015 and February 17, 2016, while the 8th Annual General Body Meeting of the Society was held on March 29, 2016

## RGR cell partners

RGR Cell has established a wide strategic support division, which includes various partners viz. Departments in Punjab Agricultural University (PAU), Ludhiana; Department of Agriculture (DoA), Government of Punjab, Chandigarh and Government of Tamil Nadu, Chennai; Directorate of Horticulture (DoH), Punjab; World Wide Fund for Nature (WWF), New Delhi and Tamil Nadu Agricultural University (TNAU), Coimbatore. The Cell is headquartered in Ludhiana and setup its Regional Centre in Coimbatore, Tamil Nadu in October 2010.

## Key Areas of Interventions:

- Dissemination of farm adoptable model of technologies for small and marginal farmers for improving their livelihood in Punjab and Tamil Nadu.
- Dissemination of Integrated Productivity Management technologies for Cotton, basmati, vegetables and other alternate crops to achieve targets set out in RGR initiative for diversification of agriculture to save land and water resources as well as improve human health and environment.
- Facilitation of marketing of alternate

crops for sustaining the diversification process and improving the economy of small and marginal farmers.

- Expansion of RGR initiative to replicate the success stories under RGR initiative.
- Cropping System instead of Crop based interventions

## Operational Areas / Mode of Operation of the RGR Cell

1. **Idea Incubation:** RGR Cell sanctioned one SGP to Department of Soil Science, PAU on standardization of Leaf Color Chart based Nitrogen application in Direct Seeded Rice with an objective to determine the dose of nitrogen required under DSR conditions.
2. **Nodal agency for projects implementation:** RGR Cell directly implemented six projects on Integrated Productivity Management of Cotton-Wheat Cropping System; Better Cotton Initiative project; Basmati based Cropping System project; Nutrition gardening; Marketing project directly through its own field staff in collaboration with DoA, Government of Punjab. The Mobile based agro advisory (mKRISHI) project too was rolled out successfully in Punjab.
3. **Monitoring / Review of the Projects:** Besides supervising its own field projects, the RGR team is also actively involved in monitoring of Trusts' projects to Tata Trusts associate organisations

besides its Regional Center run projects in Tamil Nadu. The Team conducts regular project reviews and provided recommendations for improvement in projects. The Action Taken Report is also shared by RGR team for follow-up.

4. **Evaluation of the Impact of the action taken:** Under each sub theme of the RGR initiative, the professional teams are involved in project implementation, monitoring the progress, providing technical inputs and collating the output and impact to meet the targets. The teams are closely involved in generating data on the interventions and simultaneously the Impact Assessment Studies by independent expert(s) and Third Party Monitoring and Evaluation (M&E) are also undertaken.
5. **Audit of the funds received:** A complete financial record is maintained by RGR and is regularly audited as well. The RGR Cell has also internal auditor

deputed by Tata Trusts.

6. **MoUs with partner organizations:** The RGR Cell signed Memorandum of Understanding with WWF, India on May 18, 2015.

## Operational Strategy

The most appropriate agricultural interventions are identified and validated through the concerned local Agricultural Research Institute like PAU (Punjab Agricultural University) in Punjab & the TNAU (Tamil Nadu Agricultural University) in Tamil Nadu. The further large scale popularization of such technologies is then taken up in collaboration with State Departments of Agriculture and through other partner Organisations of the Trusts. All such activities are undertaken under the technical guidance and supervision of the RGR Cell as Nodal Agency. Regular monitoring of operations and even a periodic field review is conducted to assess the impact and mid-term modifications, if so required.



Vegetable cultivation by *SEKHA* PC Members

## Reviving Green Revolution Initiative (Punjab)

### Programme Goals & Objectives for 2015-17

Entire Cotton and Basmati growing area of Punjab is sown with a succeeding second crop (Wheat). The extension of IPM approach to cover the entire Cotton and Basmati based cropping system further enhanced the income of such farmers to Rs. 281,192 for Cotton-Wheat and Rs. 440,000 for Basmati based systems. The successful operation of these interventions for Cotton and Basmati crops singly, and to a small extent for these crop-based cropping systems, has been well demonstrated in clusters of 25 villages, each spread over 150 to 200 villages. This further needs to be extended to larger area covering the crop cycle for ensuring noticeable diversification in agriculture of Punjab.

Basmati and Cotton which have been promoted on larger area for crop diversification are relatively less prone to market uncertainties, all the other possible alternatives of paddy need some kind of marketing intervention to make them economically competitive with the prevailing assured and remunerative system of marketing for rice. Consequently, the Producer Companies (PC) have been nurtured for ensuring profitable price recovery and ensuring adequate market clearance for all crops which do not fall under the Minimum Support Policy. These PCs, however, need to be further strengthened for coverage of the larger farming community and the scale of business. Greater involvement of viable Farmer Producer Organizations (FPO)/ PCs and / or established Co-operative Societies are necessary to

upscale and saturate the entire Cotton and Basmati growing areas for noticeable diversification in agriculture of Punjab and ensuring sustainability of project interventions.

The RGR Cell, while operating the above projects, brought out noticeable technical and operational gaps in the execution of other Trusts' funded larger projects, including agricultural activities, as a part of their project designs. The quality of outputs and the impact on income of farmers in most of these projects, with guarantees, especially those with the non-profit sector suffers for want of technical expertise and trained human resources in agriculture. The team of agricultural experts at the RGR Cell can provide technical support to all the Trusts' funded projects, involving agriculture-based livelihoods. There is also an urgent need to prioritize region-specific critical agricultural problems along with the most appropriate solutions, in order to plan need-based interventions with suitable human and financial resources.

The project is aimed at:

1. Saturating the project area with Integrated Productivity Management for agricultural production and profitable marketing in Punjab;
2. State level Producer Company providing agricultural services to farmers in RGR geographies post RGR exit

### Coverage Target

The project on “**Integrated Productivity Management for Upscaling the Cropping Systems**” approach targeted to cover 320,000

households across 1,500 villages in 9 districts in Cotton and Basmati growing areas in Punjab as given below. Detailed list of Blocks is given as Annexure-I.

