Wantfa News

Newsletter of the Western Australian No Tillage Farmers Association (Inc.)
PO Box 1731, Esperance 6450

JANUARY, 1997

EDITORIAL COMMENT
By David Rees

Now is the time to judge how no-till systems have worked, not during the year when neighbours are driving past crops. Unfortunately it is easier to admire a good crop driving along the road, than to know how it really yielded, and how many tonnes were produced over the whole farm. Also what about grain quality ?

Many no-tillers know that their crops may not appear as spectacular, but there are often comments about how well the crop has filled. These are the stories we need to hear about. Even more important is to know how the overall program went, and whether the trend is upwards. Is no-till improving soil structure enough to notice any benefit ?

There are more questions than answers, and hopefully WANTFA can help members to help each other answer these questions.

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WANTFA on display

By Bob Bradley, Development Officer on exchange from Canada

Field days, trade shows, fairs and conferences provide opportunity to create awareness, market a product or promote an idea.

To use this opportunity, Wantfa executive therefore decided to develop a portable display system. At this point, the main header has been produced as well as short titles and captions to help the no-till story. Some enlarged photos will also help convey the message.

In time, it is hoped to add to this to allow either a general no-till story, or a more concentrated focus on any part of the system. Portable panels and a carry bag could be acquired to transport the display.

Initial exposure was at the Esperance Agricultural show, JERAC research expo, and South Coast Landcare conference at Gnowangerup. Wantfa members should be available to supervise the display in all parts of W.A.

It is hard to beat "farmers talking to farmers" and this display has tremendous potential for Wantfa.

Photos:
Top: Tim Trethowan (left) at the exhibit at the Jerac Expo at Jerramungup in October.

Bottom: Allan Jones and president Ken de Grussa at the Esperance Show.

PRESIDENT'S COMMENTS

by Ken de Grussa,
phone 090 782026, fax 090 782007

Our committee has been very active this year, though much of this has been behind the scenes.
Our last newsletter advertised for and administrative secretary and a no-till systems development officer.
The increase in membership has made it impossible for the committee to manage the membership lists, mail-outs, and subsciptions. Until now, the Kondinin group has helped, for which we are very grateful, but the time has now come for us to be more directly responsible.
Above all, we feel a need to communicate more effectively with members - both ways. Feedback from members is needed to respond effectively, and the new secretary will this communication as well as improving services to members and helping the committee. We have had a good response to the advertisement and choosing the applicant will not be easy.
The other position, the no-till systems development officer is funded by the Grains Research and Development Corporation and Agriculture W.A. We intend to have the person on the job early in 1997. A sub committee of WANTFA will manage the project but the officer will work with private consultants and agronomists as well as Agriculture W.A. officers.
This project has been made necessary by the adoption of no-till and the difficulty in accessing information to avoid costly mistakes.
My role as president has been made easier by the range of talents and willingness of the committee. The enthusiasm of the committee has brought out some positive ideas that you will hear about as time goes on, but inevitably we will be co-operating with other groups.
The visit by Dwayne Beck early in 1996 created a lot of interest, particularly in warm season crops in the rotation. WANTFA submitted a preliminary proposal to assess the possibility of such crops. Though this proposal was not successful, a number of farmers in different regions have planted these crops, and we hope to gain from their experiences. The committee is now considering other ways to learn about such crops and their use in a rotation.
Our next annual conference is planned for February 25, 1997 at Darkan. As a change of procedure, the annual general meeting will be immediately after lunch to increase involvement by members. Some committee members will retire, and we will be looking for new blood and new ideas. Please come !

Wantfa Secretary appointed.

Wantfa has appointed a secretary to handle administration and membership. She is Carolyn Middleton, a qualified accountant, based on a farm near Esperance.
Carolyn and her husband Andrew use no-till methods on their own farm. Perhaps this allows her the spare time to offer to Wantfa?
Wantfa's new postal address is PO Box 1731, Esperance 6450.
Carolyn's phone number is 090 759 030, and fax (090) 759 057.

Wantfa Development Officer

The position of development officer with Wantfa has not yet been finalised, but it is expected that the person will start in April, in time for this year's seeding.
Most members would have appreciated the input of people like Bill Crabtree and Kevin Bligh, in organising field days, demonstration trials, and general publicity for the new methods.
When this full-time position is filled, we should see more of this.

