

# Farmer Sowing Equipment Demonstration

## Aim

To demonstrate six different seeding machine set-ups sowing in stubble. This demonstration was used to compare different set-ups across two different rates of trifluralin at a number of different sowing speeds.

## Summary

Six different farmer operated seeders were used in a minimum tillage situation to compare seeder set up and the effect of trifluralin incorporated by sowing on crop emergence. The demonstrations were taken through to harvest to compare yield.

In all cases, trifluralin (TriflurX 1.5L/ha) decreased germination (by approximately 10 to 20%). There were no differences in yield between the different seeders.

This farmer trial was sown after the farmers had finished their own sowing program, resulting in the trial being sown late. The yields in this demonstration suffered because of the late sowing.

## Background

Trying to make a decision about the perfect direct drill machine set-up is fraught with questions and deliberations.

## Methods

Replicates:	Demonstration only
Plot Size:	Width of seeder x 100m
Variety:	Yitpi Wheat
Sowing Date:	All plots were sown on the 5th of July except for the Ausplough which was sown on the 20th July.
Treatments:	7 seeding set ups were compared at 3 different speeds across two different rates of Triflur X® Control (0L/ha), 1.5L/ha and 2.5L/ha
Fertiliser:	MAP 50kg/ha

The seeder set ups and sowing speeds are described in Table 1.

Seeders were used to sow through a very light stubble (less than 0.5 t/ha) following the 2004 drought. Triflur X at 1.5 and 2.5L/ha was applied immediately prior to sowing. 2.5L/ha currently exceeds the maximum label rate and should not be used at this rate\*. A new label rate is being looked at by Nufarm for 2006.

Seeders were all calibrated before sowing to deliver 80kg/ha of Yitpi seed.

**Table 1:** Outline of machine set-ups used in the demonstration

Machine Set-up	Details
O'Connors, Ausplough, DBS	<ul style="list-style-type: none"> <li>▪ Double shoot Ausplough knife points, 25cm spacing</li> <li>▪ Ausplough press wheels</li> <li>▪ Triple bin airseeder</li> <li>▪ Two passes at 7.5 and 9km/hr</li> </ul>
John Ferrier	<ul style="list-style-type: none"> <li>▪ Harrington deep band points, 30cm spacing</li> <li>▪ Harrington press wheels</li> <li>▪ Two passes at normal speed 7.5 and fast 12 km/hr</li> </ul>
Cameron Warne	<ul style="list-style-type: none"> <li>▪ Jenke bar, knife points, 22.5cm spacing</li> <li>▪ Press wheels</li> <li>▪ Separate seed from fertiliser</li> <li>▪ Two passes at 9 and 11 km/hr</li> </ul>
John Watson	<ul style="list-style-type: none"> <li>▪ Flexi coil No-till bar, knife points, 25cm spacing</li> <li>▪ Two passes at 7.5 and 12.3 km/hr</li> </ul>
Ian McClelland	<ul style="list-style-type: none"> <li>▪ Smale Multivator, conventional seeder, 17.5cm spacing</li> <li>▪ Two passes at 7.5 and 12km/hr</li> </ul>
Concord Narrow points	<ul style="list-style-type: none"> <li>▪ Concord, Anderson openers, 25cm spacing</li> <li>▪ wide press wheels</li> <li>▪ Two passes at 6.5 and 12.5 km/hr</li> </ul>

To observe the effect of the trifluralin emergence counts were recorded at the 3 leaf stage (GS13).

