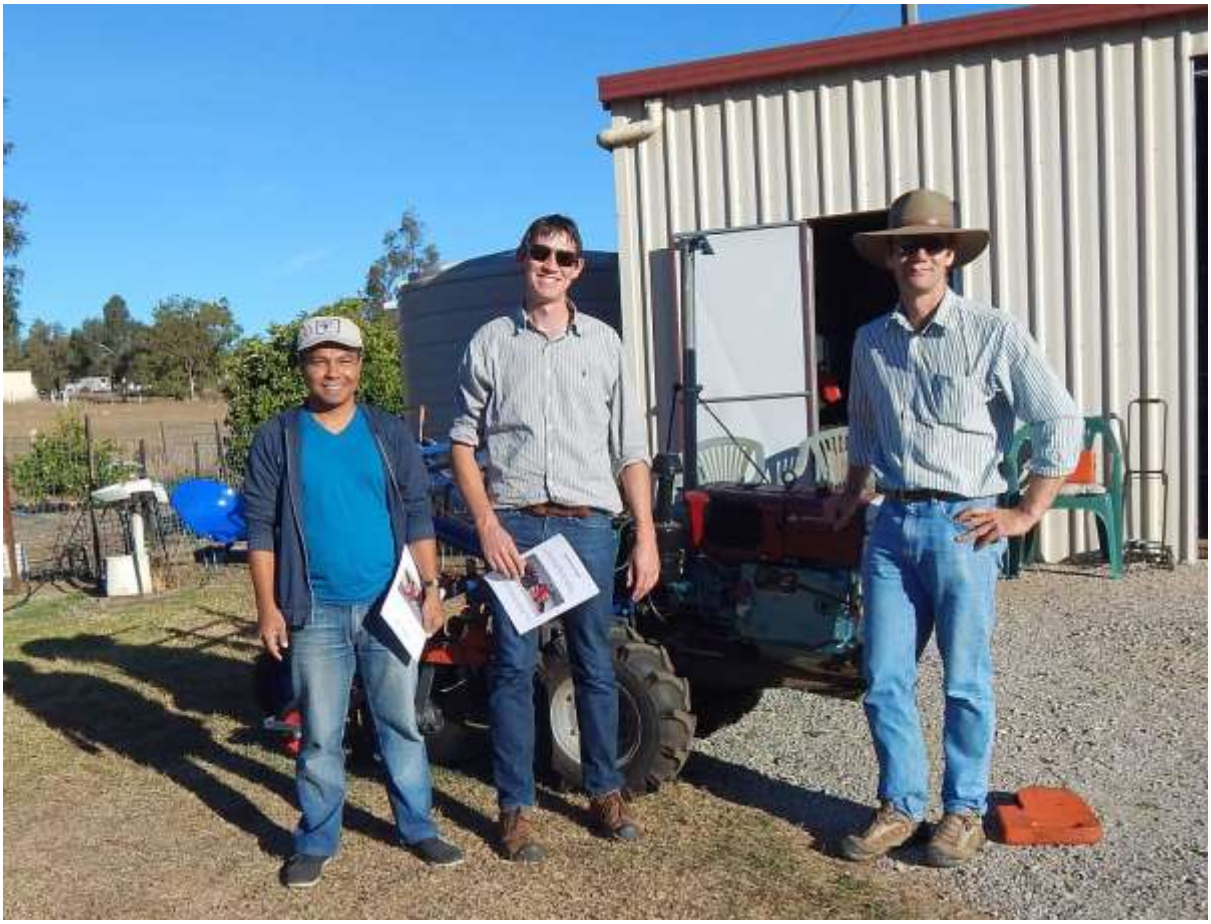
TWO WHEEL TRACTOR NEWSLETTER – JUNE 2014.

Dear All,

Visit by Myanmar research program coordinator.

I recently had a visit from Mr. Myo Thura, who is the program coordinator of the ACIAR Myanmar research program. Myo was accompanied by Peter Fitzgerald and Craig Birchall of University of New England, Armidale, Australia.
The University is overseeing an ACIAR program for small farm mechanisation and upland crop research in Myanmar. The three visitors inspected the 2WT seed drill and the various implement options that are available.
The proposed Myanmar work will be mainly concerned with wide row upland crops such as maize and beans. The latest version of the "Africa Gongli" now being built in Tamworth was of special interest.
Myo Thura informed me that both Chinese built and Thai built 2WT are now being used in Myanmar, and the implements currently being developed are of special interest, and could have application in Myanmar. UNE staff will be regularly visiting Myanmar to coordinate the research effort.



Mr. Myo Thura, Myanmar (left) with Peter Fitzgerald (centre) and Craig Birchall (right) of University of New England, Armidale NSW Australia.