ANNUAL CONFERENCE *by Kevin Bligh, secretary, phone 09 332 7003, fax 09 332 7194*

The annual conference and annual general meeting is scheduled for Tuesday, February 25, 1997 from 10am to 5pm.

- Judy Tisdall from LaTrobe University in Victoria will speak on soil organic matter and no-till.
- Agricultural consultant Brenton Lynch from Wadinna South Australia will discuss no-till adoption on the Eyre Peninsula.
- Other speakers will be -
  - Margaret Roper, CSIRO, Perth - soil micro-organisms and no-till.
  - John Moore, Agriculture W.A. Albany - weeds and no-till.
  - Andrew Sandison AgWA, Geraldton - no-till trial results in 1996.
  - Tony Seymour, farmer and Nuffield fellow 1996 - a perspective on no-till in Europe and North and South America.
  - Stuart McAlpine, farmer, Buntine - my no-till system in a late break of season.

The WANTFA Annual General Meeting will be held at 1.45pm as part of the conference. Business will include receiving reports from the committee and treasurer, and electing or re-electing the president, vice-president and committee representatives for the south western and south coastal agricultural regions. Currently the representatives are Ken de Grussa, Tim Trethowan and Jim Baily. Other business can be placed on the agenda before the meeting starts.
As membership approaches 1000 and WANTFA begins employing its own development officer and secretary, come and make your views and wishes known.
Hotel/Motel accommodation is available at Darkan, Collie, Williams and other towns. Billetting may be arranged by phoning Greg Ricetti - phone/fax - 097 363060.

Profiling Machinery and Investment Running Costs

by Ray Wison, Senior Manager Rural Business, BankWest

One of the main criticisms of no-till seeding is the expense which people perceive. This article was submitted after a request to Ray for the bank's perspective on machinery costs.

BankWest collated production and financial data from more than 600 farm businesses for the 1995/96 season. The "top 25 per cent" were identified across 14 regions by measuring farm operating profit per hectare, which includes an allowance for machinery depreciation.

In all but two regions, the top 25 per cent had a significantly higher level of investment in plant and machinery. The average across all regions was 33 per cent higher investment, being as high as 60 to 70 per cent in the north eastern wheatbelt, Merredin, Jerramungup/Ongerup and Narrogin.

Whilst it is dangerous to interpret only one season's data, it is expected "top operators" have a higher investment in machinery because they consistently generate higher returns and can therefore afford better machinery.

It may also be argued that the relationship between higher returns and higher machinery investment is due to the greater field efficiency and improved timeliness of operation. This is supported by the fact that that the top 25 per cent in all regions averaged 14 per cent higher wheat yields.

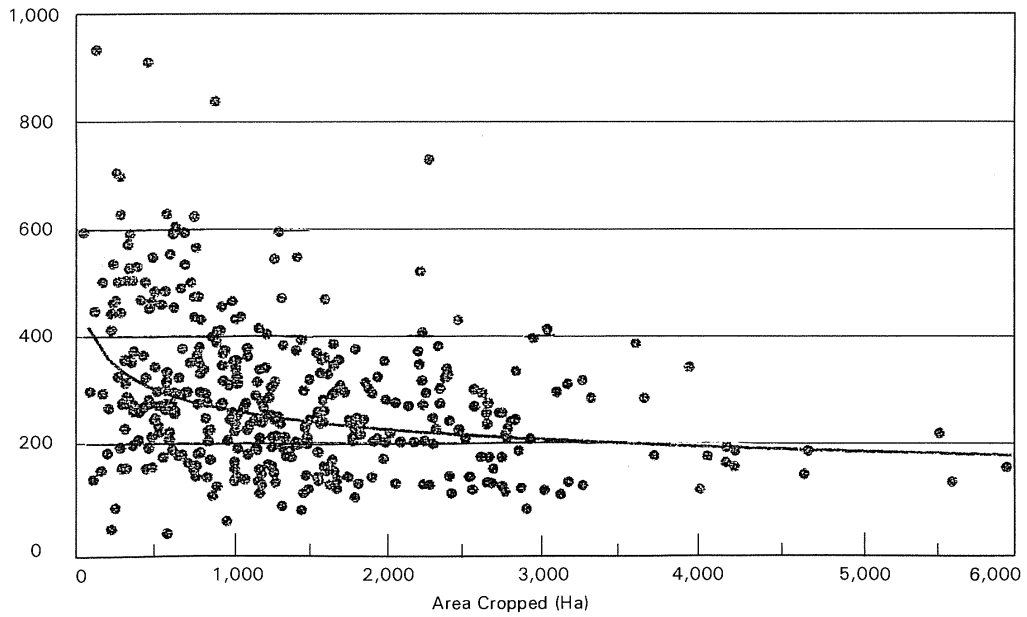
Data from "BankWest's Benchmarks" has also been analysed for WANTFA across 385 farmers in the northern and eastern wheatbelt, Lake Grace and Jerramungup/Ongerup areas to isolate key machinery benchmarks -

