

**CGIAR Systemwide Livestock Programme
Progress Report
August 2007**

A. Project Information

1. Title of project

Conservation agriculture, livestock and livelihood strategies in the Indo-Gangetic Plains of South Asia: Synergies and tradeoffs

2. Project purpose

The overall project purpose is to better understand interactions and trade-offs for organic matter management in crop-livestock systems and the implications for livelihood strategies, as well as R&D programs.

The specific objectives are:

- To better understand crop-livestock interactions (CLI) and the trade-offs farmers face in applying conservation agriculture practices in rice-wheat-livestock systems;
- To assess the implications of the CLI and the trade-offs for the development of conservation agriculture in particular and of rice-wheat-livestock systems in general;
- To use this understanding to realign and focus current and future R&D efforts addressing conservation agriculture practices in rice-wheat-livestock systems so as to optimize their benefits for rural livelihoods, poverty alleviation and environmental sustainability.

3. Project Outputs

- Conceptual framework to assess interactions and trade-offs in organic matter management in crop-livestock systems and implications for livelihood strategies developed and applied;
- Quantitative information on indicators and processes within this framework analyzed and synthesized, including the identification of drivers and modifiers, cross-scale interactions and trade-off indicators.
- Implications for R&D programs assessed.

4. Project start and end date

October 2005 – September 2008

Note: In view of a delayed start to hold inter-project consultations-based on an SLP request- the project started half a year late. A no-cost extension of half a year has been requested (i.e. to March 2009). Approval is pending.

B. Investigators and collaborating Institutions

5. Lead Principal Investigator and contact details

Dr Olaf Erenstein
Agricultural Economist, CIMMYT
CGIAR Block, NASC Complex, Todapur Road, Pusa, New Delhi-110012, INDIA
Tel: +91-11-2584-2940 extension 32
Fax: +91-11-2584-2938
Cell: +91.9899003692
E-mail: o.erenstein@cgiar.org

6. Principal Investigators and institutional affiliation

Dr Nils Teufel
International Livestock Research Institute (ILRI), New Delhi

Dr Arindam Samaddar
Research Associate, CIMMYT, Delhi

7. Collaborators and institutional affiliation

Collaborators	Institutional affiliation
Dr DK Grover	Punjab Agricultural University (PAU), Ludhiana, Punjab
Dr. Raj Vir Singh	National Dairy Research Institute (NDRI), Karnal, Haryana
Dr V.P. Singh	GBPUA&T, Pantnagar, Uttranchal
Dr. U. P. Singh	Banaras Hindu University (BHU), Varanasi, UP
Dr. Mritunjay Kumar	Rajendra Agricultural University (RAU), Pusa, Samastipur, Bihar
Dr. R. N. Singh	Shram Bharti Krishi Vigyan Kendra, Jamui, Bihar
Dr. Debabrata Basu	Bidhan Chandra Krishi Viswavidyalaya, Nadia, West Bengal
Dr. Elahi Baksh	Agricultural Economist, Wheat Research Centre (WRC), Nashipur, Dinajpur
Dr. N.R. Sarkar	Senior Scientific Officer, Bangladesh Livestock Research Institute (BLRI), Dhaka
Dr Iain Wright	ILRI-Delhi
Dr Stephen Waddington	CIMMYT Bangladesh
Dr J.K. Ladha	IRRI-India
Dr Parthasarathy Rao	ICRISAT, Patancheru, AP

C. Progress report

8. Period covered in this report
October 2005 - August 2007

9. Summary of progress in reporting period

The project was initiated and project implementation is well underway. Inception workshop(s) have been held, partner and site selection finalized, stakeholders consulted and village surveys completed. Currently a household survey is being implemented at 9 sites.

10. Implemented work programme and results per output and activity

Upon request from the SLP, the project initiation was delayed so as to accommodate an inter-project planning workshop between two SLP research grants: the present project and an IITA led proposal for West Africa.¹ The purpose was to ensure that the research in the two projects would have trans-regional relevance and lead to results of broad applicability. The inter-project planning workshop was organized in New Delhi on November 11-12, 2005 (Erenstein et al., 2006) and led to some adjustments in the project work plan.

Prospective project sites were identified and potential partners brought together during a Project Inception Workshop for the Indo-Gangetic Plains of South Asia. The workshop was organized in New Delhi on April 25-26, 2006 to develop a work plan with the site partners and move into the implementation phase of the project (Kannan and Erenstein, 2006).

Prospective partner sites were subsequently visited in June and July 2006 to consult stakeholders and to finalize the selection of nine sites across the Indo-Gangetic Plains of India and Bangladesh (Kannan, 2006). Subsequent to the stakeholder consultation the implementing partner at the Patiala site (Punjab) changed to the Punjab Agricultural University (PAU) and the Meerut site (UP) was replaced by a site in Udam Singh Nagar (Uttaranchal). In the end, 7 sites were retained in India and 2 in Bangladesh, with 3 sites in the north-west plains, 3 sites in the middle plains and 3 sites in the eastern plains.

