Weed management in No-till

How can we improve the system?

By Wayne Smith

Why do you have weeds? Because you allowed them to either set seed on your property, or to be brought in on vehicles, in seed or hay etc… (poor hygiene), or via wind or water.

There is a major problem with economic weed control. It allows weeds to keep on setting seed, which means we keep on having to kill them. The trick is not to use more (eg herbicide rate), but be wiser. Aiming for 100% weed control is the right thing to do. Imagine sowing wheat on the day you wanted to (even if dry) because you knew there were no weed problems. It is achievable.

The two principles are:

1) Be diverse in your strategies
    a. Never use a consistent rotation (it is wrong to try and find one)
    b. Never use the same chemistry all the time
    c. Shift the growing season
    d. Use all options
2) Be hygienic
    a. no introduced weeds from outside the farm
    b. and no "nurseries" where weeds can proliferate, like on fence lines.

By now in No-till you should have a good understanding on why we use herbicides differently than with full cut sowing systems. No-till drives weeds to be more on the surface in amongst the ants and stubble, and suffer from wet/dry cycles.

Soil residual or coleoptile active herbicides close to the seeds therefore work much better, hence the bigger use of trifluralin (Treflan), triallate (Avadex), metolachlor (Dual), oryzalin (Surflan and Yield).

When devising a rotation, removing a weed or pest problem needs to be right up there with the decision "what will make me the most money now, and in the next few years?"

Got a ryegrass problem? Then two to three years of complete (100%) weed control needs to be your aim. Rotations like hay, then peas (crop-topped) followed by herbicide tolerant canola would clean your paddock up very nicely, and then you should be able to have 2-4 years of cheap but high yielding cereal crops. You should be able to keep the paddock very low in weeds if you manage it well.

To be blunt (for once☺), you should be moving into tramlining with autosteer and shielded spraying technology. This is one more great tool for greater efficiency, less cost, more profit, and easier ability to get 100% weed control. How?

Principle 1-c above mentioned shifting the growing season. That does partly mean sowing early and late with our normal winter crops, but it more importantly means

planting other crops that are planted at very different times of the year, like in August and September.

With autosteer and shielded sprayers, sunflowers, corn, safflowers and other crops become one of the best crops to grow, especially sunflowers. Even in paddocks with a broadleaf weed problem, you could sow these (in August to early September) on 1m row spacings.

On the row, you can spray herbicides at a high rate, but cheaply because you are only spraying a small percentage of the paddock, and in between the rows you can use total weed kill herbicides like Roundup, Sprayseed, Gramoxone, Affinity, Pledge, Basta etc…. When herbicide tolerant sunflowers become more available, this will become even easier.

On legume winter crops, trials and experience is showing we should definitely be growing these on wider row spacings, for yield reasons, but it also opens up very nicely to the shielded spraying strategy. On wide rows, we can spray Sprayseed down between the rows without hurting the crop. This cannot be done on 7" rows. Canola is also looking OK on wider row spacings, as in 50-60cm at least.

There is a trade-off with wide rows on cereals. In South Australia particularly, your researchers have been pushing narrow rows to increase crop competition over the weeds. There is no doubt this is a valid finding, but I disagree with it when implemented on the farm.

Narrow rows means it is more dangerous to use chemicals like trifluralin, and they work less because of the increased soil disturbance and weeds being distributed to different depths. The increased soil disturbance makes more weeds germinate, which means the only way of controlling them in the crop is by herbicide or crop competition.

But if you use wider rows, it makes less weeds germinate, and trifluralin type chemicals work better. Go too wide, and yes yield loss becomes too great. We are very comfortable growing wheat and barley at 250-300mm row spacing in WA.

Theoretically 100mm spacings would be higher yielding in a perfect world, but we have weeds, herbicide placement, stubble, pulling power etc… to contend with. Going wider to make herbicides work better and weeds germinate less is a good thing. There is a point where yields wont be lower than yields at 100mm spacings, and we think this is around the 250-300mm area.

I would never go narrow just to smother weeds.

On herbicides, thinking here on wheat and barley, never just use one herbicide. If you have a weed problem, use a mixture of herbicides. In WA, a common mixture is with Diuron, metolachlor, trifluralin and triallate pre-sowing. Diuron is almost always used, and then with 2-3 of the other chemicals. Logran B-Power is used sometimes after a legume crop for wheat. SU's should never be used on cereals after canola, or in any situation where nematodes are a problem.

Never use harrows in no-till unless there is a very good reason, and herbicide incorporation is not one of those reasons☺.

Making weeds germinate is not good. It means you then have to use chemicals to kill them. Let sleeping dogs lie. If weeds don't germinate, that is what we want.

No-till also enables the use of old chemicals like oryzalin (Surflan and is in Yield). This is the same chemistry family as trifluralin, but is very residual. In full cut sowing, it is too damaging to cereals, but it is much safer in no-till.

With Yield and Surflan now dropping in price, these will be used more where we can in canola and legume crops, and in the odd cereal crop until we get more experience, and if registrations allow.

Kerb (propyzamide) is still threatening to drop in price and when it gets down to the $20/kg mark or less, it will become a widely used herbicide in no-till in canola and some legume crops and pastures (registrations allowing of course☺).

So in summary, concentrate on the two principles mentioned at the beginning, try to move into autosteer and shielded spraying, and plan on rotations that *remove* a weed problem from your paddock.

All the best in your endeavours.

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