ECONOMIES OF SIZE

The average farm was 2688 hectares, with a crop area of 1457 hectares (54 per cent). Capital invested in plant and machinery represented 10 to 30 per cent of total farm assets.
The level of capital invested in plant and machinery averaged $290 per cropped hectare, with over 70 per cent of farms within the range of $150 to $350 per cropped hectare.
The bigger croppers had a higher proportion of arable area under crop. As the size of the cropped area increased, a lower level of machinery investment per hectare was evident.

Crop Machinery Investment by Area Cropped

Machinery Investment ($/crop Ha)



Machinery running costs

Fuel and repairs/maintenance costs were analysed against crop area and the level of machinery investment.
As table 1 shows, there is a substantial reduction in operating costs per hectare as the area cropped increases.

Table 1: Machinery costs by area cropped

Crop Area	Farms Surveyed	Area Cropped	Machinery Investment	Parts & Repairs Cost	Fuel & Oil Cost
(Ha)	(%)	(%)	$ per cropped hectare		
< 500	16	35	369	33.3	29.4
501 - 1000	24	49	357	23.9	23.6
1001-1500	22	57	254	20.1	17.7
1501-2000	16	60	242	22.5	17.1
2001-2500	8	63	279	18.4	18.4
2501-3000	8	73	202	18.5	14.0
3000 +	7	70	200	17.5	14.7
	100	Ave 54	Ave 290	Ave 22.2	Ave 19.6

The expectation that higher levels of investment in machinery will be associated with lower repair bills was not evident. As shown in table 2, machinery running costs increase marginally with a higher level of investment in machinery. This especially applies at the top end (over $400 per cropped hectare) and may be due to an investment in farm trucks which are used for contract carting.

Table 2: Machinery running costs by level of investment

Machinery Investment	Farms Surveyed	Area Cropped	Parts & Repairs Cost	Fuel & Oil Cost
$ per cropped hectare	(%)	(%)	$ per cropped hectare	
<150	17.5	87	19.9	15.5
151-200	15.2	58	20.8	17.2
201-300	35.0	55	21.3	19.1
201-400	16.5	54	22.0	18.8
400 +	15.8	42	28.6	28.7

Machinery costs in perspective

Total farm receipts (i.e. including non-crop income) ranged from $250 to $400 on a cropped hectare basis. Of this, average machinery costs have been calculated at $96 per cropped hectare or 24 to 38 per cent of receipts, based on the following assumptions -

Ownership costs (based on $290/ha investment level)

Depreciation	$23.20/ha	
Interest (opportunity cost) at 10%	$29.00/ha	
Interest (opportunity cost) at 10%	$29.00/ha	$54.20/ha Total ownership cost

Running costs

Fuel and oil	$19.80/ha	
Repairs and maintenance	$22.20/ha	$41.80/ha Total running costs
Total annual cost	$96.00/ha	

Farmers operating at the higher end of the machinery investment range (more than $400 a hectare) but with incomes at the lower end ($250 a hectare) will have machinery cost approaching half of their receipts. Worse still, the 1995/96 year was a high income year.
The level of capitalisation in machinery should be considered relative to the value of production from the asset, and there are many other considerations in machinery purchase, including taxation.
The main consideration is the timeliness of operation, and reduced risk that comes with extra machinery, and this is hard to quantify. If this gain in yield or quality amounts to 20 per cent of a base yield of 1.5 t/ha at a price of $175 a tonne, the extra return $52 a hectare which is a big part of the total $96 a hectare machinery cost estimated above.

Conclusion

Machinery ownership and running costs have a big impact on profits. The challenge is to balance the benefits of timeliness and reduced risk, against having excess capacity (overcapitalisation).
BankWest benchmarks provide base information to help find this balance. More comprehensive monitoring and analysis of machinery systems in W.A. would help farmers decide replacement policies, the size of machine, and finance alternatives.

