# Tim and Brian Cusack

## *Windrow burning and double breaks winning the war on radish*

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| Owners: | Tim & Brian Cusack |
| Location: | Narembeen, Western Australia |
| Farm Size: | 7800ha, 100% cropped |
| Annual average rainfall: | 330mm |
| Soil types: | Sand over gravel yellow sand, salmon gum gimlet |
| Crop program (2017): | Cereals 3600ha, canola 2800ha, fallow 1400ha |
| Typical Rotation: | Pea fallow, canola, cereal, cereal, followed by either cereal or canola |

*Narrow windrow burning of canola has been an effective way to reduce wild radish weed numbers for Tim Cusack, who farms in Narembeen in WA's eastern grainbelt.*

*IMAGE: Tim Cusack standing in front of his header.*

The adoption of harvest weed seed control (HWSC) was a logical choice for Tim following completion of his studies at the University of Western Australia (UWA) with an honours project with the Australian Herbicide Resistance Initiative (AHRI).

Along with HWSC discussions in rural media and research publications, Tim, along with his dad Brian, copied a narrow windrow chute design and fitted to the back of their header that fits easily and is simple to remove. They encountered difficulty burning narrow windrows in cereals as fires tended to escape and burn entire paddocks. Much better results were achieved in canola due to the bare ground and fire not getting away. Additionally, they find that canola windrows tend to burn better following summer rainfall.

With this in mind, they made the decision to focus narrow windrow burning to canola paddocks only, with the residue being spread in cereals.

*IMAGES: The Cusack's windrow chute*

Approaching HWSC in this way has meant that collecting radish plants in lower yielding canola crops (<1t/ha) is effective and has made a real difference in controlling wild radish populations. While Tim and Brian are focused primarily on Wild Radish, they do target annual ryegrass as well with HWSC.  Many growers are concerned that we are selecting for early shedding or prostrate growing ryegrass but Tim believes that because narrow windrow burning only occurs in the canola rotation, prostrate growing ryegrass is not a large concern.
He believes that by doing the same thing year in year out, weeds adapt and therefore you need to mix it up to stay in front of the weeds.

Given the high percentage of canola in the rotation Tim said "burning the canola windrows is an easy job and doesn't take long to do."  Tim has noticed a decline in wild radish numbers and he has attributed that to HWSC and an integrated weed management strategy including the use of a double break (fallow followed by canola) and rotation of herbicide chemistry.

The double break and high percentage of canola in the program is especially useful to stay on top of the ryegrass population however ryegrass is not easily captured when harvesting canola as the cutting height is higher than when harvesting cereals and some ryegrass is not collected in the header front.

For this reason, Tim will desiccate canola and try to catch as much ryegrass as possible without compromising on harvest efficiency. Given harvest speed when harvesting canola is slow, he is confident that what ryegrass he can catch, he does. When canola is direct harvested it is cut off about 30-40cm from the ground in canola compared to being able to cut at 10-15cm when harvesting cereals.

*IMAGE: The narrow windrow formed when harvesting canola*

This compromises the amount of ryegrass seed that enters the front of the harvester. There is no easy fix for this, and swathing of canola is not considered to be a good option in a low cost, low rainfall environment. Wild radish sets its seeds higher on the plant than annual ryegrass and as a result the Cusack's have experienced good results with reducing the wild radish seed bank.

With the cropping program being spread over 40 kilometres, there is difficulty in harvesting paddocks with higher weed burdens early, before weeds shed. However, Tim believes that would be the ideal situation.

With a low weed burden across the farm, dry seeding is something that Tim is confident doing.

Tim attributes the low weed burden across the farm to consistency year after year and using every tool in the toolbox to reduce weed numbers. In the longer term a one pass operation such as the Harrington Seed Destructor or the Seed Terminator would be ideal as the weed seeds in the chaff fraction would be completely destroyed and no viable weed seed returned to the paddock.

It also eliminates the need to burn, especially following summer rainfall where results can be compromised, and the nutrients from the crop residue is spread evenly across the paddock. Moving to such a system will enable Tim and Brian to practice HWSC over their entire cropping program rather than just in the Canola phase. This may increase the risk of selecting for shedding or prostrate weeds and will need careful consideration to ensure that a diverse range of tools are still being used to target the weeds.