

ANT BAIT DEVELOPMENT: AN IMIDACLOPRID CASE STUDY

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For more than 2 years, Bayer Corporation has worked with researchers and industry professionals to develop imidacloprid ant baits. Ant bait development has involved the input of many groups including research, marketing, formulation development, regulatory, packaging, and manufacturing. Imidacloprid is a promising active ingredient for use in ant baits. Currently, it is available in bait formulations for use against cockroaches and flies. The major steps in the development of imidacloprid ant baits are presented.

One of the first steps in ant bait development is to identify bait matrices that are highly attractive to ants. The goal is to find a single matrix that is attractive to a broad range of pest species. After screening numerous bait matrices it was found that liquid, carbohydrate-based formulations were attractive to the greatest number of ants and over a longer period of time. Several granular bait formulations were also identified as highly palatable to ants. The next step was to conduct oral toxicity trials with the most promising bait matrices to determine dose ranges for various ant species. Imidacloprid was evaluated at concentrations ranging from 0.0001% to 0.05%. The highest rates tested were too fast-acting. At lower concentrations delayed mortality was observed for the first 24 hours with high ant mortality at 7 to 14 days. Another important step in ant bait development was to evaluate the final bait formula in the field to assure that it is effective under actual use conditions. In 2001, researchers and pest management professionals conducted extensive field efficacy trials using the final formula of 0.005% imidacloprid liquid ant bait. Field efficacy trials showed that imidacloprid bait significantly reduced populations of sweet-loving ants. As a stand-alone treatment, imidacloprid bait provided complete control of ghost ants, *Tapinoma melanocephalum* (Fabricius), and >90% reduction of odorous house ants, *Tapinoma sessile* (Say). When a perimeter spray treatment was used in conjunction with imidacloprid bait, Argentine ant, *Linepithema humile* (Mayr) populations were reduced by 77% at 1 week and remained at about 70% reduction during the 8-week study. The final step is to make a decision on whether to go forward with commercial development. Imidacloprid liquid ant bait (Pre-Empt™ Liquid Ant Bait) will be available for the 2002 ant season in the United States. It will have the greatest utility when used as part of an integrated ant management program, which may include cultural practices, sanitation, and other chemical control tools. Development work continues on imidacloprid granular and gel ant bait formulations.