Getting started with No-Till in 2007

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Take Home Messages

- No-Till is a whole farming system, not just a change of machinery. If farmers only get part of the package right, the potential to succeed with no-till is greatly reduced.
- Paddock selection, stubble management, weed control, nutrition, disease management and seed placement all play a vital role in the success of no-till.
- 2007 has many advantages for the first year no-tillers with low stubble loads, residual nutrition and low disease carryover.
- Ask others who have successfully made the change to no-till what works for them. Don't try to re-invent the wheel and make the same mistakes all over again.

After another drought year in 2006 a lot of farmers are now asking the question of where to in 2007? After various unsuccessful crops and a year of very low income how do we keep going this year?

There are many lessons to be learnt from the past few years and especially 2006. One of the most important lessons would be the value of stubble retention and timeliness of sowing in our cropping systems. These two factors alone assist with conserving all of the moisture that is available and using it to its maximum efficiency. The no-till cropping system allowed farmers to do this in 2006, which resulted in there being something to harvest.

The benefits were evident driving around many districts in Victoria. Does this mean that 2007 will be the year to get into no-till for many farmers?

If this is the case it is important to realise that no-till is a whole farming system, not just a change of machinery. Good agronomy is an important part of the package. In the past tillage has played the role of controlling some diseases, controlling weeds, mineralising nutrients, creating soil tilth, levelling paddocks, reducing trash and stimulating weed germinations. If you are moving to no-till you need to make sure that you have each of these issues covered in the new system.

Many of the first no-till farmers took a number of years to change systems and find what worked for them. They tried various machine set ups, worked out weed and disease control strategies and focussed on getting the nutrition right. A key message to those starting no-till is to learn from the mistakes of the early no-tillers and not repeat them. Talk to your neighbours and find out what works for them and try the same at home.

Farmers that are already practising minimum tillage with stubble retention and an intensive crop rotation will probably find the transition to complete no-till fairly smooth. Farmers that are still practising multiple cultivations with a less intensive cropping program may find the change in mind set needed for no-till a little more challenging and will need to make sure they understand the basic principles of the no-till system. If farmers only get part of the package right, their potential to succeed with no-till will be reduced.

The following points provide a basic checklist to make sure farmers get off to the right start if trying no-till for the first time in 2007:

Paddock selection

2007 provides a perfect opportunity for choosing paddocks that will make it easier to start no-till. Ideally it is best to select paddocks that have a low grass weed burden (especially if sowing cereals), high nutrition, good disease status and low stubble loads.

There will be many paddocks in 2007 that fit this criteria, either coming from last year's failed or very low yielding crops.

Stubble handling

When considering starting no-till the decision should ideally be made before harvest the year prior. This will enable the trash / stubble to be managed correctly to make it easier to handle the stubble load at sowing in the first year.

2007 is a year when you can get away with preparing for no-till after harvest. The stubble loads in many paddocks will not generate a huge problem for machinery that will be tested in the no-till system for the first year.

Generally it is important to have good clearance and trash handling abilities in the machine that you set up for no-till. The higher the frame off the ground (when working) and the greater the distance between adjacent tynes (both sideways and front-rear), the better. If your on-farm options really are limited, an inexpensive used chisel plough may be an option for conversion. If draft or width are issues, it's always possible to take tynes off or build small extensions to make a solution that works, at least for 2007.

Ideally it is best to plan ahead and aim for a machine that will be able to handle heavy loads of standing stubble. Standing stubble provides a number of benefits; ease of sowing, especially if you can sow between the rows, better chemical penetration to the ground (and the weeds seeds will be sitting on the surface), better moisture penetration and subsequent runoff into the presswheel furrows and increased wind protection.

Weed control

Weed control is one of the many issues that appears to be holding many farmers back from starting no-till.

Good summer weed control is vital. There is enough information available to show that the earlier summer weeds are controlled the better and the more moisture can be conserved.

Crop weed control requires good management, generally beginning with a knockdown if the season permits. Most herbicides applied in the no-till system are residual herbicides incorporated by sowing. There have been numerous incidents of crop damage from residual herbicides applied post-sowing in the no-till system. Herbicides that have traditionally needed incorporation to work are still very effective in the no-till system, with the soil throw from the tyne covering the herbicide in the inter-row and effectively replacing the need for incorporation. Many no-till farmers who are confident with their sowing system and where the soil is going have increased the rates of herbicides used. By applying herbicides in front of the seeder the herbicide is thrown out of the crop row, leaving a safety zone for the crop to grow in and concentrating the chemical in the inter-row.

Nutrition

Good nutrition is essential in the no-till system, because cultivation is not continually mixing and mineralising nutrients. Again 2007 provides an excellent opportunity to get started with no-till due to the residual fertiliser from last year.

Incorporating stubbles will tie up a lot of nitrogen that would otherwise have been available to the plant, which is another reason why it is best left standing. Eventually a natural balance will be established in the soil and the stubble will be broken down a lot more quickly without the need for incorporation. Decomposition of crop residues releases nutrients at the time when the plant needs them – when it rains.

Machinery

The move to no-till need not mean the purchase of a brand new machine. Most farmers started no-tilling by modifying their existing machinery to keep the cost to a minimum.

Have wide enough row spacing, at least 250mm (10") but 300mm is ideal. Most farmers that started with 250mm have now changed to 300mm. The speed you travel at sowing will depend on your row spacing, soil type and whether it's wet or dry. The aim is to generate enough soil throw to cover the inter-row but not throw soil into the next row. The only real way to see what is going on is to look at the soil throw when the machine is actually working. The rule of thumb to get started is 1km/hr for every inch of row spacing. If your row spacing is too narrow you are limiting the speed you can travel at sowing and the percentage of soil disturbed in your paddock increases.

There is a large range of seeding points on the market at the moment and what to choose will come down to cost, soil type and personal choice. Find out what your neighbours are using and try something similar. Some of the factors that may influence what to choose are how deep you want to open the seed row, the likelihood of smearing in clay soils, the angle of the point and the speed at which you are sowing and where you want to place the seed. Seed placement is critical for good crop establishment and early vigour.

Presswheels are an advantage, and in a dry year like 2006 proved very effective in harvesting what little moisture there was. Coming into 2007 there may be financial pressures that will prevent the use of presswheels in the first year or two of no-till. There are a few farmers out there that successfully no-till without presswheels. If this is the situation then you need to ensure good seed-soil contact at sowing to still have good crop emergence.

Sheep

Many farmers have been hesitant to get into no-till because of the belief that they have to get rid of all their sheep. This is not the case, there are still a number of farmers that successfully run a no-till cropping enterprise in conjunction with a sheep enterprise. If you are running sheep it is important to understand the effects they have on your soil, the position of weed seeds and how they leave the stubble. One of the aspects that makes no-till successful is having all of your weed seeds on the surface of the soil. Running sheep on your cropping paddocks compromises this aspect and makes weed control more difficult. Sheep also knock down a lot of stubble which can create problems at sowing time. If you are running sheep you need to make sure you can cope with the effect they can have on the cropping system.

Monitoring results

Make sure you monitor the results of your no-till cropping and if you find some areas that haven't been as successful as you would have liked find out why. Try to accurately establish what went wrong and change things for the better, rather than giving up on no-till.