

Title           The effectiveness of different methods of detecting and enumerating insects in stored grain.  
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#### **Abstract**

The efficiency of PC (pitfall cone) and Trece Probe II traps for monitoring *Sitophilus granarius* were compared to conventional spear sampling. The work was carried out under laboratory conditions at 10, 15, 20 and 27 deg C. The efficiency of the traps was estimated by calculating the proportion of weevils trapped in each test bin from a known population density, to improve trap catch interpretation in farm and commercial grain stores in the UK. The results showed that both types of trap in small bins at 1 per kg are more than 20 times more effective at detecting *S. granarius* adults than conventional spear sampling techniques. A significant negative relationship between probe trap catch and temperature was observed in the larger bins. The high probe trap catches at 10 and 15 deg C were attributed to the movement of weevils deeper into the grain bulk where conditions were more favourable for survival. The opposite relationship was observed in the 500-kg bins and this was attributed to differences in the distribution of weevils. PC traps showed no significant correlation between temperature and trap catch in either bin type. However, surface PC traps caught consistently more weevils than pitfall traps buried 15 cm deep, except in the small bins at 27 deg C, in which weevils started to reproduce after six weeks. The results of the experiment have contributed to our knowledge of how temperature affects trap catch. The need for continued work in larger bulks of grain is highlighted.