

## **Vacuum weeding: the removal of wild oats (*Avena ludoviciana*) and annual ryegrass (*Lolium rigidum*) seed from wheat stubble**

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**Summary** Wild oats and annual ryegrass are weeds of significant economic importance in winter cropping regions throughout Australia. These weeds, especially wild oats, shed seed prior to harvest that subsequently cannot be targeted by harvest weed seed control techniques. A field trial was conducted to determine the weed seed collection potential of a vacuum system. The trial was established by spreading 100 seeds each, of wild oats and annual ryegrass evenly over the soil surface between wheat stubble rows in a 0.09 m<sup>2</sup> area. Three vacuum hose height treatments (1, 20 and 50 mm) were used to establish differing levels of suction.

Vacuum removal close to the soil surface (1 mm) collected 82% of wild oats seeds and 77% of the annual ryegrass seeds. At the 20 mm height, 71% and 45% of wild oats and annual ryegrass seeds were collected, respectively. At 50 mm, very low levels of wild oat (11%) and annual ryegrass (0.4 %) seed was collected. These results clearly establish the potential for vacuum weeding, demonstrating that very high proportions (>75%) of shed wild oats and annual ryegrass seed can be effectively collected by vacuuming.

**Keywords** Wild oats, annual ryegrass, vacuum, weed, seed, removal.