Theme	Districts	Collaborating institutes	No of Villages Covered	No of HHs covered	Area covered (Ha)
Cotton-Wheat Cropping System	Bathinda, Mansa, Muktsar, Fazilka, Faridkot, Sangrur	Tata Trusts; Dept. of Agriculture (GoP); PAU; BCI; WWF	900	235,000	500,000
Basmati based Cropping System	Amritsar, Gurdaspur & Tarn Taran	Tata Trusts; Dept. of Agriculture (GoP); PAU	600	80,000	120,000
RGR Cell (Punjab) - Market Linkages#	Mansa, Sangrur, Hoshiarpur and Amritsar	Tata Trusts; ATMA	5	5,000	--
RGR Cell (Punjab) - Knowledge Resource Center	RGR Cell	Tata Trusts			

# Project villages from ongoing districts

### Intended Outcome / Impact

Indicators	Target (year wise*)		
	Current 2014-15	2015-16	2016-17
<b>Outreach</b>			
No. of Households	50,075	320,000	320,000
Total number of Villages covered	305	1,500	1,500
No. of Districts	7	9	9
Area covered (Ha) under Cotton-Wheat, Basmati based Cropping System and Marketing project	98,965	620,000	620,000
Farmers' adoption level of recommended PoPs (%)	80-90	>90	>90
<b>Impact</b>			
Annual Gross Income (Rs. / HH)	281,000 (Cotton-Wheat) 440,000 (Basmati based Cropping System) 48,000 (Marketing)	328,000 (Cotton-Wheat) 504,000 (Basmati based Cropping System) 72,000 (Marketing)	354,000 (Cotton-Wheat) 539,000 (Basmati based Cropping System) 109,000 (Marketing)
Reduction in agrochemicals use (%)	40	40-45	40-45

\*Annual Crop cycle April to March (*Kharif & Rabi* season crops)

## PROGRESS OF RGR INITIATIVE IN PUNJAB

### Integrated Productivity Management in Cropping Systems:

**Cotton-Wheat Cropping System:** Reviving Green Revolution Cell, implemented the programme of the Project entitled “Integrated Productivity Management in Cotton-Wheat Cropping System” in 600 villages during 2015-16, in collaboration with the Department of Agriculture, Punjab. The project aimed at executing Integrated Productivity Management technology in Cotton and Wheat to augment income of farmers by cutting on cost of production and environment pollution. Under the project 41,529 farming families were covered from Cotton growing districts i.e. Bathinda, Mansa, Muktsar, Fazilka, Faridkot and Sangrur, having 1,16,945 acre area under Cotton. Out of these families, 80, 10 and 10 per cent belonged to the General, the Scheduled Cast and the Backward Class category, respectively. The Scouts were imparted pre-season training on IPM in Cotton-Wheat Cropping System at RGR Cell, PAU, Ludhiana. In addition, one day training programmes were organized for field staff during July, August, September, October, February and March at district level to equip the farmers in the Cotton growing belt of the state with the necessary technical knowledge concerning important cultural practices to be carried out at different physiological stages of crop. The project was supervised by an Advisor (Agriculture), a Consultant, an Assistant Development Manager, Field Officers and the officials from the Department of Agriculture Punjab. Four Radio talks were delivered from All India Radio, Bathinda (For Cotton-May 12, 2015, August 11, 2015; for Wheat on November 6, 2015 and January 12, 2016).



Block Level Training Camps

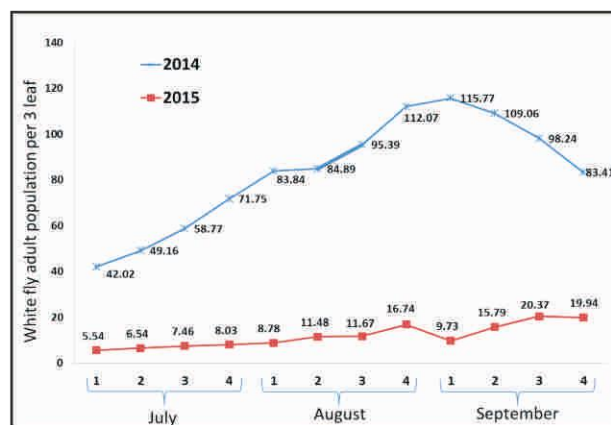
Cotton hybrids, recommended by PAU occupied 34 percent of the area whereas 66 per cent area was under other unrecommended hybrids, including those approved by the Genetic Engineering Approval Committee (GEAC). These unrecommended hybrids, though good yielding, yet are susceptible to sucking pests and diseases. While sowing of Cotton, in about 59 per cent of the area, was completed up to mid-May, in the rest of the area, it got extended up to June owing to non-availability of canal water at appropriate time. At some locations untimely rains, hampered seed germination that forced the farmers to re-sow the crop. It was a matter of satisfaction that the farmers followed the advice of the field staff and omitted application of Phosphatic fertilizer (such as

Diammonium Phosphate or Super Phosphate) in Cotton sown in the fields where the preceding crop of Wheat had received its recommended dose.



Mr Pandhi reviewing Cotton-Wheat project in Bathinda

The year under report (2015) was terrible for Cotton crop because of the outbreak of Whitefly owing to factors such as prevalence of favorable weather conditions, delayed sowing, cultivation of susceptible Bt Cotton hybrids and use of unrecommended and ineffective insecticides besides the faulty spray technology. The feeding by Whitefly nymphs and adults caused yellowing of leaves and the population in general was above ETL compared to 2014 (As shown in Fig below). The enormous amount of sweet excreta of Whitefly provided substratum for growth of black fungus, called sooty mold, on the affected Cotton leaves. It hampered photosynthetic activity and the plants bore less number of fruiting bodies leading ultimately to poor crop yield in the major part of the Cotton growing area.



