

## TWO WHEEL TRACTOR NEWSLETTER - MAY 2012

### West African Delegation.



In March I had a visit from a delegation of five West African cotton research workers who were visiting the area as part of an Australian foreign aid project. They were from Mali, Burkina Faso, Chad, Benin, and Senegal. Cotton is a major crop in West Africa and the delegates were in the district on an inspection tour of cotton research facilities and local cotton crops.

The five showed considerable interest in the 2WT seed drill. They explained to me that much West African cotton is grown by methods using animal traction, with some larger growers using 4WT. However there are no 'stepping stones' for animal traction farmers to progress to affordable mechanised cotton production. A 2WT with associated farming implements may be the logical next step for these small area farmers. At present there are practically no 2WT units in West Africa.

### Exciting new development for East Africa.

A week or two ago, I attended a planning workshop organised by CIMMYT in Addis Ababa, Ethiopia for a new Australian Government initiative. The sum of \$3 million has been allocated over four years for the development of small-scale mechanised conservation farming systems for East Africa. Countries to be targeted include Ethiopia, Kenya, Tanzania, Mozambique, Malawi, and Zimbabwe. It is officially called '*Mechanization Entrepreneurship to Leverage sustainable Intensification in eastern and Southern Africa*' (MELISA).

Over 50 delegates from the six countries plus others from Australia, UK, India, Mexico and Bangladesh met for four days for the initial planning. The project will mainly be limited to maize and legume production, and will be conducted in tandem with the existing Australian funded project- '*Sustainable Intensification of Maize-Legume cropping systems for food security in Eastern and Southern Africa*' (SIMLESA)

CIMMYT, through its East African professional network, is the NGO that will carry out the work. This will be in cooperation with various other NGO's, Government Departments, agribusiness, and farmer groups. The main mechanisation system that will be promoted is that of the two-wheel tractor. There will be little or no emphasis on animal traction or four-wheel tractor systems.

A report mentioned that over 4 million cattle have died in East Africa in recent years due to drought, and many farmers who previously used animal traction for crop production, are now back to using hand hoes. Another report indicated that 2WT numbers in East Africa are increasing at a higher rate than 4WT, although from a low base.

The use of a two-wheel tractor as the primary traction unit was extensively discussed at the meeting. Some canvassed the alternative of a four-wheel tractor system, with the debate being spirited at times. However field size, current state of mechanisation in East Africa and financial considerations indicated that this option is too expensive and difficult, and too much of a quantum leap for the subsistence farmer.

The Bangladeshi model, where 80% of the arable land in that nation is farmed with a 2WT, was also discussed.



**The fifty-three delegates to the MELISA planning meeting in a group photo.**

As part of the project, quite a few Chinese 2WT with ARC Gongli seed drills will be imported, and also small 2WT rotary tillage seed drills, which will be converted to strip tillage. Initially there will be only one targeted area per country and local 'entrepreneurs' will be encouraged to participate in local R. & D. Simple yet precise spraying technology for small area farmers will also be prominently featured.

**All smiles:** - some of the delegates to the MELISA workshop.

From the left: Pascal Kaumbutho (ACIAR African rep): Saidi Mkomwa (ACT Exec. Officer Kenya): Prof John Blackwell (Charles Sturt Uni. Australia): yours truly (Australia): Peter Chisawillo (Intermech Tanzania): and Wilfred Mariki (DRD Tanzania).



### **Exports of ARC Gongli seed drills commence.**

The first three ARC Gongli zero tillage seed drills are now in transit from PR China to Asian destinations. One is going to Cambodia for use in an ACIAR supported project on direct seeding methods for lowland rain fed rice. A company interested in promoting this seed drill has taken another to Thailand for local evaluation. The third is going to Laos for the joint CIRAD/NAFRI research project. It will be evaluated in both rice and upland crop work. A pair of disc openers will later be fitted to this drill.

My thanks to Mr. Sun Liangjun of Dong Feng Agricultural Machinery Company of Changzhou, PR China, who arranged the export of these seed drills. There have been a few 'hiccups' with the freight arrangements, which hopefully will be resolved in future shipments.

### **Laser leveller for 2WT.**



This is a new development from an Indian company called Precision Cultivation Aids P/L of Ludhiana. It has been designed as a smaller brother of a laser unit that suits larger 4WT. Current cost is around \$US6000. The company representative K.S. Jassar was at the Addis Ababa workshop. The current laser system fitted has a long range, which may not be necessary for small fields.

With further development, a cheaper version may be available that has a simpler laser unit that is more suited to small field sizes. For further information have a look at:

<http://blackstallion.tradeindia.com/>

### **Back issues of 2WT newsletter.**

Peter Hobbs and colleagues from Cornell University have kindly copied recent back issues of the 2WT newsletter to a website. This can be found at:

<http://conservationagriculture.mannlib.cornell.edu/newsletters/index.html>.

## Bangladesh made 2WT potato digger



Israil Hossain and colleagues have built a 2WT driven potato harvester at the Regional Wheat Research Centre, BARI Rajshahi recently. It is a semi automatic digger, which digs the potato beds and lifts the potatoes via a rotating flat conveyer. This lifts the loose soil and potatoes and the high-speed rotation separates the potato tubers from the soil. The exposed tubers on the surface are then picked up by hand.

In Bangladesh there is a huge labour shortage in potato growing areas during the peak harvesting period. Manual potato harvesting is a slow, time consuming and costly operation. Using the conventional system, a country plough opens potato beds and then the exposed potatoes are picked up by hand. Up to 8 persons are needed and around 0.5 ha per day can be harvested with a loss of 3-4% pf the crop. Manual harvest cost is about \$US250 per Ha.

Using the 2WT potato harvester the process is greatly speeded up. Only three persons are required and up to 1.5 –2.0 Ha per day can be harvested at a cost of \$US80 per Ha. Harvest losses are negligible. Local farmers in Rajshahi area have started using this system, with lower labour requirements, lower production costs, and less risk of weather damage to the mature crop.

Jeff Esdahl