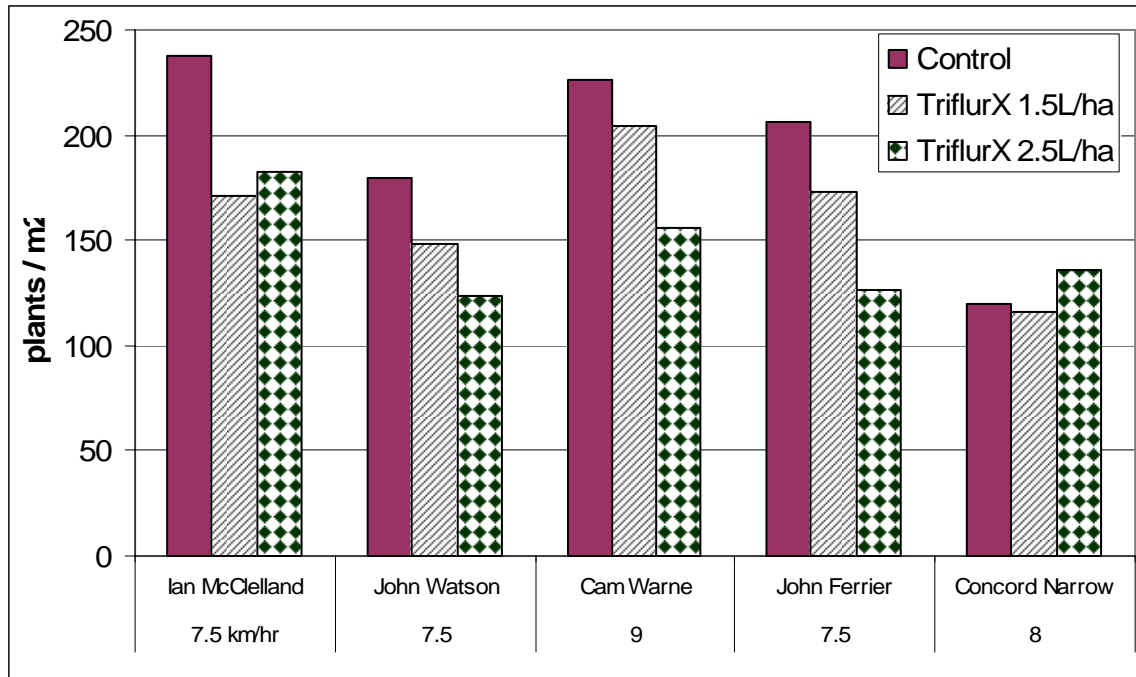
## Results

### *Crop emergence:*

The emergence of crop as sown by the Ausplough was not assessed because it was sown three weeks later compared to the other seeders.

The four seeders used by the farmer co-operators all had good emergence where no trifluralin was used (Figure 1). The Concord seeder was either poorly calibrated or suffered from significant seedling loss – more than likely it was due to poor calibration because this seeder with the press-wheel set up usually results in excellent germination and plant establishment.