Farmers getting information at RGR Stall put up in Kisan Mela at PAU, Ludhiana



Whitefly Management strategy discussion with PAU

The farmers carried out 8-9 sprays for managing high population of Whitefly. Despite spraying crop with insecticides at short intervals, the Whitefly population could not be controlled and the crop yield was very poor. There was not much difference in yield obtained by non-participating & Participatory as it varied between 2.25 to 3.25 quintals. The Participatory on an average obtained 0.4 q/acre more seed cotton yield than non-Participatory. Both participating and the non-participating farmers had to carry out large number of sprays of insecticides to manage exceptionally high population of whitefly that led to an increase in the cost of production. Despite the fact that the farmers incurred an expenditure varying from Rs. 10861/- to Rs. 13969/- per acre, they obtained poor yield and thus suffered a loss ranging from Rs. 903/- to Rs. 3309/- per acre. However, a few farmers who could protect the crop from whitefly earned up to Rs. 1275/- per acre more than the expenditure incurred by them. However to compensate the loss suffered by the cotton growers, the state government paid Rs. 8,000/- per acre to all the concerned farmers. The average net return of participating farmers over the non-participatory ones in case of wheat crop was Rs. 2,557 per acre.

**Basmati based Cropping System:** Basmati Based Cropping System project was operated in the districts of Amritsar, Gurdaspur and Taran Taran in Punjab. In Amritsar district from seven traditional basmati growing blocks 300 villages and 150 villages from six blocks of Gurdaspur and Tarn Taran districts each are selected for the implementation of project. This project was started in collaboration with Department of Agriculture, Punjab. The Chief Agricultural Officer, Agricultural Officers and Agricultural Development Officers were fully involved in working of this project.

The area under basmati cultivation in adopted villages was 1,26,309 ha which is 58.5% (2,15,980 Ha) of total cultivated area of adopted villages. In 2015, farmers obtained good yield of basmati but prices were very low. In basmati, the project covered over 66,202 farming families cultivating basmati on 1.26.309 Ha. Out of these families, 2.4% belonged to scheduled cast category; 10.9% to backward class category and 86.7% to general category. The kheti doots were given training on Integrated Productivity Management in Basmati Based Cropping System at PAU, Ludhiana. In year 2015 from all the three districts a total of 1183 Soil samples and 682 water samples from the adopted villages were collected and got tested from State Department Laboratories.

In Basmati crop, seed and nursery treatment which is the low cost and effective technology to save basmati, particularly Pusa 1121 and Pusa Punjab Basmati 1509 from foot rot disease, whose adoption rate was low before the start of this project by the farmers. Now in project area of direct and indirect villages 87.1% farmers treated their seed and 70.6% farmers treated their nursery before transplanting.



**Basmati nursery treatment demonstration to farmers**

In direct and indirect villages the average dose of urea applied in Pusa 1121, Pusa Punjab 1509 and Basmati 386 by IPM farmers was 38.6 kg per acre, 57.5 kg per acre and 21.6 kg per acre as compared to 114.9 kg per acre, 131.7 kg per acre and 69.3 kg per acre by Non-IPM farmers in year 2015. The percentage of farmers using recommended dose was 92.3% for weedicides, 92.9% for insecticides and 93.6% for fungicides. Similarly Insecticide like Cartap hydrochloride (Padan) was blindly used by the 67% farmers without any need, as borer attack was negligible in last 4-5 years. The application of Padan was decreased in year 2015-16 in the adopted villages as the Padan was used only by 0.7% IPM farmers. Further the farmers were persuaded to spray Tilt at the initiation of earing for seed crop, and its application was carried out by 100 percent IPM farmers of direct villages. The project was very beneficial for saving natural resources and increasing basmati production by reducing over expenditure on inputs like fertilizers, weedicides, insecticides and fungicides. In direct villages Non-IPM farmers were spending more than IPM farmers, as a Non-IPM farmer spent average Rs. 2873 per acre for Pusa 1121 and Rs. 3001 per acre for Pusa Punjab Basmati 1509, Rs. 2120 per acre for Basmati 386 per acre as compared to IPM farmer. In year 2015 the average profit of IPM farmers in direct villages over Non-IPM farmer for Pusa 1121 was Rs. 9642 per acre, for Pusa Punjab Basmati 1509 was Rs. 10379 per acre and for Basmati 386 was Rs. 7708 per acre, hence IPM farmers earned more as compared to Non-IPM farmers.



**Block level Farmer training camp at District Amritsar**

With the implementation of IPM technology in the adopted blocks remarkable progress has been made on seed treatment, nursery treatment, plant population, reduced dose of urea and pesticides, particularly Cartap hydrochloride (Padan) and increase in spray of Tilt on seed crop. In this project farmers are convinced about the seed treatment and nursery treatment as a low cost technology which saves the crop from deadly disease particularly foot rot. The farmers are also now aware that excessive application of urea increases the attack of leaf folder and other pests and diseases.

Similarly Kheti doots were given one day training on Integrated Productivity Management in wheat and berseem crop. The most important part of Integrated Productivity Management is seed treatment of wheat crop to ensure the protection of crop from termites and diseases like loose smut, black tip and head scab. The farmers treated their wheat seed with the recommended insecticides viz. Chloropyriphos (4ml/kg) and fungicides viz. Raxil (1g/kg) or Bavistin (Carbendazim 2.5g/kg). The average seed treatment with Raxil and Chloropyriphos by IPM and Non-IPM farmers of direct and indirect villages was 97%, 78.5% and 92.8%,



10.3% respectively. The farmers were persuaded to sow wheat crop at optimum time. In the adopted blocks, 83.0% sowing of wheat was completed from last week of October to fourth week of November and only 17.0% sowing was after fourth week of November. The average dose of DAP was 56.1 kg/acre applied by IPM farmers and 75.1 kg/acre by Non-IPM farmers, whereas average dose of Urea applied by IPM farmers was 95.7 kg/acre as compared to 131.6 kg/acre by Non-IPM farmers. The Insect-pests mainly aphids where required were managed with insecticides sprays based on ETL. The attack of rust was managed by using recommended fungicides. The average yield of IPM farmers was 1.6 q/acre higher than Non-IPM farmers. Non-IPM farmers were spent more than IPM farmers, normally a Non-IPM farmer spent average Rs 8927/acre for wheat as compared to IPM farmers who spent Rs 7776 on wheat. The average profit of IPM over Non-IPM farmer for wheat in direct and indirect villages was Rs 3616 /acre, hence IPM farmers earned more as compared to Non-IPM farmers.

