**Catching weed seeds at harvest: a method to reduce annual weed populations**

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Following the successul development by Mr. R. Jaeschke of the *Ryetec* seed catcher, an attachment to separate and retain ryegrass seeds from the chaff stream at harvest, efficient catching of ryegrass seeds during the harvesting process is now possible. Catching seed has potential and may be a useful component of integrated weed management to reduce populations of herbicide resistant ryegrass and other weeds.

MATERIALS AND METHODS

On-farm trials of the *Ryetec* (1) seed catching system were conducted in 1993 in the Mid-north of SA in several crop paddocks infested with annual ryegrass (*Lolium rigidum*). Plot trials being conducted at Roseworthy and Auburn have used a weed seed catching adaption over two consecutive harvests. The reduction in the annual ryegrass seedbank has been measured.

RESULTS AND DISCUSSION

The percentage of total ryegrass entering the harvester was high as ryegrass seed is generally retained in the head for early harvesting (Table 1). In devices which catch threshed weed seed (e.g. *Ryetec*), the proportion of seed caught in the catching device can be lower in grain legume crops as more ryegrass passes through unthreshed.

Table 1. The effectiveness of *Ryetec* weed seed catching units on annual ryegrass, 1993.

Percentage of Total Ryegrass in Paddock (%)

| Crop harvested | Entering Harvester | Caught in *Ryetec*a | Exiting Harvester | In Grain |
|---|---|---|---|---|
| Barley | 89 | 56 | 26 | 7 |
| Wheat | 93 | 63 | 22 | 8 |
| Peas | 65 | 20 | 45 | 0 |

aUsing prototype *Ryetec* weed seed catching units

Table 2. Effect of weed seed catching in crops over two years on final ryegrass seedbank at two sites in SA. An experimental catching unit collecting all material off the sieves was used.

| | | | 1995 Ryegrass Seedbank*(seeds/m2) | |
|---|---|---|---|---|
| Site | 1993 Crop | 1994 Crop | Seed Not Caught | Seed Caught |
| Roseworthy | Barley | Peas | 5262a | 1842b |

| | | | | |
|---|---|---|---|---|
| | Peas | Wheat | 1289a | 627a |
| | Wheat | Barley | 577a | 346a |
| Auburn | Barley | Beans | 7284a | 3613b |
| | Beans | Wheat | 2497a | 971b |
| | Wheat | Barley | 3214a | 1821b |

Different superscript letters indicate effect of catching was significant within crop (l.s.d. $P<0.05$)

*Ryegrass seedbank, May 1995, 0-10 cm depth

By catching all sieved material each year, the ryegrass seedbank has been generally less than 50% of the uncaught levels for two consecutive years (Table 2). The catching unit used on the trial was effective in grain legume crops as crops were always harvested early and on the same day. Other commercial catching units *Redekop* and *Edillilie Stubble Dumper* where all material leaving the harvester is caught may also be effective. Caught material can be dumped off-paddock, fed to stock and/or burnt. Other weeds such as bedstraw and some cruciferous species may also be successfully caught.

REFERENCES

1. Jaeschke, R. 1994. Proc. National Herbicide Resistance Workshop. Adelaide, SA. Pp. 82-84