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Conference on Conservation Agriculture for Smallholders in Asia and Africa, (CASH)

This conference will be held at Mymensingh, Bangladesh during 7-11 December, 2014. This CASH event will be an ideal place for Conservation Agriculture practitioners, researchers, policy makers and others to :
i) talk to Conservation Agriculture (CA) leaders, including producers, advisors, researchers, policy makers and industry;
ii) network with peers from around the world;
iii) engage in policy discussion;
iv) learn the latest research on CA. The following keynote speakers have already been identified:

1. Opening session Dr. Amir Kassam,. "An overview of the current status of conservation agriculture globally and for Asia and Africa" to identify progress made and challenges remaining with designing and adapting CA to the circumstances of the smallholders.
2. . Theme 2 Professor Deirdre Lemerle, : " Weed management: Suitable weed management options (chemical, mechanical, crop rotation and biological)".
3. . Theme 3 Dr. Christian Thierfelder, "Soil and water management and agronomy for smallholder Conservation Agriculture".
4. . Theme 4 Dr. Rafael Fuentes, "Commercialization adoption and continuous improvement of CA-based technologies".
5. . Keynote Speaker Dr. Peter Hobbs, -: "Policy and institutional framework of Conservation Agriculture and general reflections on the conference".

Please visit http://www.scac2014.org/ for detail.

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Is this the next logical step in small farm mechanisation?

I have recently come across this range of Chinese 'Mini Tractors' featured in Asian trade sites. They use the same single cylinder 12-18HP diesel motors as used in most Chinese built 2WT.
They have a Vee belt drive from the motor to a transmission built into the rear axle assembly.
Options include a lift system (manual or hydraulic), three point linkage, power take off, mechanical or hydraulically assisted steering, and other features. Various tillage implements are available – both rotary and soil inversion type.
The base price starts at around $US1300 (ex works) for a 12HP unit, with the price rising, as options are added.

Does anyone have experience with these mini tractors? Given the design similarities with 2WT, should we be broadening our horizons to also look at these tractors?

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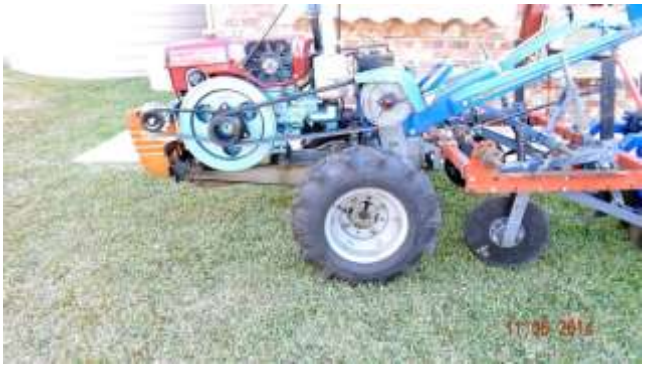
Optional wheel and tyre arrangements for two wheel tractors.

Most two wheel tractors for upland crop work are sold with 12 inch wheels and 6.00 x 12 agric. lug tyres. Some Thai units have 16 inch wheels as well as a few Chinese made models.
Can we make the two wheel tractor more versatile by modifying the wheel arrangement?
Can we increase the tractive ability?
Can we reduce the ground pressure of the tyres, and thus reduce soil compaction?

Some possible options are outlined below.

<u>Standard Mode:</u>



The Dong Feng and its clones have a setup as shown above with 600 x 12 tyres and a standard wheel track of 800 mm. With a track of this measurement, the maximum row (line) spacing to plant two rows without planting behind the wheel tracks is 600 mm.

Wide track mode:

Here is the same tractor with the wheel track widened to 1000 mm. A 100 mm spacer has been fitted between the wheel and the hub. Widening the track with spacers means that a row (line) spacing of 800 mm is possible for row cropping without planting behind the wheel tracks.

The wheel spacers on the left were fabricated from a section of steel bore casing with flanges welded to either side. The spacers on the right are Dong Feng cast units that are fitted when steel cage wheels are used. They are available as an optional extra.

Large Wheel mode:

A pair of 16 inch heavy duty rims from a Toyota Hi-Lux pickup have been modified and fitted to a Dong Feng two wheel tractor. The existing two piece outer rim has been retained. The original centre has been removed, and replaced with a plain centre which has been drilled to the stud pattern of the wheel hub.

A pair of 6.00 x 16 agric lug tyres have been fitted. This arrangement may assist in the tractive ability of the tractor. Due to the larger wheel diameter the ground speeds have increased around 10-15%. Also the height of the tool bars has been raised by 50mm which may give extra clearance in high residue situations.

Dual wheel mode:

A pair of identical wheels and tyres have been attached to the original wheels by using a 220 mm spacer between them. This arrangement should give extra stability on sloping land, and also the ground pressure has been reduced giving les soil compaction, and possibly extra tractive ability.

A pair of wheel spacers is shown below.

This pair of spacers has been also fabricated from a section of steel bore casing, with flanges welded to each side, and machined and drilled to suit the axle hub of the tractor.
A similar set up is used on an Indian made laser leveller unit fitted to a small land plane on a two wheel tractor. This was featured in the newsletter about two years ago.

Are these alternative wheel and tyre assemblies of value? What do you think?

Back issues of the 2WT Newsletter can be found at:http://conservationagriculture.mannlib.cornell.edu/pages/resources/twowheel.html

Note: This newsletter has been sent in a low resolution pdf. format for those on slow internet connections. If you require the newsletter or parts of it in higher resolution please let me know.

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