In case of Berseem on BL 10, farmers spent more than Local variety farmers, normally a farmer spent average Rs. 9996/acre for BL 10 berseem as compared to Rs. 8101/acre for Local variety. The average profit of BL10 farmers (Rs.71004/acre) over Local variety (Rs. 42499/acre) growers for berseem in selected villages was Rs. 28505/acre; hence BL 10 earned more profit as compared to Local variety of Berseem.

### Deployment of IT tools for transfer of Technology

mKRISHI® application was developed and deployed in field for transfer of technology to farmers. Following accomplishments were

made during 2015-16:

- Developed and Launched mKRISHI in association with TCS, Thane
- Started with 1,350 farmers for advisory service and 26,145 farmers registered for service by March, 2016.
- Expert from RGR handled farmers queries for 3 crops viz. Cotton, Basmati and Wheat
- Master database developed for 1,300 villages and 3 Crop protocols deployed for Cotton, Basmati and Wheat
- 12 FO and 448 Scouts from Cotton and Basmati area trained on mKRISHI twice in June-July, 2015 and March, 2016
- Issues arising in the mKRISHI service were shared with TCS for the improvement of the design and Version 2.1 was launched.
- Addition of message along with IVR call was introduced for delivery of critical information.



mKRISHI-bringing farmers on IT platform for Agro advisory

### Improving nutritional status of farming families

During 2015-16, the RGR Cell promoted and popularized nutrition gardening with 1,000 farming families from eight districts. The farmers have shown keen interest in its adoption. 1,000 families participated in the demonstrations, adopting slight modifications; Notably, farmers managed Nutrition Gardens across a small area of 6 x 6 square meters with their own inputs and resources without spending anything on seed, fertilizer, pesticides, etc. Adoption of kitchen gardening as a strategy to improve health and overcome nutritional deficiencies, especially in children and women, has been recommended.



Nutrition garden training at PAU

### Linking Farmers with Markets

The pilot project on exploration of alternate marketing channels started in 2011 with a proactive attempt to showcase the scope of empowering farmers by organizing them into Self Help Groups for handling their agricultural produce for better market access and better price realization. All 5 Self Help Groups were established and have now been registered as Producer Companies as detailed below:

Location Distt./ Block / Village	PC Name (Commodity)	Date of Registration	Registration number	Contact Person
Barnala / Barnala / Sekha	Sekha Agri. Producer Co. Ltd. (Vegetable)	22-10-2013	U01403PB2013 PTC038037	Mr. Mandeep Singh 09855821022
Hoshiarpur / Bhunga / Sheikh	Maharaja Ranjit Singh Agri. Producer Co. Ltd. (Groundnut)	14-11-2013	U01403PB2013 PTC038098	Mr. Dharam Singh 094171 42160
Mansa / Jhunir / Peron	Mansa Agri. Producer Co. Ltd. (Groundnut)	25-11-2013	U01403PB2013 PTC038125	Mr. Jasvir Singh 08437731152
Sangrur / Dhuri / Inna-Bajwa	Inna Bajwa Agri. Producer Co. Ltd. (Groundnut)	16-12-2013	U01403PB2013 PTC038194	Mr. Malkit Singh 098550 41460
Amaritsar / Ajnala / Makowal	Makowal Agri. Producer Co. Ltd. (Green Gram)	15-01-2014	U01403PB2013 PTC038285	Mr. Balwinder Singh 09463570646

In 2015-2016, following tasks were carried out:

- **Training and Exposure visits of farmers and members of PC:** Training programme was organised under coordination of local KVKs, ATMA, State Horticulture Department, Field level trainings along with CREMICA, PepsiCo on pre and post harvesting of produce, bee keeping, and horticulture etc; Exposure visit at PAGRO Foods Sirhind (Processing Industry for Frozen Vegetables) for members of Sekha PC for Sweet Corn production and linking them to PAGRO; Farmers arranging the stalls in various District and Village level Kissan Fairs, for PAU Kisan Mela, etc; Liaisoning with Department of Agriculture & Horticulture Punjab, NABARD to strengthen the Sekha PC.
- **Training of Facilitators / Coordinators of PCs:** Trainings consisted of area such as collective action, Cooperation, bringing farmers together, enrolling fellow farmers to join PC, Conducting and heading meetings, recording minutes of meeting, Maintaining records of costs and expenses, conducting General Body meetings, conflict resolution via voting
- **Strengthening of PCs-Market Linkage of PCs with industries and Marketing of produce:** The PCs were strengthened either by linking them to fixed rate big food processing industry buyers or by building their own brand and marketing their produce on their own. E.g. Sekha, Mansa and Ina Bajwa

have this year sown Summer variety of Groudnuts on Test Basis; Hoshiarpur PC members prepared 20 quintals of Jaggery this year with help of equipment provided under ATMA scheme and sold it in local market; Groundnuts in Mansa PC were sold via Mobile Vans by the members and it fetched them an additional profit of Rs.10/- per kg; Grading of peanuts in Hoshiarpur PC was done this year and it fetched them additional Rs.2.5/- per kg; Potatoes were sown over 40 acres under committed price of Rs.7/- per kg for PEPSICO in Sekha PC which fetched them benefit of Rs.2.10/- per kg; Since Nursery growing was promoted among farmers this year, for 33 acres tomatoes; Tomatoes were sown over 45 acres under committed price for Field Fresh and CREMICA in Sekha PC and Ina Bajwa PC and Makowal PC members sold their produce at retail shops in Ludhiana and Amritsar markets primarily in the packaging of 1kg and ½ Kg packing.