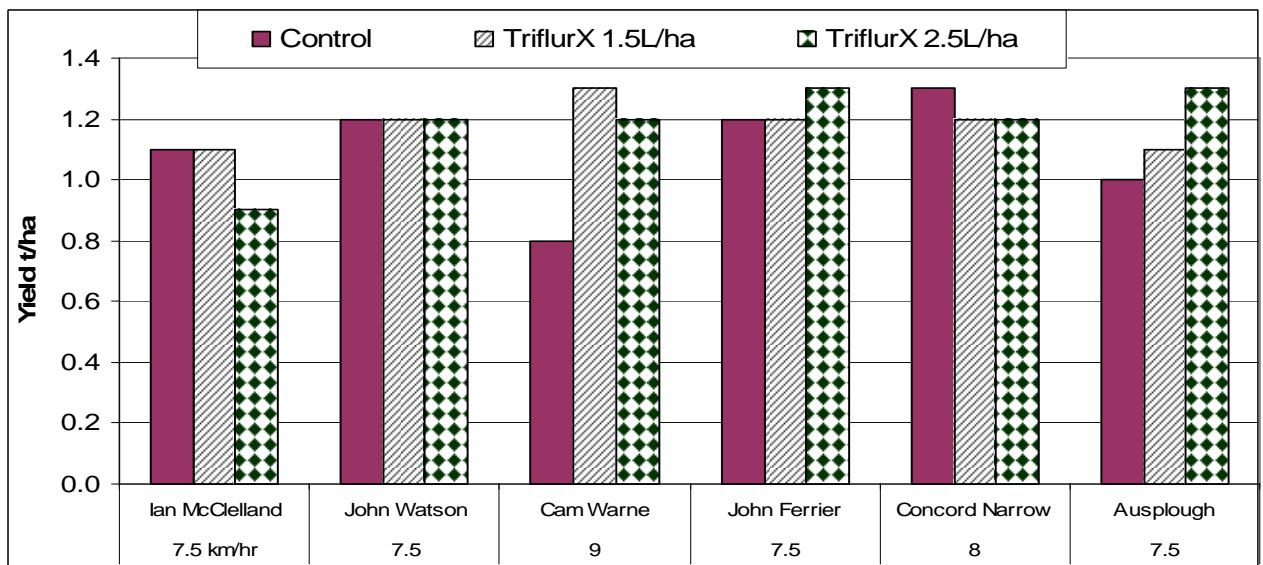
For the farm co-operator seeders the effect of trifluralin on crop establishment was very similar – there was a 10 to 20% reduction in seedling number at the TriflurX 1.5L/ha rate, which increased to a 20 to 30% reduction in seedling number at the TriflurX 2.5L/ha. These results clearly demonstrate the importance of ensuring that when trifluralin is used immediately before seeding that measures are taken to compensate for the loss in germination by increasing seeding rates. This is of course if you are not able to ensure seed and herbicide separation ie. knife point and press wheel.



**Figure 1:** Wheat emergence (plants/m<sup>2</sup>) for 5 seeders operating at their normal operating speed of the seeder and three rates of trifluralin (Triflur 0, 1.5 and 2.5L/ha).

*Crop Yields*

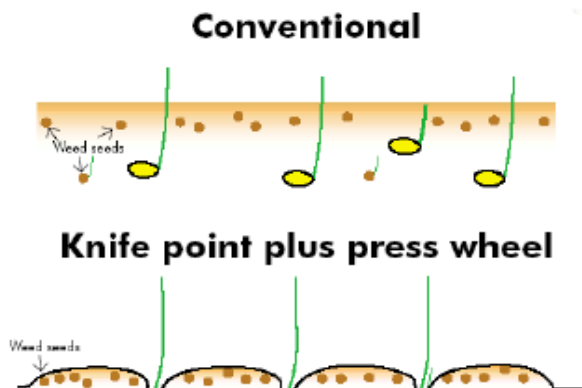
Crop yields were very low due to dry season (only 197mm of growing season rainfall) and the late sowing. There was no consistent trend with different seeders achieving a higher yield. Figure 2 outlines the yields achieved for each of the seeder used at the normal operating speed. There was no yield loss observed when sowing speeds were increased (data not sown).



**Figure 2:** Crop yields for the different seeders all sown at their normal speed.

## Interpretation

There was a loss in plant number associated with the use of trifluralin. Trifluralin when taken up by the roots of newly germinated crops causes a swelling of the coleoptile and a reduction in germination. The only sure way to overcome this effect is to understand where the herbicide has been placed in accordance with seed placement.



Above: Understanding where the weed seeds are, will determine where the TriflurX needs to be placed and what rate is to be used

The yields achieved did not vary consistently across the different seeders used. The poor season and late sowing would have contributed to the poor yield (crops sown in early June on the same site yielded between 2 and 2.5t/ha).

Seeders are a very expensive bit of machinery and it is very important for farmers to understand how seeders work, how well the seed is delivered, how well the seeder delivers seed to handle trifluralin and other pre-emergent herbicides, how well the crops establish and grow etc. This kind of trial work is essential for farmers to get a better handle on how seeders work and operate. Unfortunately this demonstration clearly shows the difficulty in running machinery trials with farmers. Sowing trials with farmers invariably means that trials are sown late and often too late to make sense of the comparisons.

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