



Overview

Conservation Agriculture (CA) is practiced on over 155 million hectares around the world, covering more than one tenth of the global annual cropland surface. The largest and most rapid expansion has been mostly in USA, Canada, Brazil, Argentina, Paraguay, Uruguay, Australia, Kazakhstan, and more recently in China, India, Europe and Africa. In large-scale commercial agriculture and in smallholder agriculture declining soil quality has been effectively addressed in many parts of the world by CA.

The CA Project in Bangladesh has been active since 1st April, 2012 in Rajshahi, Rajbari, Thakurgaon, and Mymensingh with the funding support of the Australian Centre for International Agricultural Research (ACIAR). The Project is a collaboration among several institutions, namely- the Bangladesh Agricultural University, the Bangladesh Agricultural Rice Research Institute, the Bangladesh Agricultural Research Institute, the Bangladesh Agricultural Research Council and Murdoch University, Australia.

The aim of the CA Project is to develop and accelerate the adoption of CA for selected soils, crops and cropping systems in Bangladesh, especially in rainfed areas and those with supplementary irrigation, so that farmers and households can benefit from cost-saving crop production technologies and sustainable resource management. The objectives are to: (i) Improve adoption of CA led by a service provider network; (ii) Design minimum soil disturbance planters for improved operation and effectiveness; (iii) Redesign best-practice crop agronomy to optimize it for different types of minimum soil disturbance operations, targeted crop rotations and key soils; (iv) Quantify the benefits of CA for soil fertility; and (v) Develop capacity for on-going research and development of CA in Bangladesh. We have decided to publish regular newsletters. In Vol. 3 we report major achievements in the 3rd quarter of 2016 (April to June).



Key Highlights:

- The 2nd Conference on Conservation Agriculture (CASH-II) is to be held in Dhaka, Bangladesh during 14-16 February, 2017. ACIAR has agreed to fund the CASH-II, and FAO Bangkok has committed to participate as a co-organizer. The Conference will cover the themes that are relevant to smallholder conservation agriculture, namely: (i) Design and development of machinery, implements, and tools; (ii) Soil, water and weed management, and agronomy; (iii) Commercialization and adoption of CA technologies and practices; and (iv) Policy and institutional support framework for CA. The web site has been set (www.cash-ii.com) and you can follow regular announcements there. The Organizing Committee is inviting abstract submission. Please contact e.haque@murdoch.edu.au or r.bell@murdoch.edu.au for details.

- The 2nd Versatile Multi-crop Planter (VMP) commercialization and supply chain programme was launched in April for 2016-17. A total of 10 VMP commercialization meetings were held in seven upazilas of five districts (Mymensingh, Rajshahi, Rangpur, Nator and Thakurgoan) with the view to establishing a supply chain (Manufacturer – Marketing Company–Local Service Providers). A total of 566 farmers (549 males and 17



females) participated in this event. So far, a total of 26 Local Service Providers (LSPs) have enlisted and deposited Tk. 10,000 each to buy 26 VMPs for upcoming years [Rajshahi (12 units); Thakurgaon (2 units); Nator (2 units); Rangpur (2 units), Dinajpur (1 unit), Ponchaghor (1 unit), and Bogra (6 units). The programme will continue until end of this year.

- The Interaction Meeting on Conservation Agriculture was held at the Barind Multi-Purpose Development Authority (BMDA) Office in Rajshahi on 7th April, 2016. Forty-five attendees (39 males and 6 females) participated in this meeting from BMDA, BARI, BRRI, DAE, Bank, Private Company (Hoque Corporation), NGOs, Local Service Providers, farmers, and Project personnel. The ACIAR Programme Manager Dr. Evan Christen, the Chairman of BMDA Dr. Akram Hossain Chowdhury and CA Project Coordinator Dr. Md. Enamul Haque were present in the event.



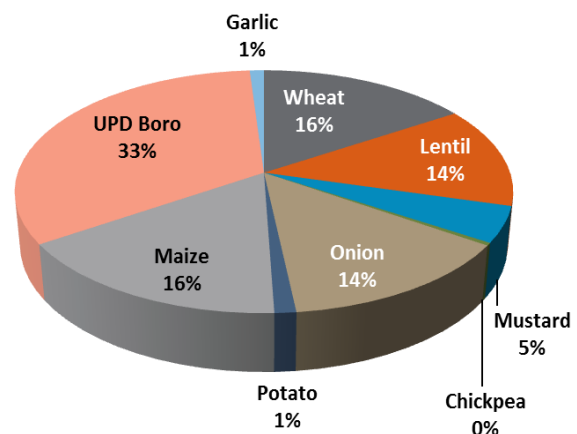
- During 6-7 April, 2016 the ACIAR Programme Manager Dr Evan Christen visited CA Project activities in Durgapur and Godagari, and Rajshahi, and interacted with farmers and VMP Service Providers on the benefit of CA, VMP and unpuddled rice production system.



