

TWO WHEEL TRACTOR NEWSLETTER JUNE 2012
(Produced by R. Jeff Esdaile, Ag. Consultant, Tamworth NSW Australia.)

Second African Delegation

A group of 13 African agricultural scientists visited Tamworth on 22 May. They were from 11 countries, representing East, North and West Africa. They were being sponsored by AusAid and were visiting farms and inspecting research programs in Northern NSW and Southern Queensland. The main areas being inspected included farming systems, soils, and the conservation agriculture of the region. Dr. Gunnar Kirchhof from University of Queensland School of Agriculture led the study tour, along with Robert Banks, a private soils consultant from Northern NSW.

The party was shown the 2WT with the zero tillage seed drill in action on a local farm.



The African visitors being shown the 2WT with seed drill. The field has mature irrigated lucerne (alfalfa), which has recently been cut for hay. The seed drill easily planted a companion crop in the demonstration.

Improved version of operator stand.

An improved version of the operator stand has been fabricated. See pictures below.



This stand has been specifically designed for operation when disc openers are fitted to the seed drill. Disc openers often require extra weight for penetration, and the operator weight can be utilised to provide this.

This arrangement is something similar to the operator stand as fitted to the Brazilian made 2WT seed drills. The original press wheels are removed, and two 4.00 x 8 pneumatic industrial wheels have been fitted. The wheels are adjustable on the axle for various row spacings. These wheels can also double as press wheels if necessary.

This option is also convenient when the 2WT and seed drill travel considerable distances between farms or localities. The soil engaging tools are raised clear of the ground for transport.

A powered roller/crimper for 2WT.

Dr. Ted Kornecki of USDA Auburn, Alabama USA has sent details of a powered roller/crimper to suit a 2WT.

This unit is specifically designed for DMC-SCV (*direct seeding into mulch - sous couverture végétale*) conservation farming systems. With this principle, biomass crops are grown exclusively to provide mulch. This can be either a grass or legume. When the biomass crop is mature it is rolled and crimped to provide a heavy layer of mulch. This flattened crop is then

desiccated (either by herbicide or damage from the crimping), and the new grain crop is planted into this thick mulch with a seed drill fitted with disc openers. Traditionally, a heavy roller, fitted with angled bars is used for the rolling and crimping operation. This relies on the weight of the implement to carry out the crimping operation.



Two examples of traditional roller/crimpers using 2WT

Ted has invented a revolutionary system of rolling/crimping, where weight is of secondary importance. He believes that the weight of traditional roller/crimper is too small to generate an effective crimping. In his device, the crimping energy comes from the compression springs, not from the weight. This unit is fitted to a BCS (Italian made) 2WT.



(a) Single edge crimping bar



(b) Double edge crimping bar

The drum roller at the front flattens down the cover crop biomass onto the soil surface, and the crimping bar assembly moves up and down by releasing spring energy when the lifters (cams) mounted on the camshaft are disengaged. The released kinetic energy generates the downward force that creates the downward acceleration of the crimping bar to crimp the cover crop. Because the crimping bar force comes from springs, and not from its weight, the machine is much lighter than traditional rollers/crimpers. It requires less horsepower in the field and is much easier to handle during transport. The crimping frequency can be manipulated both through the engine RPM and the operating speed of the 2WT. The prototype shown is 91 cm (3 ft) wide and shows (a) Single edge crimping bar roller/crimper; (b) Double edge crimping bar roller/crimper. High efficiency crimping is important in organic vegetable systems where an effective termination of cover crops can be accomplished mechanically without applying commercial herbicides (i.e., Roundup). The device can work at the front or the back of the 2WT.

The powered roller/crimper has been just patented (*Kornecki, T. S. 2012. Powered Rolling and Crimping Device for Crop Termination. US Patent No.: US 8,176,991, B1. Date of issuance: May 15, 2012*) and may have worldwide application where 2WT are used. Ted will present his research results from testing of this roller at the 2012 CIGR International Conference of Agricultural Engineering in Valencia, Spain July 8th-12th, 2012. Ted can be contacted at Ted.Kornecki@ARS.USDA.GOV. A pdf. copy of the presentation is also available upon request.

The results to be presented at the CIGR Conference indicate that this implement can give nearly 100% mortality of biomass crops when operated correctly.

I am not sure how much R. & D. is being carried out with DMC-SCV conservation systems that utilise rolling/crimping of biomass crops as part of the technology with 2WT. However I know there is interest in South Asia where CIRAD has an active program. This alternative method of crop desiccation that does not necessarily require herbicides to kill the biomass crop may have merit. Do you have any opinion on DMC-SCV for smallholder farmers? Is there a market for a powered roller/crimper to suit 2WT?

However some modification may be necessary to adapt this powered roller/crimper to Asian built 2WT as a different PTO system is used.

Siam Kubota uses two wheel tractor races for marketing and to generate interest in its products.

This news item appeared recently in the Bangkok Post newspaper



Siam Kubota two wheel tractors are now being promoted through racing, to generate interest in these units. Sales of two wheel tractors in Thailand are now being overtaken by sales of larger four wheel tractors.



Note that these tractors have been fitted with specially lugged mud tyres, and also have been fitted with mudguards (fenders). The pictures do not show the arrangements for the rear tail wheels.

Some contestants have been racing for over a decade and usually use the two wheel tractor in the family paddy field.

"It's actually fun and lowers stress, and we like to race amongst each other after a hard day's work," one driver said.

"You have to have tough muscles in order to drive well, though the hardest part is knowing what the ground is like under all the mud because every time a tiller races on the track, it changes the ground and the lanes as well." he added.

Is this your idea of fun and relaxation? (Ed.)