

# Weed seeds at harvest – spread, catch, divert, burn or destroy?

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A wise man once said to me; “It seems ironic that we spend all year spraying weeds with thousands of dollars worth of herbicides only to turn around and spread all of the surviving weed seeds all over the paddock”. Targeting weed seed has been identified as a key strategy in controlling resistant annual weed populations. The control of these populations is a numbers game and weed seed removal is an excellent strategy that can be used to keep the numbers low. A number of techniques can be used to destroy / remove at least 50% of weed seeds of annual ryegrass and wild radish populations at harvest. But is this enough to make an impact on the weed seed bank and the development of herbicide resistance? Computer modelling suggests that 50% seed removal at harvest will not fix a weed control system that is not working. It will, however, have a significant impact where a weed seed bank is being maintained. Our aim for managing resistant weeds should simply be to continually reduce weed seed banks. Removing weed seeds at harvest is probably the most important non-herbicide weed management tool to achieve this.

Table 1: Summary of some of the main weed seed removal tools

Tool	Set up cost	Pros	Cons
Windrow burning	\$100 to \$500	Cheap to get into. No loss of harvest efficiency. Very effective.	Involves burning / wind erosion risk. Difficult in cereals. Time consuming in autumn. Nutrient banding – not recommended in matched tramline systems.
Chaff Cart	\$30K to \$50K	Minimises area of paddock burnt. Can provide feed source for livestock.	Reduces harvest efficiency. Cost. Burning heaps in autumn is very time consuming.
Chaff diversion onto tramlines	\$400 to \$5000	Cheap. No burning. No loss of harvest efficiency. Reduces dust during summer spraying.	Must have fully matched tramline system. Unproven. High weed density on tramlines
Harrington Destructor (possible release 2012)	About \$100K	No burning. Nothing to do after harvest. Very robust machine – can handle house bricks! Early trials look brilliant. Good for all crops.	Cost. Extra piece of machinery.
Baling everything – Glenvar system	About \$200K	No Burning. Additional income from bales. Most effective tool on the market.	Cost. Extra nutritional drain on soil. Need a market for bales. Handling of lots of bales. Need an astronaut to drive it!

Chaff carts / Harrington Destructor / Diversion onto tramlines should be able to remove 70 to 80% of the ryegrass / wild radish that enters the harvester. However, due to ryegrass shedding / lodging this represents approximately 50% of the total weed seeds in the paddock.

The baler and windrow burning should be able to remove 95% of ryegrass and wild radish that enters the front of the harvester. This represents approximately 70% of weed seeds in the paddock. Walsh and Parker (2002).