- **Legal possibilities and rules relating to the increase in number of members in a PC and Liaisoning with CA and Company Secretary for legal activities of PCs:** After formation of the Producer Companies, their Annual Tax returns and Annual meetings, etc need to be filed. Also the documentations relating to the addition of new members of the PC besides coordination with the company secretary need to be done. There were certain discussions regarding increase in number of

members and minimum contribution from them required to join the PC. This was studied and with the help of the company secretary was decided. Also as the number of people increase the capital needs to be increased as well. The filing of company resolution, the documentation of new members, issuing of share certificates was done and any changes in PC rules by government was discussed. With the help of CA, income tax returns were filed.

- **Brand Registration:** The MAHANUT brand of Groundnut has been registered and now is being used on the packaging material. All the roasted, non-roasted, non-decorticated or decorticated packagings of 100 gm, 200 gm, 500 gm and 1 kg bore the MAHANUT brand name. The packaging rules were adhered to with mention of weightage and manufacturing address and date. Packaging was developed under same brand name for Jaggery as well.
- **Provision of Equipments for PCs:** A hand operated groundnut decorticator was arranged for Mansa PC from PAU; 20 honey bee boxes from Department of Horticulture on subsidized rates; Hoshiarpur PC members were provided varieties of groundnuts seeds at subsidized rates (TAG 24-100kg and TG37A-50 Kg from Bhubaneswar and Dharwad; Seed for 30 acre of Moong variety SML-668 arranged at subsidized rates from DoA and ATMA for Makowal PC.

- **Formation of group of Berseem seed producers:** Members were added to Sekha PC, Hoshiarpur

#### **RGR Cell as Resource Centre for technical supervision and support to other Cells / Trusts initiatives**

The RGR Cell has a team of experienced agriculture scientists working as External Resource Persons (ERPs), Consultants and Field Officers to execute and monitor the impact of ongoing interventions supported by the Trust. Under each sub-theme of the RGR initiative, the professional teams are involved in formulation of projects, monitoring the progress, providing technical inputs and collating the output and impact to meet the targets defined for SP 2011. The teams are closely involved in generating data on the interventions and simultaneously the Impact Assessment Studies by independent Expert(s) are also undertaken. Exposure visits were conducted for various Trusts' associate organizations during 2015-16 which included KVV, BCI, and Tata Trusts as detailed below:

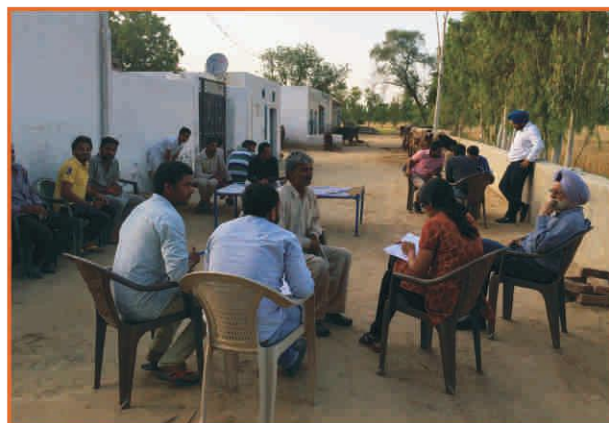


**Training of staff from Trusts Associate organisations**

S. No.	Name of the Person(s)	Organisation	Month	Purpose of the Visit
1.	Mr. Vikalp Gupta	KVY, Ahemdabad	Sept. 2015	Exposure visit
2.	Mr. Ravi Gevariya	KVY, Ahemdabad	Sept. 2015	Exposure visit
3.	Mr. Saravanah	BCI, New Delhi	Jan. 2016	Exposure visit
4.	Ms. Mitali	Tata Trusts , Mumbai	Jan. 2016	Exposure visit
5.	Mr. Arun Pandhi	Tata Trusts, Mumbai	Sept. 2015, Feb. 2016	Review
6.	Mr. Ashish & Mr. Abhijeet	CIPT, New Delhi	Dec. 2016	Study of BCI programme
7.	Ms. Nitin Jugran	Sr. Freelancer Journalist, New Delhi	Dec. 2016	Study of BCI programme

### Third Party Monitoring of the RGR Initiative:

Third party Monitoring for the first year of the project was conducted by PwC, India ([PwC - PricewaterhouseCoopers India](#)) deputed by Tata Trusts. The study was conducted in April-May, 2016 and similarly Independent studies were also undertaken by CIPT and Ms Nitin Jugran Bahuguna a Delhi based Sr Freelancer journalist on the BCI project. Findings attached as attached as Annexure II.



Third Party Monitoring by PwC team

## ACKNOWLEDGMENT

The RGR Cell is very thankful to Sir Ratan Tata Trust and Allied Trusts & Navajbai Ratan Tata Trust for funding support for “**Reviving Green Revolution**” initiative for promoting agriculture diversification in Punjab and Tamil Nadu and support activities to tribal, small and marginal farming communities which have been kept outside the realm of modern agricultural technologies. Funds received from Govt. of Punjab and WWF, India are gratefully acknowledged.

## ANNEXURE - I

### PROJECT BLOCKS

<b>Cotton-Wheat Cropping System/BCI project</b>	
<b>District</b>	<b>Blocks</b>
Bathinda	Mour; Bathinda; Nathana; BhagtaBhaike; Sangat; Rampura
Faridkot	Kotkpura
Fazilka	Abohar; Khuian Sarvar; Arniwala; Fazilka
Mansa	Jhunir; Mansa; Bhikhi; Budhladha
Sangrur	Sunam; Lehergagha
Shri Muktsar Sahib	Shri Muktsar Sahib; Malout; Giddrebaha
<b>Basmati Based Cropping System project</b>	
Amritsar	Chogawan; Tarsikka; Harsha Chhina; Majitha; Attari; Verka; Ajnala
Gurdaspur	Gurdaspur; Dinanagar; Fatehgarhchurian; Dera Baba Nanak; Dhariwal; Kalanaur
Tarn Taran	Tarn Taran; Gandiwind; Chohla Sahib; Patti; Valtoha; Bhikhiwind



TERRA GREEN ABSTRACT

# Reviving Cotton Production in Punjab

## New Initiatives

**Nitin Jugran Bahuguna** gives us a peek into the 'Better Cotton Initiative' started in Punjab to encourage farmers to reduce the use of chemical pesticides which damage crops as well as the environment, besides leading to long-term illnesses in farmers and their families.





