

## TWO WHEEL TRACTOR NEWSLETTER MAY 2014

John Morrison has now formally released his single row 2WT no till seed drill. The development of this drill has been featured in recent issues of the newsletter.

It is now being marketed under the “*Morrison Seeders*” brand name and the 1-row seeder is called the “*CA-Seeder Model 1000*” The Seeders are being manufactured under license by Stone Mountain Technologies, Inc (SMTI) of Erwin Tennessee USA and global distributed is by the non-profit NGO, World Help through Technology Foundation (WHT) of Durham, NC USA.

A video of the seed drill in action can be seen at:

<https://www.youtube.com/watch?v=upoyAOGvPPY>

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Norman Mangnall, a New Zealand academic who is employed by a regional university in Thailand has sent me brief details of a 2WT sickle bar mower being used to cut forage in Thailand. I have extracted the details as shown below.



### **Mower clipper.**

The grass farmers of Kamphaeng Phet have designed a project that can be installed on all versions installed tillers blades of a harvester head rocket. Width 150 cm, with farmers growing fresh cut grass in the lowland. The grass can be cut on 8-10 acres / day.

**Contact** Kasem call 09-9583611 or 055-754169 with Charlie

The link to this item is at:

<http://www.dld.go.th/nutrition/NAHAYA/machine.html>

Other Thai small farmer haymaking equipment is featured on the same site.

However the script is in Thai and you may have difficulty opening it.

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About two years back I included a report from Thailand that power tiller (Two wheel tractor) racing was proving popular in that country. Apparently there are now ‘National Championships’ for this type of racing, and the Thai enthusiasts are hoping to expand this sport to nearby countries such as Cambodia.

A report on these activities can be found at the link below.

<http://www.bangkokpost.com/news/sports/405698/bueng-platu-and-bueng-samakki-victorious-in-khamphaeng-phet>

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John Schiller of University of Queensland has sent me some more pictures of progress with direct seeding of rice in Laos. John is a consultant to an ACIAR project on rice production in Laos.



This is a small (around 8HP) petrol operated 2WT with an Indian made rice seed drill attached. Lao research workers are considering this unit as an additional option for direct seeding of rice by small area farmers.





Related to the above unit, Dr Leigh Vial of IRRI has developed a modified form of the Thai direct rice seeder that allows placement of fertiliser in line with the direct seeded rice. This seeder has design features from the original ACIAR-Rogro two wheel tractor seed drill (now the ARC Gongli), as well as the Thai built unit.

However a potential constraint raised by Lao collaborators to the use of these seeders is that the seed and fertiliser are ‘delivered’ through the same tube and this can potentially affect the even distribution of seed along the direct seeded rows

*(This difficulty can be easily overcome by a duplicate set of delivery tubes, which can be positioned to drop the fertiliser in a line close to but apart from the seed row. Ed.)*

A full report on the ACIAR project on rice production in Laos can be found at the link below.

<http://aciarcop002.gov.au/publication/cop002>

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Progress report on the modification of the ‘Gongli Africa’ Two wheel tractor seed drill to manage uneven fields.

The March issue of 2WT newsletter showed the wooden ‘mock-up’ of a potential ground following tine assembly. A pair of steel tine assemblies have been fabricated and fitted to the tool bar frame of the DF-15 2WT. See pictures on the next three pages.



This shows a complete tine unit, complete with the optional cutting coulter. The tine is a standard 50 x 12 hi tensile steel piece, with non-detachable hard faced point. Point rake angle is 30 degrees to minimise draft. The cutting coulter is 356mm (14 inches) in diameter, and swivels. The camber angle of the yoke for the coulter is 20 degrees (with a larger camber angle the coulter has insufficient clearance to the tine).

Both tine and coulter are adjustable vertically by locating pins. The press wheel has a 2.50 x 6 rubber semi-pneumatic tyre. The press wheel acts as the principal depth control mechanism. The position of the press wheel is adjustable rearward if required to allow for extra clearance from the tine if required.

The whole assembly hinges on a large pivot unit which clamps to the tool bar.

Each tine assembly weighs 27 kilograms. (including cutting coulter)

The optional coulter can easily be removed if not required in low residue situations.

The following pictures show the seeder frame with the tine assemblies fitted. This set-up will probably be heavier than the ARC Gongli standard seed drill which is 150 kilograms. However in my opinion this extra weight will improve tractive ability of the 2WT as well as adding extra weight to assist in penetration of the cutting coulter.

My co-designer colleague Paul Nash fully expects that this seed drill will have several more modifications before a final version is available which is free of design 'bugs'

Please feel free to comment if you wish.



This shows the complete setup with the tines attached to the tool bar. Each assembly must be compact, to fit between the front and rear tool bars, and yet not be obstructed by the handlebars or other parts of the 2WT.



The left hand picture shows the raise-lower system with the pressure/helper spring. The control lever is yet to be constructed. Also a new seed box frame will be built so that it does not hinder any of the mechanisms. Note that the tine assemblies are adjustable for row (line) spacing which is variable from 60-90 cm row width.

The right hand picture shows the operator seat and steerable tail wheel. The steering foot pegs have been re-positioned so that they do not interfere with the operation, or lifting system of the press wheels.



This is a right hand rear view of the complete assembly. The lift system is yet to be completed, along with the seed box frame and seed and fertiliser metering units.

This is proving to be quite a challenge, as the seeder assemblies must be compact to fit into the confined space, and yet be adjustable for varying conditions. I have at this stage made a guesstimate of the size and strength of the down pressure/lift assist compression springs. These springs must have an adequate range of travel to pressurise the tine assemblies, which may move up and down up to 100 mm. The springs also assist in lessening the force required by the operator to raise the tine assemblies when turning.

In the fully raised position, the tines are around 150mm clear of the ground, and the coulter 100mm clear. This may be sufficient for normal field operations. However I will recommend that the tines and coulters be removed for long distance travel. This is quite easy, taking less than a minute. Feel free to send comment and opinion on any aspect of the subjects being discussed.

Further picture are available to those who are interested.

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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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