

## TWO WHEEL TRACTOR NEWSLETTER NOVEMBER 2013

One of the forum members – John Schiller of Univ. of Queensland –has sent me a report on progress with direct seeding of rice in Laos in 2013. John is a supervisor on this project.

The pictures below illustrate the progress with the project.



DIRECT SEEDER USED FOR 2013 ON-FARM ACCA-SRA STUDIES IN SAVANNAKHET PROVINCE



DIRECT SEEDER OPTION FOR FUTURE ON-FARM STUDIES (manufactured in Thailand and being assessed by farmers in Savannakhet province of Lao PDR in 2013 wet-season)



DIRECT SEEDED RICE CROPS IN CHAMPHONE DISTRICT OF SAVANNAKHET IN JUNE 2013 (SOWN ON 6 MAY)



DIRECT SEEDED RICE CROP (PLANTED ON 6 MAY) IN CHAMPHONE DISTRICT – JUNE



DIRECT SEEDED RICE CROP IN OUTHOMPHONE DISTRICT – 5 JULY



DIRECT SEEDED RICE CROP APPROACHING MATURITY IN PHIN NEUA VILLAGE, OUTHOMPHONE DISTRICT – SEPTEMBER 2013



DIRECT SEEDED RICE CROP AT MATURITY, PHIN NEUA VILLAGE, OUTHOMPHONE DISTRICT  
- LATE SEPTEMBER (2013) – (NOTE EARLIER MATURITY THAN BACKGROUND CROPS)

John mentions in his report that development of the direct seeding technology is going ahead quite well. There are several Lao students doing higher degrees on various aspects of the technology.

However there are some further challenges to overcome to get direct seeding ‘on track’ for widespread adoption. Some of these include:

Variety -Choice of rice variety to suit the direct seeding system, disease issues, and also variety for early maturity.

Fertiliser application systems – Whether the fertiliser should be applied at planting, or post-plant.

Weed control – this is by far the biggest challenge as alternative methodology and field management systems must be devised to check weed growth.

It appears that a 2WT, along with the appropriate seed drill, can do a satisfactory job for the small area farmer of Laos. I am sure that John can answer any queries you may have on the project. Further details on request.

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My recent visit to Tanzania, to fabricate the first two ‘Gongli-Africa’ seed drills has been reported on the CIMMYT website. It is at: <http://blog.cimmyt.org/?p=11286#>!

It will be interesting to observe how these units perform in the coming crop season.

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### **African visitors inspect two wheel tractor seed drill and try it out for themselves.**

A group of 16 African agronomists and soil scientists visited Tamworth recently and inspected the original ACIAR- Rogro seed drill in the field. The group had delegates from East, West and North Africa, and were being taken on a study tour of soils and farming systems in Northern NSW and Southern Queensland by Dr. Gunnar Kirschhof a soil scientist from Univ. of Queensland. A local soils consultant, Jonathan Banks, also assisted.



The demonstration was held on a large Tamworth farm, which is principally irrigated by centre pivot irrigation units. The water supply for the operation is treated effluent from the city of Tamworth. Lucerne (alfalfa) for hay and cut forage is grown under the pivots, and the seed drill was operated on an area which had recently been cut for hay.

After a period of initial instruction, many of the African delegates operated the seed drill for themselves.



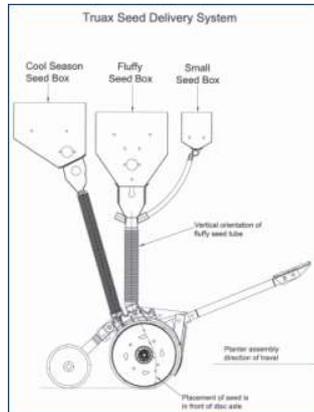
The unit was set up in a two row configuration, for row crop planting, although it is capable of planting up to four rows of close drilled crops. It had no difficulty planting into the light residue conditions with cut lucerne plants

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**Some alternative approaches to surface following ability of soil engaging tools with high residue clearance which are easily adaptable to 2WT tool bar.**

Dr. Djoerd W. Duiker of Penn. State Uni. in N. America (one of our forum members) has suggested that some of the principles of the USA made Truax seed drill could possibly be adapted to suit our requirements. Some Truax seed drills are specifically designed to plant pasture into hard sod in partially forested conditions. They are at:

<http://truaxcomp.com/>



Seed from all boxes is delivered between the double disc openers. The rolling disc opener carries the seed into the soil for proper placement and optimal seed-to-soil contact. A guard in front of the disc openers reduces plugging problems. Truax EZ-Off Depth Bands on every disc control planting depth. Four sizes are available to accommodate planting depths of different crops. Each opener is independently supported with down pressure springs.

Another alternative is an adaptation of the principle of the US made 'Buffalo' no tillage slot planter. This planter has a front cutting couler disc, followed by a stub runner tine opener, and a seed firming wheel.



I used one of these planters for nearly 20 years on the farm in NW NSW, Australia. The cutting couler disc sits in front of the tool bar and to a degree is 'pushed' whilst the tine opener is 'pulled'. Each unit has a parallelogram setup to incorporate surface following ability. The Internet picture on the left shows extra weights. However in my experience I never felt the need for them. Buffalo planters were rugged units, which had heaps of optional extras for row cleaning, seed pressing, and residue handling. Unfortunately they are no longer manufactured.

Perhaps some of the features of this planter could be incorporated into compact row units to fit under a 2WT tool bar.

Finally, I had had some more email correspondence from Bruno Vadon, one of our forum members and a joint developer of the single disc opener which is 'pushed'. As previously mentioned, units which are

pushed need much less weight for penetration, as the downward moment force component of the angled forward movement supplies the downward pressure. (remember your High School studies in Physics?)



Two row angled single disc for animal traction



Angled single disc as fitted to seed drill on 4WT  
Note how the disc units are 'pushed'



A close-up of the angled disc opener.



An angled single disc unit fitted vertically under a John Deere row unit

Some farmer groups in France have done some independent development, making up their own units, which are vertically mounted and not pushed. Bruno and his colleagues are continuing further R. & D. both in France and North Africa on the original designs (with some financial constraints).

Some of the French units can be seen in action on Youtube in the links below.

[http://www.youtube.com/watch?feature=player\\_detailpage&v=4eX6gzdI31o](http://www.youtube.com/watch?feature=player_detailpage&v=4eX6gzdI31o)

<http://www.youtube.com/watch?v=SJcHIT7HY3c>

However note that they are big files, and may take some time to view if you have a slow Internet connection.

Are there other options available? The whole aim of the exercise is to develop a compact two row seeding unit which is surface following, will handle lots of residue, be light in weight, operate in variable conditions, be inexpensive, and have minimal power requirements. (remember there is only 12HP available and 500 kg. of tractor weight). Anyone else with ideas?

*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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