No-Till - The Package

by Ray Harrington, phone 097 363004

I believe the "no-till package" should be broken into district groups. I will deal with what I regard as the simplest and least demanding of the farmer to understand.

Firstly the no-till hardware that is fitted to your machine. To define a good no-till openeer, I believe is as simple as 1,2,3.

1. The opener must cultivate below the seed (this includes disk machines using deep coulters)

2. The opener must have accurate seed depth conntrol (you must be able to sow at 2 - 4 - 6 cm while keeping C.B.S.

3. The machine must cover seed. a) at least this gives accurate seeding depth
   b) keeps seed away from chemicals
   c) press wheels are an option where non-wetting is a problem but beware press wheels don't move soil onto the seed before that press.

If you can find an opener or machine that can fulfil 1,2,3 you can concentrate on other more important parts of the package. I believe most of our West Australian made products do 1,2,3 so you can purchase these with confidence. The no-till opener and machine are I believe only 10 per cent of the "no-till" package.

The next section to discuss is as simple as the first - nutrition.

In this modern era, you can get all the information you require by soil testing, speaking to agronomists and fertiliser representatives.

This part of the no-till package, you just purchase with your cheque book, just like the first section, then forget about it and concentrate on the most important part of the no-till package.

With 10 per cent for the first section, 10 per cent for the second, this leaves 80 per cent for the weed control, disease and agronomy.

Weed control is very different from traditional methods. Seed set control is absolutely paramount and should be practiced in the pasture phase or in the rotation. The most exciting thing I have found in my 13 years of no-till is what I have called "Clayton's incorporation" of herbicides.

To explain, the herbicide is sprayed on before the no-till seeder. The knife points cut slots through the chemical, while the small amount of soil splash from the points cover products like treflan and stop the volatilisation losses. This process also puts near-neat rates of herbicide on the weed seeds. The no-till system's greatest attribute is that it does not bury weed seed.

Last year I trialled 2 - 4 - 6 litres of simazine on barley and was amazed that two and four litres did little damage to the crop. This vindicated my thoughts on Clayton's incorporation that is leaving chemical on top of the ground while placing seed accurately at depth away from the chemical.

This year my trials involve 2 - 4 - 6 litres of treflan on barley in combination with one litre of diuron, and have controlled extra weeds in the spectrum (the most important thing to remember is that I have not buried any weed seeds for 13 years and therefore these Clayton's incorporated (C.I.) will be giving me different results.

With two litres of treflan and one litre of diuron, it appears I have pruned the roots on the radish seed that are left on top of the ground.

One litre of diuron and one litre of simazine applied incorporated by seeding with the knockdown on Mortlock oats have also controlled radish and done a brilliant job on silvergrass.

This year's trials included 2 - 4 - 6 litres of treflan on Mortlock oats (we all know that treflan will control wild oats). There is no damage whatsoever to the crop and will be weigh-trailer tested. This trial really proved to me that Clayton's incorporation will be a very effective method of controlling weeds in the future.

This year in my travels I have seen things like -
- three litres of treflan on canola controlling toadrush and crassula on the inter-row, and turnip being controlled. Radish appears to need diuron or simazine to stunt it.

I believe the reason conventional cultivation has failed and we have resistant weeds is the very action of burning weed seeds which in fact emerge some two to four weeks after crop emergence. The no-till package will in time keep all weed seeds on top of the ground so they can be attacked with root uptake herbicides. This will include things like oats or barley stubble where rogue barley will be left on top and controlled with root uptake herbicides. A lot of these results are very much in the experimental stage but look very promising. The no-till package must also include a suitable rotation for control of weeds in the opposite phase, and most importantly control diseases that carry over on grasses.

The no-till package is still very young and I am sure at this stage we know very little but must get our blinkers off and dare to be different.

I believe there is way too much emphasis in W.A. and for that matter, the eastern States on the no-till openers. The openers story has taken our focus off the most important area, and that is the "no-till package".

Points of interest from the Morawa Conference

The compiled papers from the Morawa no-till conference make interesting reading. Some points of interest from just the speakers' papers are summarised below. As well, the reference papers produced for the conferenece include sections by farmers, machinery manufacturers and research results. Copies are still available from the Koolanooka Bowgada Landcare group, P.O. Box 172, Morawa W.A. 6623.

* Brian Scarsbrick, chief of Landcare Australia reported a U.S. study which showed no-till out-performed conventional in yield and profit.

