Section V
Soil Arthropods

# EVALUATION OF BAITS FOR CONTROL OF GRAY GARDEN SLUG

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Commercial formulations of pelleted metaldehyde and of iron phosphate-based slug baits were evaluated for control of grey garden slugs *(Deroceras reticulatum* (Mueller) in grasses grown for seed in Oregon. Field and greenhouse trials were conducted to understand bait efficacy, placement, rates, and the effects of weathering on baits. What is the best way to evaluate bait effectiveness and what factors affect the performance of baits?

In the controlled environment greenhouse studies, treatment replications consisted of vented, clear, round plastic containers (10.75 inches in diameter, 4 inch height), a hiding place, a carrot piece or lettuce placed in each container along with 14 slugs of fairly uniform size. Pellets (1.25mg) were evenly-distributed on the paper toweling covering the floors of the containers. Untreated containers received only carrot pieces. Containers were inspected for dead and dying slugs at 1, 3, 5, 7, 10, 14 days after treatment (DAT). Dead slugs were counted, recorded and removed from containers at evaluation. Treatment efficacy was determined by comparing mean mortalities of slugs through time as well as amount of feeding on carrot pieces as measured by a visual scale of 0-10 (0= no obvious feeding; 10=100% eaten) at each evaluation date.

In field studies, plots were replicated four times in a RCB design with plots measuring 50 x 50 ft. Treatments were applied to all plots using a rotary, hand held bait spreader for higher treatment rates and a shaker jar for lower rates to achieve uniform coverage. Relative slug populations within plots were determined with bait stations prior to and after application of treatments (0, 7, 14, 21, 29, and 35 DAT). Treatment efficacy was determined by comparing reduction of mean number of slugs recorded at bait stations at different intervals pre- and post-treatment through time. Other field studies were replicated six times in a RCB design with grass plots measuring 15 x 15 feet. Slugs were exposed to weathered baits (0, 3, 5 and 7 day exposure). A 12 by 12 inch area of soil scraped free of vegetation was prepared in each plot, and the station was equipped with weathered pellets of each treatment. Total number of slugs visiting each station was recorded.

High levels of slug mortality were observed in the standard treatments such as Metarex before 3 days of treatment. Mortality of slugs in containers treated with iron-phosphate pellet formulations did not occur until 5 DAT, however feeding on pellets and carrot pieces greatly declined after day 1. Greater than 80% slug mortality was reported within 7-10 days of application in all treatments. Factors such as earthworms, collembolans, temperature, rain, wind could affect bait performance.