The Better Cotton Standard System is a holistic approach to sustainable cotton production which covers all three pillars of sustainability—environmental, social, and economic.





**F**or generations, the family of Rameshwar Das, 48, has been actively engaged in growing cotton on half of their 10 acre land in Gehle village in Mansa district of Punjab. They were content with the results and dismissed their losses as the inevitable risks associated with farming. "Rampant pest infestation to the cotton crops was nothing new for us and I dealt with it in the usual way by regularly spraying the crops with pesticides", he says.

The results, in his opinion, were satisfactory. "I would get an average of six to seven quintals of cotton per acre, the proceeds of which were adequate for meeting the day-to-day needs of my family", he adds.

Then one day he overheard some strangers speaking to a group of farmers in the village. Pausing to catch snatches of the dialogue, he lingered on, intrigued by the insights on cotton farming offered by the visitors who hailed

from the Punjab Agricultural University (PAU), based in Ludhiana. He learnt that excessive use of pesticides was not only unnecessary, but also harmful for cotton crops. Furthermore, the overdose of pesticides and chemical fertilizers was not only killing harmful pests but also 'friendly ones' such as earthworms which actually aid the farmers in preparing the soil for cultivation by tunneling into the soil and mixing the surface leaf litter with it.

Thus began a unique experiment for 'Best Management Practices (BMP)' to be adopted by farmers across four cotton-growing districts of south-western Punjab. Launched in 2012 by Worldwide Fund for Nature-India (WWF-India) under the title 'Better Cotton Initiative' (BCI), in partnership with Reviving Green Revolution Cell (RGR), an initiative of the Sir Ratan Tata Trust, the programme covers nearly 10,000 farmers in 100 villages in four

districts of the state – Bathinda, Fazilka, Mansa and Muktsar.

"The thrust of the project is to encourage farmers to reduce the use of chemical pesticides, which are expensive and cause damage to crops as well as the environment", explains Mr. Sumit Roy, Associate Director, WWF-India. He says that a better cotton system aims to make cotton production better for farmers who produce it, better for the environment in which it grows, and better for the sector's future. "By helping farmers to grow cotton in a way that reduces stress on the local environment and improving the livelihoods and welfare of farming communities, BCI aims to create long-term change", he underlines.

Das was one of the early converts and so enthusiastic was he with the proposed changes espoused under the project that he volunteered to become a 'scout'.





Each of the 100 villages has a scout, a farmer selected from within the local community who is given extensive training by experts from PAU, which is implementing the project. The training emphasizes on topics, such as pre-sowing techniques, identification of recommended varieties of seeds for superior crops, use of recommended pesticides and fertilizers and nutrient and water management.

Thus equipped, the scouts proceed to disseminate their new-found knowledge to their fellow farmers at a designated spot in the village dubbed the 'learning centre'. Das conducts meetings regularly with the other farmers to shed light on effective soil cultivation. "Earlier, farmers were not aware of the necessity for heavy irrigation of the land prior to sowing. Cotton roots go very deep and so it is important to go for deep ploughing and heavy irrigation before cultivation", he explains. "By employing these new methods, I have reduced my expenditures by almost 15 percent and my yields have also substantially increased over the years. Last year, I got nearly 12 quintals of cotton from each of the

five acres devoted to cotton cultivation on my land", he maintains.

According to Dr. A.S. Sohi, Advisor Agriculture of RGR, there are two critical stages for irrigating for cotton crop, failing which the final product is greatly compromised. "The first stage of irrigation is between 35-50 days of sowing and the second stage is during the flowering period. If you miss these two stages, you will incur great losses in terms of yields", he cautions.

"We are educating the farmers on preparing the land prior to sowing by a technique known as laser-leveling using tractors and then making ridges on which to sow the cotton, as opposed to sowing on flat land which requires more water use", he adds.

Harjit Singh, 32, Producer Unit (PU) Manager of the project in

Muktsar district, says that during the sowing season in May, the RGR team undertakes a field survey to ascertain the level of pest presence. "We carry out surveys of five fields of farmers in every village to assess whether insects are posing harm to the crops under cultivation. If there are more than six white flies (the biggest enemies of cotton crop) per leaf, then we recommend that the crops be sprayed. Otherwise, we caution against unnecessary spraying which was the common practice before 2012", he says.

Benzir Singh, 38, scout of his village Mallan in Muktsar district, formed the learning centre in his village two years back. "Our learning centre has 40 members, each of whom has been given a field diary to enter important information on different varieties of hybrid seeds to use, plant spacing and judicious use of pesticides and chemical fertilizers", he observes.





For farmers like Iqbal Singh, 50, also of Mallan village, the learning centres have emerged as a powerful advocacy tool offering vital information on the different aspects and stages of cotton cultivation. “In the past, I would apply fertilizers and sprays



frequently without having any knowledge about their contents. But from the pamphlets I have received at the learning centre. I can now identify different cotton seeds and fertilizers”, he states. “I can also recognize the different labels on pesticides which are sold in the local shops. I know that red labels mean that the pesticide is very dangerous for handling while the blue and green labels are least harmful. I’ve also learnt that mixing different pesticides for preparing the solution for spray is not safe or good for the crop”.

By faithfully adhering to the best management practices ushered in during the past three years, Iqbal Singh has seen a progressive improvement in his output. “I have reduced production costs and unnecessary water wastage. Simultaneously, my fields have shown a marked increase over the years. Before the project started in my village, I used to get about seven to eight quintals per acre. In 2012, I harvested more than ten

quintals per acre while last year the quantity grown successfully was nearly 12 quintals per acre”, he claims.

