

CASE STUDY

D Marshall & Co

Steve Marshall, of D Marshall and co., have used chaff decks on their Cascade and Dalyup properties for almost 10 years.

Cropping 4800ha with no stock on the property, weed control is paramount to keep paddocks in crop.



First copying the principle of Colin Hutchinson, Steve made the chaff deck himself and had the hydraulics plumbed to suit his new Holland CR headers. Installation was comparatively easy, as the hydraulics for the chaff spinners were already there and so were able to be used with little modification. He has since switched to running John Deere headers, which he said was a bit more involved. It required plumbing into the Powercast hydraulics and also running the straw chopper further back from the machine in order to fit the baffle and decks in. Once the chaff lands on the hydraulic belts, it is moved to one of the wheel tracks.

As the John Deere harvesters deliver the chaff and straw together to the back of the machine, Steve needed to modify the harvester by installing a 'baffle' so he could still deliver the straw to the chopper while directing the chaff onto the decks. Steve said that he 'went as hard as he could to split it' in order to capture as much of the chaff material as possible as it came off the sieve. To avoid material catching on the front edge of the baffle, Steve used a length of 5" diameter stainless pipe, originally intended for an exhaust. However, he said that the New Holland required none of this work as the machine already separated the straw and chaff and had a roller at the start of the divider to keep the front edge clean of residue.

To that end, he has installed a camera monitoring the chaff throughput so the operator is aware of a blockage, before it becomes too big of a problem. To resolve this issue, the newer EMAR chaff decks have a hydraulic roller on the front of the baffle, which keeps the diving plate free from residue and thus prevents blockages.

As for motivation to get involved in harvest weed seed control (HWSC), Steve said it was driven by the results of research. "All the work that has been done with (Peter) Newman was showing that if you do nothing at harvest time you won't have any impact on weeds. If you get a year like this, where it is significantly wet for the whole year, and the weeds go haywire, the seed bank will go back to where it was. But, if you do something at harvest time you keep low weed seed numbers." Because of this, chaff tramlining looked to be a good choice. "I wanted something that wouldn't slow us down that could still manage the weeds. That you can know where they are, without having to run around burning stuff over summer."

With his current set up, Steve said that in good conditions there are 'no issues whatsoever.' However, green canola plants or a patch of immature radish dictate that the operator be vigilant and monitor the sieves to make sure the machine does not block up.

IMAGE:

The decks are not covered, but still have shrouds to direct the chaff to the ground and prevent wind interference.



The response to the chaff tramlining is visible, although it does take a few years says Steve. "If you just keep at it, it certainly has a big effect." Encouragingly, it seems that there is not a 100% germination of weeds in the lines, and that they don't end up being much weedier than the rest of the paddock. On the high traffic tramlines, Steve said that the continual traffic from the sprayer means that the seeds there make good contact with the soil, and therefore get a good germination.

But, they also suffer from being on the compacted tramlines and being run over multiple times during the year. As for the other, low intensity tramlines, Steve said that if you don't disturb the chaff, a 'bank' builds up and there ends up being a lot less weeds compared to the rest of the paddock. "A competitive crop is the best weed control method I know." Limiting the traffic damage to areas with an inherently higher weed burden looks to be a positive move.



IMAGES:

(1) The decks come out diagonally from the machine.

(2) To fit everything in, the straw chopper has been moved rearward.

(3) With weeds concentrated in a narrow band, spray applications can be targeted. Here, ~8% of the paddock was sprayed.

This overall reduction in weed burden has also had more tangible benefits for the business. Having a generally lower weed burden has meant that they are able to sow earlier with more confidence of getting weed control without a knockdown application.

Also, having both volunteer crops and other weeds coming up in known locations has given him the opportunity to target some of his herbicide applications. In one particular instance, he was able to apply herbicide to just the trams, meaning that he only sprayed approximately 8% of his paddock. This represented a significant cost saving for that application.

On a broader scale, Steve said that it has helped them maintain a 100% cropping program. "We had lots of resistance to the commonly used herbicides, so I actually thought 10 years ago we might do something different to remain farming in a non-livestock, total cropping operation. You have got to be doing something. If you're not doing some weed seed management at harvest time, it's just not going to be a long term thing, to remain continually cropping."

As for plans for the future, Steve said that a seed destructor looks to be the ultimate for harvest weed seed control, and sees that in the future a seed impact mill of some description will be standard equipment. As for the cost, Steve said that it did have a large price tag associated with it, but "so do weeds". For the mean time, he said that he would be happy with a roller on the front of the baffle to keep the leading edge clear of ropy canola stems.