* Allen Postlethwaite, from a 1575 ha family farm operation in the Victorian Wimmera, stressed that no till had to be a part of a whole farm management package (must have been talking to Ray Harrington !).

* Albert Rovira, "Australia's most recognised soil scientist", talked about the need for indicators to watch the effect of farming systems on the soil - the carbon and nitrogen cycles in the soil are the "powerhouse" and need to be maintained or preferably improved.

* Wayne Proudlove outlined the philosophy behind the Nichols triple action tyne seeder.

* Digby Lee-Steere observed that the most important part of no-till is the boom spray.

* Bill Ritchie from New Zealand explained the case for hi tech no-till gear.

* Scott Boyle from the Kondinin group discussed the pros and cons of machinery alternatives. However in the future he predicted changes in ground-engaging components would not be dominate break-throughs. It would be issues such as salinity, chemical use, leaching of nutrients, new varieties and whole farm mangement.

* David Bowran from Agriculture W.A. warned of the possibility of weeds evolving to become more aggressive in no-till systems. This threat applies to weeds with a reduced ability to germinate on the surface. Initially the no-till methods may reduce weed populations, but the selection pressure could build up populations which are still damaging.

* Peter Norris of SBS Geraldton reported on trials that showed that wheat could stand high levels of simazine treflan and diuron pre-seeding, though caution was urged. Also, a trial on knockdowns for no-till showed that high rates of Roundup alone or Roundup/Ally gave best knockdown, with some antagonism with ester and dicamba mixes. Follow up Spray.Seed was needed when the initial knockdown was not successful.

* Peter Burgess and Michael Lamond also described trials which indicate that soil active herbicides such as trifluralin, diuron and Lexone can be more effective with no-till methods.

* Trevor Wilkins described his own farm system and the differences he had noticed with no-till. Many of his observations were echoed by other speakers, but he warned that trace elements are not incorporated evenly by no-till.

* John Holmes, Ag W.A. at Northam, pointed out that no-till increased the pressure on knockdown herbicides. The only existing knockdowns were glyphosate and Spray.Seed. Basta has not been developed though it has potential and in W.A. tests, amitrole has been unreliable. No-tillers should therefore use multiple weed control methods to reduce reliance on any one technique.

* Ray Platt, chairman of the Conservation Farmers Association, central west N.S.W. described how no-till was reducing the problems of erosion over many years in his district. With no-till he has noticed a enormous increase in the earth worm population. Earthworms and lucerne were the only thing that could penetrate their plough pans, whereas cultivation with an agroplow was only successful until the first big rain.

* Rex Edmondson, chairman of the soil and land conservation council, summarised the development of no-till practices, including the role of land care groups in stimulating interest. No-till has become the most widely accepted land care practice, and has made a large difference to viability of cropping.

* Greg Mills, Conservation Farmers Inc, Dalby Queensland explained how no-till had helped with their farming. Better moisture conservation allowed more options for cropping including double cropping with summer crops into winter crop stubbles. This had returned record farm incomes with a 15 per cent return on capital. At the same time, erosion had been all but halted, and cost of equipment had fallen because of the extended life of machinery.

* John Ryan described his experiences with the DBS system which has included 200,000 hectares sown i 1996.

* Phil Michael and Mike Grimm from Agriculture W.A. reviewed potential pest problems with no-till. Some pests such as webworm and red legged earth mite could increase with no-till, but controls are available, often by management in the year before the crop.

* The benefit of retained stubble in reducing aphid and virus spread in lupins was outlined by Francoise Berlandier and R.A.C. Jones and A.M. Bwye.

Do we scrap the ploughs ?

Some recent stories about problems in getting a result with trace elements makes you wonder whether there might not still be a place for the occasional ploughing in a no-till system. Nutrients such as copper do not leach at all, and under conventional cultivation, would be mixed at least in the plough layer.

In southern areas, as some traditional sheep producers are cropping paddocks in strange ways, and with strange crops like wheat. This has exposed copper problems which sometimes have not been that easy to overcome because of the immobility of copper. Ploughing in would have helped.
Another local example has been topdressing clay on to sandy soils. This has produced some terrific yield responses, but really needs to be accompanied by cultivation to incorporate the clay. There has also been speculation that something like a mould-board plough would be ideal to bury weed seeds which may accumulate on the soil surface. Another good idea - at least in theory.

While certainly not advocating a return to cultivation, there may be experiences from Wantfa members where cultivation was necessary. We want to know about experiences - good and bad, with no-till.