A project website has been set up (<http://www.rwc.cgiar.org/PROMIS/SLP/>) to facilitate information sharing. This includes a short project brief and poster. As part of the stocktaking a compilation and review of data/literature was initiated.

¹ "Balancing Livestock Needs and Soil Conservation: Assessment of Opportunities in Intensifying Cereal-Legume-Livestock Systems in West Africa" led by the International Institute of Tropical Agriculture (IITA), Nigeria

The village surveys were initiated in the fall of 2006. For each of the 9 sites, 6 villages were randomly selected. Four villages were selected from the villages that reported using resource conserving technologies (RCTs, mainly zero tillage and/or power tiller operated seeder). Two villages were selected from the remaining villages in the corresponding districts. The village surveys were completed at all 9 sites. With the exception of one site (Ballia), village survey reports and data sets have been submitted. The village surveys will be compiled into a synthesis report.

A farm household survey has been initiated in each of the 9 sites. To develop a sampling frame a complete census of village households was conducted for each of the 6 villages at each site. The formal survey encompasses 120 randomly selected households per site, comprising 48 RCT households, 48 non-RCT households and 24 landless households. Partners have been trained and are currently collecting the data.

11. Summary of major achievements during the reporting period:

- Nine research sites with corresponding partners identified and operational.
- A rigorous and consistent research approach and data gathering across 9 sites.
- Village survey completed.
- Village census and sampling frame completed.

12. Outputs: a) products, b) people trained, c) technology transferred, d) reports and publications, d) presentations in conferences

Erenstein, O., Tarawali, S., Fernandez-Rivera, S., 2006. Report of the inter-project planning workshop, November 11-12, 2005, New Delhi. CGIAR Systemwide Livestock Programme research grants: Strategic issues on tradeoffs and synergies between feed resources demand and conservation agriculture strategies. CIMMYT, New Delhi, India.

Kannan, E., 2006. Stakeholder Consultation, June-July 2006. Project report - CGIAR Systemwide Livestock Programme research grants: Conservation agriculture, livestock and livelihood strategies in the Indo-Gangetic Plains of South Asia: Synergies and trade offs. CIMMYT, New Delhi, India.

Kannan, E., Erenstein, O., 2006. Report of the Project Inception Workshop, April 25-26 2006, New Delhi. Project report - CGIAR Systemwide Livestock Programme research grants: Conservation agriculture, livestock and livelihood strategies in the Indo-Gangetic Plains of South Asia: Synergies and trade offs. CIMMYT, New Delhi, India.

The reports are not attached to this report but can be downloaded from the project website (<http://www.rwc.cgiar.org/PROMIS/SLP/>)

13. Implications of research outputs and achievements

- The results will help us to fine tune and start quantifying the conceptual framework to assess interactions and trade-offs in organic matter management in crop-livestock systems.
- Intensity of residue use as animal feed implies full retention of crop residues as soil amendment is not viable, calling for intermediate retention and alternative feed options.
- The significant differences between sites along a west-east gradient flag major implications for agricultural R&D programs, particularly in relation to viable residue management options.
- Amongst the RWC R&D community there is an increased reference to livestock and livelihoods. This was readily apparent during the last Regional Steering Committee meeting of the RWC in Kathmandu (February 2006).

14. Problems and measures taken:

- Staff turn-over:

Dr Elumalai Kannan, specifically recruited as project scientist departed in September 2006, just at the on-set of the village surveys. He was temporarily replaced by Kamal Paudyal during the village survey process. Arindam Samaddar was subsequently recruited as a research associate for the project and joined in early 2007.

Dr William Thorpe who contributed to the scoping studies and project formulation left ILRI in 2006. He helped secure the posting of Nils Teufel as a post-doc with ILRI India and Nils is actively engaged in the project.

- Unequal performance of some of the 9 collaborating sites:

Skills, experience and performance vary over the 9 collaborating sites. Weaker partners are supported more vigorously by the project team, including frequent interaction. To ensure consistency across sites project team members participated in all village surveys and have trained enumerators on-site.

15. Linkages with other research

The study builds on preceding studies in the IGP, particularly the CIMMYT-ILRI Crop-livestock interaction scoping studies.²

² Olaf Erenstein, William Thorpe, Joginder Singh, and Arun Varma, 2007. Crop-livestock interactions and livelihoods in the Indo-Gangetic Plains, India: A regional synthesis. Crop-livestock Interactions Scoping Study - Synthesis. Forthcoming Research Report. New Delhi, India: CIMMYT-ILRI-RWC.

The study has links with on-going and new research projects initiated in the IGP with RWC partners.

D. Summary of research plans for next reporting period per output and activity (not applicable for last Annual Progress Report)

- The same households currently being surveyed will be revisited over the coming year to compile further data on seasonal variations and enterprise management. Selected crop residue markets in the IGP will be assessed.
- Data compiled across different sites and different surveys will be compiled and linked in a database and analyzed.
- Synthesis of the village survey report will be finalized.
- Draft synthesis of household survey report will be prepared.