- The annual progress review meeting on the CA Project LWR-2010-080: Conservation Agriculture Project review meeting was held at PIO/Liaison Office of Murdoch University on 8th April, 2016 where all Principal Investigators of CA Project from BAU, PhD Fellows, and Programme Manager of ACIAR, Australia (Dr. Evan Christen), CA Project Leader (Prof. Dr. R.W. Bell) and Project Coordinator (Dr. Md E. Haque) attended. All PhD Fellows outlined their progress in field research, data collection and analysis, and thesis writing. All in-country PhD Fellows are on track to submit their theses within 2016. List of the thesis are as follows:

1. Research and development of an unpuddled transplanter for rice.

2. Effect of herbicides on weed and crop in rice-wheat-mungbean cropping pattern under conservation agriculture systems.
 3. Weed dynamics in two cropping patterns as influenced by weed management practices under conservation agriculture systems.
 4. Changes in soil organic matter and nutrient contents under different tillage practices in the rice based cropping system.
- The meeting of the Bangladesh Conservation Agriculture Service Providers' Association (BACASEPA) was held on 2nd June 2016 at Rajshahi. The BACASEPA has 7,801 farmers in the Project areas. BACASEPA is aiming to popularize and disseminate CA throughout the country for sustainable crop production, improvement of soil health, and improvement of the socio-economic status of farmers. The Executive Committee with 33 members has been established.
 - Adoption of VMP: The planting activities of the new LSPs in 2015 have been very encouraging. Eighteen LSPs of VMP reported that they have sown 1,824 bigha (243 hectares) (from Nov 2015 to 31 March, 2016) and served about 1,013 farmers. The training programme and mentoring by old



LSPs have service providers resulted in high quality planting service delivered by the new LSPs. There is evidence of

growing demand for the VMP planting service. Hoque Corporation together with the CA Project has continued to work on improvements to the VMP to enhance reliability and strength of parts while decreasing cost and weight.

- Prof. Richard Bell gave a keynote lecture on “Conservation Agriculture and Mechanization for Smallholder Agriculture: A Win-Win for Agriculture and the Environment” at the International Conference on Agriculture and Environment: Food, Water, Soil, Air. 25-26 May 2016, Kuala Lumpur, Malaysia.
- Dr Abul Hashem presented a paper featuring the work of PhD candidate Taslima Zahan at 7th International Weed Science Congress, At Prague, Czech Republic: Zahan, T., Rahman, M.M., Hashem, A. and Bell, R.W. (2016). Herbicidal weed control in wheat under strip tillage system as a practice of conservation agriculture.
- Prof. Richard Bell gave a series of keynote lectures during 27 June to 1 July in Delhi, Hyderabad and Kolkata on Conservation Agriculture and Mechanization for Smallholder Agriculture under the Australia-India Education Council Eminent Researcher Lecture Programme. YouTube video of the lecture at ICRISAT is available at:
<https://www.youtube.com/watch?v=pJ4-XpMIRdg>
- Field Crops Research has agreed to publish a Special Issue on Unpuddled Rice Transplanting or Zero Tillage for Rice Establishment: Options for inclusion of rice in Conservation Agriculture cropping systems. Prof. Richard Bell and Dr. Md. Enamul Haque will be guest editors. Of the 24 papers so far offered, and 7 papers are contributions from the CA Project as follows:
 1. Bell, R.W. and Haque, M.E. Minimum tillage unpuddled transplanting of rice: An overview.
 2. Bell, R.W., Haque, M.E. and Ladha, J.K. Gaps and learning on the place of minimum tillage unpuddled transplanting (MTUPT) in lowland rice production in the Eastern Gangetic Plain (EGP).
 3. Haque, M.E. and Bell R.W. On-farm performance of unpuddled rice in rainfed monsoon and dry-season irrigated crops.

4. Hossain M.M., Begum M., Hashem A., Rahman M.M., Bell R.W. and Haque M.E. Mulching and weed management effects on performance of unpuddled transplanted rice (*Oryza sativa* L.).
5. 8. Kader, Md. A., Jahiruddin, M., Islam, Md.R. and Bell, R.W. Strip tillage unpuddled transplanting decrease nitrogen fertilizer requirements while retention of more crop residue increases them in a rice-wheat-mungbean sequence on an Aeric Haplaquept.
6. Salahin, N., Jahiruddin, M., Islam, M.R., Haque, M.E. and Bell, R.W. Unpuddled rice on a loamy soil- medium term effects on soil properties and crop yield.
7. Zahan, T., Rahman, M.M., Hashem, A., Begum, M., Bell, R.W. and Haque, M.E. Efficacy of herbicides for weed control and yield of rice (*Oryza sativa*) established by minimum tillage unpuddled transplanting.

Contributions have been offered so far from Bangladesh, Brazil, China, India, and Pakistan. There are still opportunities to submit a manuscript for the Special issue: interested contributors should contact Prof Bell- R.Bell@murdoch.edu.au