Roy says, “The Better Cotton Standard System is a holistic approach to sustainable cotton production which covers all three pillars of sustainability - environmental, social and economic. Each of the element - from the production and criteria to the monitoring mechanisms - have shown good results”.

### **Gender Component of the Project**

Women's participation in cotton production comes during the final stage. They are wholly responsible for picking and storing of the final product. In an attempt to highlight the challenges they face while picking cotton, a gender-sensitive component has been incorporated into the programme. The 'Decent Work and Gender Empowerment' component offers guidance to women on the correct produces for

picking and storing, which can greatly enhance the quality of the product and consequently increase its sale value.

Usha Rani, 45, of Gehle village (wife of Rameshwar Das), remembers how she used to pluck the cotton starting from the top and making her way stealthily down. "I soon learnt that I was going about it the wrong way!" she says wryly. "The correct method is to work from the bottom and make your way up. This ensures that trash such as dust particles, leaves or even hair doesn't get entangled in the cotton wool. A single hair can damage an entire lot!"

Under the 'Decent Work and Gender Empowerment' component, women are being sensitized to issues such as safe work practices which include clean drinking water and protective covering while picking cotton and equal pay for equal work.

"Many farmers employ migrant labourers. We have learnt not to discriminate on the basis of gender and pay women the same daily wages as we do to the male labourers", points out Usha Rani. "Earlier, the women labourers got 100-150 per day as against 200-250 given to male workers. But, now I pay both male and female labourers the same wages".

Sukhpal Kaur, 60, of Kothenathiana village in Bathinda district covers her head carefully with a dupatta before venturing into her field for the day's picking. Apart from the learning about different fibre qualities, she knows more

about the different loads she collects during the season. "A total of three pickings are done during one season. I have learnt that the cotton collected from the first and third pickings are not of such good quality as that from the second picking and that all three lots must be stored separately. The second picking, in particular, must be kept away from the others so that its quality is not spoiled", she reveals. "I also know better now than to let the children near the stored bundles of cotton. Earlier, they used to play around the bundles, often jumping from one to the other. All these things ruin the cotton quality", she adds.

The introduction of BT seeds have been a boon to women farmers who toil long hours under trying conditions collecting the final product. "I work for about seven hours daily from 10 a.m. and collect between 50-60 kg in a day. Earlier, we were often bitten by insects like American bollworm, but the new BT seeds are resistant to this type of pests", Sukhpal notes.

As the BMP methods gain popularity and farmers receive the much-needed technical knowledge to enhance their yields and sustain their lands, the quality of their lives has substantially gone up-both economically and health wise.

The only dark chapter in the project since its inception has been the current season. Due to adverse weather conditions with delayed rainfall this year, the long dry spell has drastically. Increased the



population of white flies, which have destroyed crops on a large-scale in many of the villages. Farmers have also complained of the poor quality of seeds that are available this year and lack of choices provided by local dealers with regard to procurement of seeds, pesticides and fertilizers.

Lakhvir Singh, 38, of Memah village in Bathinda district was able to procure a very good seed - RCH 773 - which is white-fly resistant, thus enabling him to get a good harvest.

Dr. Sohi stresses the need to build linkages with private companies to ensure that they provide high quality seeds which are tolerant to harmful insects and have high yields as well as effective and cheap pesticides. The farmers' travails are perhaps best summed up in the words of Nachhatar Singh, 70, former Sarpanch of Genle village. "Eighty percent of our crops depend upon the weather. You can identify your enemies (white-fly), but you need an effective bullet to eliminate these enemies".

*Nitin Jugran Bahuguna is a Delhi-based Senior freelance journalist with over 30 years of experience in the field of communications. She has written on issues pertaining to gender and development, health, child labour, environment, impact of development programmes on human settlements, gender bias at the workplace and job strategies for working women.*



