

TWO WHEEL TRACTOR NEWSLETTER – FEBRUARY 2013



This is the Khedut Agro 2WT seed drill from India. It has some common features to the ARC Gongli. However my guess is that it is only suited to traditional planting (where the soil is bare and loose) as it seems to be of delicate construction. Also no attempt has been made to position the tynes across several tool bars to aid in residue clearance.

Report from Leigh Vial (ex-pat Aussie) – previously Laos – now with IRRI Philippines.

Leigh has sent me these pictures of a 2WT zero tillage seed drill working sowing dry season rice in Laos. Before transferring to IRRI, Leigh worked on an ACIAR project on rice production in Laos. He still visits Laos on a regular basis.



Lao built 2WT seed drill planting dry season rice (zero tillage)



In 2008, as part of the original ACIAR 2WT seed drill project, a prototype seed drill was supplied to Laos for testing. Unfortunately at that time it was not utilised properly, and little came of the initial evaluation. However the project has re-surfaced, using some of the parts, design and technology of the original ACIAR-Rogro unit. The blue no-till tyne assemblies were made in Lao during 2012. The manufacturer was fairly skilled, the materials he had a bit limited, but it came up pretty well, although the points were a bit wide.

A Thai made seed box of the same type as fitted to the 2WT Thai made disc rice drill (featured in a recent 2WT newsletter) has been fitted. The box has no choice of rate and a V-belt drive -, but Leigh thinks it really suits situations with minimal skills, experience and mechanical back-up. It has now seeded rice and also maize (by blocking holes in the roller). The Savannakhet farmers were talking about trying it on legumes.

Particularly pleasing was the farmer response when new crop was seeded straight into standing stubble. They immediately described the opportunities this represents (moisture retention, quick, subdued weed emergence, mulch effect, etc.). They loved it. Leigh said it was truly a joy seeing the farmers watching the seeder drill no-till!

Leigh intends to approach the seeder manufacturer in Thailand, where the seed box came from, to see if they have an interest in manufacturing the tyne assembly, as it proving far more capable than the disc seeder they are currently manufacturing, although it is a little more cumbersome.

I understand from Leigh that no facilities were available at the site to adequately raise and level the tool bar on the seed drill. This is the reason for the odd 'attitude' of the drill. However adjustments are in progress, and when they are completed, operation will be considerably improved.

PTO Kit available for Dong Feng 2WT



Mr.Sun Liangjun, export manager for Dong Feng Agricultural machinery Co. has advised me that a power take off (PTO) kit for late model Dong Feng 2WT is now available. The PTO shaft rotation speed is about 540 rpm and there is a key way provided in the shaft. This is a welcome option to operate sprayer pumps, small hydraulic equipment and the like.

Recommended price (ex factory) will be under \$US15 each for the kit.

More on the angled single disc opener.

Bruno Vadon has sent me some further details on the French made single disc opener. This information comes from M. Anicet Marionneau who is the principal design engineer.



Angled single disc seed drill -4WT model Angled disc single seed drill animal (2WT) model

The diameter of the disc opener is 40 cm.

The unit is set up for 18 cm row spacing in two ranks on the close drill (4WT) model.

Row spacing not specified on the animal traction (2WT) model.

The disc inclination is 30 degrees relative to the vertical.

Disc offset – not specified.

Cemagref (Irstea) carried out some independent research to arrive at these settings.

The depth is adjustable for depths of sowing located between 2 and 5 cm by means of an adjustable depth gauge wheel on the side of the disc.

The optimum angle for the disk push arm when working in the soil is 20 degrees.

Each disc is independently hinged.

The row spacing on these units is not adjustable.

The weight of each unit has not been specified.

Cemagref has no patents, but it has documents prior to a Canadian patent (filed by a company having visited our work) that allow appropriate to cancel a lawsuit.

Some plans or drawings are available by contacting Bruno.

A short video of the 4WT seed drill in operation can be viewed at (note large file size 16 MB)

<https://sites.google.com/site/twowheeltractorgroup/home/two-wheel-tractor--large-files>

Provision of a high residue disc planting option for ARC Gongli seed drill.

Following the difficulties with the ARC Gongli seed drill planting into long maize stalks in Vietnam (as reported in January 2013 issue); I have made up a 'high residue planting option' which can be fitted to this seed drill.

It consists of a cutting disc (coultter) 38 cm in diameter and 4mm thick which can be easily fitted to the drill. The original tine is replaced in the tine clamp by the disc assembly. The disc is used to slice through the stalks and allow the tine to then pass through at the normal planting depth to position the seed (and fertiliser if required) into the soil.



2WT seed drill with disc option fitted to bars 1 & 3
(Note no operator stand fitted)



Same disc option fitted bars 1 & 2



Disc option on bars 1 & 2 with operator stand fitted



Rear view of the operator stand



Close up view – disc/tine on bars 1 & 3



Close up view Disc/tine on bars 1 & 2

Note that the tool bar positions may be altered to suit varying soil and residue conditions, and many different combinations are available. As I have just completed manufacture of this option, no field testing has yet been done.

Plans for the manufacture of this option have been sent to Yuncheng Gongli, and hopefully this alternative will be available to those buyers who wish to have the high residue option. As cutting discs often require extra weight for proper soil penetration and residue cutting, the operator stand is recommended. With this attachment, the operator's weight can be added to assist the operation. When the operator dismounts to change direction at the end of the row, the handlebars can then be easily lifted for turning.



The operator stand is a 30 cm. square metal frame, with a grate welded to the top. The original press wheels have been removed and a pair of 4.00 x 8 rubber tail wheels as supplied to a Dong Feng two wheel tractor has been fitted. Experience has shown that the existing 25 cm diameter press wheels are too small to support the weight of an operator as well as the back of the seed drill – the rolling resistance is too great. The stand is supported by a pair of bushings underneath, and located by a pair of adjustable struts which attach to the rear tool bar.

The 4.00 x 8 wheels (diameter 38 cm) can double as press wheels if required. If pressing is not necessary, the wheel footprint can be altered so that they track between the sown rows. For travel between farms or extended distances, the soil engaging tools can be raised or the press wheel axle lowered to permit fast movement along roads.

This high residue option with cutting disc has at present been set up for the planting of two rows at spacing of 60-80 cm. (maize etc.). I do not consider that a close drill planting of four rows (wheat, rice etc.) using four cutting discs is feasible right now. The limited room on the tool bars means that the discs and tines would be too closely spaced for adequate residue clearance. There is also the possibility that insufficient weight may be able to be applied for proper penetration of the cutting discs.

However other disc options currently being considered may allow planting of close drilled crops into heavy residues.

Note that this newsletter is in low resolution pdf. Form (due to those with slow Internet connections) If you would like any of the pictures in higher resolution please contact me at rjesdaile@bigpond.com