

## TWO WHEEL TRACTOR NEWSLETTER - JULY 2012

(Produced by R. Jeff Esdaile, Ag. Consultant, Tamworth NSW Australia.)

### Can we make the tines even thinner to reduce the draft on a 2WT tined seed drill?

Barney Muckle, one of the forum members, has raised this question with me. Barney has had extensive experience with animal traction and the fabrication of small tined rippers and ripper/planters to suit animal traction.

By way of explanation, the original 2WT tined seed drill that was sent to Bangladesh had 50mm deep x 16mm thick tines, which came from an Australian made Janke seed drill, designed for large four wheel tractors. Later model ACIAR-Rogro units had 50 x 12mm tines, which were originally fitted to early model 4WT Rogro zero tillage seed drills. The ARC Gongli also has 12 mm thick tines. Some Bangladeshi made units have 10 mm thick tines.

Barney has made 8 mm thick tines of high tensile steel made from discarded car leaf springs. He also reduced the rake angle on the point of the tine from the more traditional 45-50 degree rake to 30 degrees. For zero tillage, where no cultivation is attempted there is no need to disturb much soil – just enough to allow the seed to fall into its correct position in the moist soil.



A picture of Barney's animal traction ripper/planter is on the left, with the implement in action on the right.

Note how Barney has added small wings to the point (similar to the Inverted Tee Baker boot design), has sharpened the leading edge of the tine, and also added deflectors for the soil loosened by the tine.



The main drawback to a thinner tine is the danger of bending in the event of a sideways force on it (e.g. when turning in the ground). Also a thinner profile is more likely to have residue wrapping around it in heavy residue conditions. The wings will add draft, but create a better soil tilth in some situations. Also a seed tube of sufficient diameter (around 25 mm) is needed to permit dropping of large seeds without any possibility of 'bridging' when two large seeds fall together down the tube.

The Bangladesh Agricultural Research Institute (BARI) and CIMMYT recently held a training day and workshop on CA planting with a 2WT in NW Bangladesh at Rajshahi. Israil Hossain was one of the coordinators.

Have a look at:

[http://www.thefinancialexpress-bd.com/more.php?news\\_id=132899&date=2012-06-14](http://www.thefinancialexpress-bd.com/more.php?news_id=132899&date=2012-06-14)

The training showed all the techniques available for CA planting with 2WT. -tine seeders, rotary strip till mechanisms, press wheel performance, and different seed meters. Instruction was both in the field and in the classroom. A custom hire industry is now gathering momentum in the Rajshahi area with farmers commencing adoption of these systems of planting.

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### Using 2WT as a traction unit on steep slopes.

Do any members have experience with using 2WT on steep slopes? This question has been asked by Gunnar Kirchhof, an Aussie colleague who is involved in agricultural aid work in hill country in Northern areas of Vietnam. I consulted with Scott Justice (NAEF Nepal) who has many years experience with 2WT in that country. I quote below part of his reply.

*“In Nepal we reckon that about 40-50% of all 2WT sales goes to the middle hills (huge mountains anywhere else in the world).*

*There was an engineering rule of thumb told to me years ago by a senior Ag engineer here that 4WTs were safe on slopes up to 8-10% and 2WTs could go safely up to 13%. In reality there is little slope farming. It is mostly flat terraces and the limit is generally the first few wide terraces up from the valley floor or down from the ridge. You often see them reaching further up or down with wooden ramps.*

*And yes, nearly 100 % of drivers will walk behind them on the terraces. I would assume so also on slopes too.*

*The Chinese recommend what they call the upland cage wheels- that are narrower (and cheaper) but still heavy lugged cage wheels. They are supposed to provide better traction and control and with larger diameter could get over obstacles easier. These are often mistakenly sold as cheaper cage wheels for rice puddling. “*

I have seen in the media from time to time about 2WT accidents in Asia on sloping land. This can be very serious where the operator is seated, as there are no ROPS safety structures on a 2WT. Also with the ARC Gongli seed drill where seed box is set thigh, risk may be a little more than other seed drills (2BG-6A or similar) where seed box is positioned lower.



In the Palouse area of the Pacific North West of USA, crops are grown on steep slopes. Specially modified tractors and farm machinery is used.

One option with 2WT is to fit with dual wheels to increase stability on sloping land. Weight and traction would be increased. However some flexibility with turning may be lost.



2WT with dual drive wheels (Photoshop impression)

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### Is strip tillage really no till?

Rotary strip tillage seeding is now being adopted in South Asia with a 2WT as a means of crop planting utilising existing farm implements. Is it really no till?

Some guys at USDA think not.

See link;

<http://www.no-tillfarmer.com/pages/News---Iowa-NRCS-Vertical-Tillage-Is-Not-No-Till.php>

What do you think?

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### Innovative use for two wheel tractor.



Check out the link below.

<http://jalopnik.com/5915476/how-chinese-workers-transport-a-utility-pole-without-a-truck>

The uses to which one can put a two wheel tractor never cease to amaze me!

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### Note:

Back issues of the 2WT newsletter are available at:

<http://conservationagriculture.mannlib.cornell.edu/pages/resources/twowheel.html>

My thanks to Peter Hobbs and his team at Cornell Univ. USA for providing this service.

## Direct seeding of rice with a 2WT in Thailand.

This is a short note from John Schiller of Univ. of Queensland (who is one of our forum members) from Khon Kaen in Northeast Thailand. See pictures below.



### **DIRECT SEEDING OF RAINFED LOWLAND RICE 2012 WET SEASON**

*‘Over the past couple of days I have been visiting some ‘on-farm’ sites of field studies being done within the ACIAR supported ‘Rice and Livestock Project’ that is being implemented here between World Vision and Khon Kaen University. In relation to the rice component of the project, one of the main areas of focus has been alternative planting options for crops in the rainfed lowland environment, to better manage the very significant weed problems that are often associated with broadcast seeded rice. This is the second year that the direct rice seeders have been tested with farmers as an alternative planting option to give better weed management. At the beginning of the season, a further six of the seeders were purchased by World Vision for evaluation in the project area. There is no doubt that the farmers in the area have become very interested in the direct seeders due to the way their use facilitates better weed management, as well as reducing seeding rates by more than 50% when compared with the rates being used for broadcast seeded crops. Farmers are not considering the use herbicides, for they indicate that when the rice crop is direct seeded, the inter-row management of weeds using hand tools or by hand pulling of weeds when conditions are wet, gives good weed control’*

This looks to be a significant development for North East Thailand. However the field has been prepared using traditional tillage systems, and the next logical step forward would seem to be using a CA approach to minimise (or eliminate) tillage in the land preparation phase. Would the ARC Gongli seed drill do the job here?