## FINANCIAL HIGHLIGHTS 2015-16

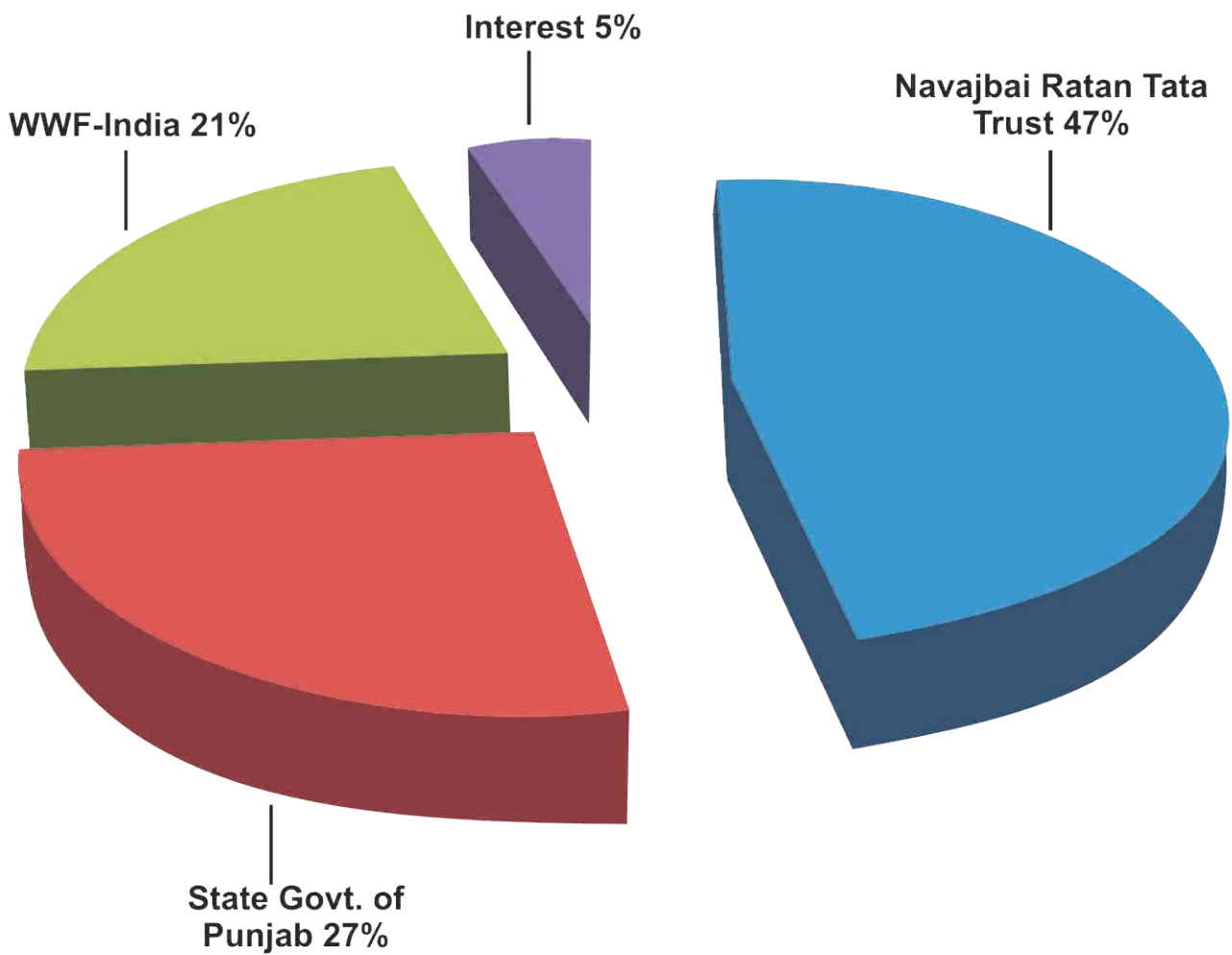
Particulars	As at March 31, 2016 (In Rupees)	As at March 31, 2015 (In Rupees)
<b>FUNDS AND LIABILITIES</b>		
<b>Funds</b>		
(a) Earmarked Funds	23,215,922	22,956,992
(b) Fixed Assets Fund	896,473	1,015,581
(c) Income & Expenditure Account	18,694	-
	24,131,089	23,972,573
<b>Liabilities</b>		
Current Liabilities	476,520	1,117
<b>TOTAL</b>	<b>24,607,609</b>	<b>23,973,690</b>
<b>ASSETS</b>		
(a) Fixed Assets	896,473	1,015,581
(b) Loans and Advances	3,373	2,546,423
(c) Cash and Bank Balances	23,707,763	20,411,686
<b>TOTAL</b>	<b>24,607,609</b>	<b>23,973,690</b>

## INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED MARCH 31, 2016

Particulars	Current Year (In Rupees)	Previous Year (In Rupees)
<b>Income</b>		
Transfer from Earmarked Funds	35,058,293	28,221,458
Transfer from Fixed Assets Funds	174,494	285,113
Other Income	18,694	-
<b>TOTAL</b>	<b>35,251,481</b>	<b>28,506,571</b>
<b>Expenses</b>		
Expenditure on objects of the Society		
(i) Grant Paid	4,469,807	2,242,377
(ii) Project Expenses	27,987,678	23,153,132
(iii) Establishment Expenses	884,228	1,033,514
(iv) Employee Benefit Expenses	1,716,580	1,792,435
(v) Depreciation & Amortization Expenses	174,494	285,113
<b>TOTAL</b>	<b>35,232,787</b>	<b>28,506,571</b>
<b>Excess of Income over Expenditure / (Expenditure over Income)</b>	18,694	-

<b>EARMARKED FUNDS</b>		
<b>Particulars</b>	<b>As at March 31, 2016 (In Rupees)</b>	<b>As at March 31, 2015 (In Rupees)</b>
Balance at beginning of the year	22,956,992	35,181,878
Add: Received / (Refund) during the year (Net)	33,676,641	14,159,189
Add: Interest Income	1,695,968	1,837,383
Less: Transferred to Income & Expenditure Act	(35,058,293)	28,221,458
Less: Transferred to Fixed Assets Fund	(55,386)	-
	<b>23,215,922</b>	<b>22,956,992</b>
<b>FIXED ASSETS CAPITAL FUND</b>		
<b>Particulars</b>	<b>As at March 31, 2016 (In Rupees)</b>	<b>As at March 31, 2015 (In Rupees)</b>
<b>(i) Fixed Assets Capital Fund</b>		
Balance at beginning of the year	1,015,581	1,041,398
Add: Transferred from Earmarked Funds	55,386	-
Add: Transferred from Income & Expenditure Account	-	259,296
Less: Utilized during the year	(174,494)	(285,113)
	<b>896,473</b>	<b>1,015,581</b>
<b>INCOME &amp; EXPENDITURE ACCOUNT</b>		
<b>Particulars</b>	<b>Current Year (In Rupees)</b>	<b>Previous Year (In Rupees)</b>
Balance at beginning of the year	-	-
Add: Excess of Income over Expenditure	18,694	-
	<b>18,694</b>	-

## SOURCES OF FUNDS



## Reviving Green Revolution Cell is registered under :

Society Registration No.	:	<b>680 of 2007-08</b>
Foreign Contribution Regulation Act (FCRA) No.	:	<b>115300042</b>
Registration u/s 12AA (1)(b)(i) of the Income Tax, 1961	:	<b>CIT-III/JB/12A/242/10-11/694</b>
Exemption u/s 10(23C)(iv) of the IT Act, 1961	:	<b>CCIT/LDH/JB/10(23C)(IV)/145/2009-10/2821</b>
Permanent Account Number	:	<b>AAAAR6284L</b>
Tax Deduction Account Number	:	<b>JLDR03215C</b>

### OUR BANKER

**State Bank of India, Punjab Agricultural University Branch, Ludhiana**

### STATUTORY AUDITOR

**M/s Deloittee Haskins & Sells LLP, Mumbai**

### INTERNAL AUDITOR

**M/s PKF Sridhar & Santanam LLP, Mumbai**

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An Initiative of **TATA TRUSTS**

## **REVIVING GREEN REVOLUTION CELL**

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