

Increasing sowing depth to reduce mouse damage to winter crops

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Abstract

Plagues of house mice (*Mus domesticus*) can cause severe economic damage to grain crops in southern Australia when their populations peak at sowing of winter-growing crops in autumn. Mice damage crops by locating and digging out newly sown seeds. If damage is high, farmers have to re-sow their crop. A trial was conducted to examine the effect of increasing sowing depth of winter cereal (short and long coleoptile wheat), lupin and field peas and whether the addition of a repellent reduced the amount of seed damaged by mice. Crops were sown at 30, 50 and 70 mm and the germination rate and number of mouse diggings was compared in an open field and a mouse-proof enclosure (fenced site). Omethoate was tested as a repellent for crops sown at 30 mm depth. The population density of mice was 60 mice/ha at sowing and increased to 300 mice/ha 4 weeks after sowing, then declined to <5 mice/ha 4 months after sowing. There was a significant difference in the emergence rate of the crops, but no difference in the emergence rate of plants sown at different depths or with the repellent. The effective loss at emergence on the open field compared to the fenced site was 10–18% for wheat, –1% for lupins and 7% for field peas. There were more mouse diggings along drill lines evident in wheat and field pea crops sown at shallow depths. Omethoate was not an effective repellent. The yields of lupins and field peas were higher on deeper sown seed because of moisture availability. The wheat crops were not harvested because of army worm (*Aspidoptera mauritia*) damage, and hares (*Lepus capensis*) caused some damage to lupins. We recommend that if high mouse numbers are forecast at sowing of winter crops in southern Australia, wheat and field pea crops that are tolerant of deeper sowing should be sown at greater depth to reduce the chance of damage by mice.

Author Keywords: Damage; House mice; Management; *Mus domesticus*; Repellent; Sowing depth

[Crop Protection](#)

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