

M 3430

A NEW BAIT ATTRACTIVE TO MULTIPLE SPECIES OF ANTS

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A myriad of factors such as, seasonal preferences, nutritional requirements, and alternative food sources influence the foraging and acceptance of baits by ants. In addition, ant specificity to baits is affected by the active ingredient and the attractant used in the bait. For example, a bait that uses a soybean oil attractant and 1% fenoxcarb as its active ingredient will be readily accepted by imported fire ants but not by Pharaoh ants unless the fenoxcarb concentration is reduced. However, some ants will not accept oil attractants and will not feed on these types of baits regardless of the concentration of active ingredient. Despite the complexities of bait acceptance, liquid carbohydrate food sources are consistently fed upon by many species of ants. Thus, a new carbohydrate based, liquid attractant (hereafter referred to as MAB for multiple ant species bait) was developed.

In laboratory studies, MAB was found to attract more ants than a 9:1 sucrose:water or a 1:1 honey:water solution for the following species of ants: Argentine [*Linepithema humile*], crazy [*Paratrechina longicornis*], ghost [*Tapinoma melanocephalum*], and Florida carpenter [*Camponotus floridanus*] ants. In addition, for Pharaoh ants [*Monomorium pharaonis*], *Pheidole dentata*, *P. megacephala*, white-footed ants [*Technomyrmex albipes*], little fire ants [*Wasmannia auropunctata*], an acrobat ant species [*Crematogaster pilosa*], and *M. trageri*, the MAB had equal acceptance to that of the sugar and honey water solutions.

A water soluble toxicant [USDA-ARS, A13 no. 10750] was incorporated into the MAB and provided to groups of Argentine, Florida carpenter, or ghost ant workers. A delayed mortality response was observed for all species with mortality for the first day after exposure at less than 10% and followed by greater than 90% mortality within 8 days. Exposures to small colonies of Argentine ants resulted in greater than a 95% reduction in workers and brood within 2 weeks and eliminated all queens in 6 weeks. Exposure to ghost ant colonies resulted in greater than 99% mortality in workers and 100% reduction in brood and queens in 3 weeks. Florida carpenter ant colonies (workers and brood only) had over 95% reductions in 3 weeks. Pharaoh ant colonies had 90% or greater reductions for workers, brood and queens in 2 weeks and 100% mortality in 4 weeks. Red imported fire ant colony exposures resulted in the fastest mortality with all workers, brood and queens dead at 2 weeks. A patent application was submitted for the MAB in Dec. 1994.

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