

## **USE OF CLOTHIANIDIN AS A NEW ACTIVE SUBSTANCE IN COCKROACH GEL BAITS**

**<sup>1</sup>BYRON REID, <sup>2</sup>THOMAS BOECKER, <sup>2</sup>RAINER SONNECK, <sup>2</sup>GUENTHER  
NENTWIG, AND <sup>1</sup>DEBORAH KOUFAS**

<sup>1</sup>Bayer CropScience LP, Research & Development, Raleigh, USA

<sup>2</sup>Bayer CropScience AG, Research & Development, Monheim, Germany

**Abstract** This poster will report on development of a new cockroach gel bait formulation based on the active ingredient clothianidin. We will review research conducted to establish a minimum effective concentration for clothianidin in the formulation that is necessary to kill cockroaches. A series of trials will be summarized to document the efficacy of the final formulation against several cockroach species and compare efficacy to commercial gel bait formulations. A series of comparison studies will compare and contrast performance of this new gel bait to prominent commercial gel baits in susceptible strains of the German cockroach. Since our discovery of the bait aversion phenomenon in the early 1990s, Bayer has actively collected German cockroach strains that are suspected of displaying aversion to gel baits. Using several of these field-collected, bait-averse strains, we also carried out trials evaluating the effectiveness of this new gel bait and several commercial products in these “finicky” German cockroaches. Finally, we have completed several replicated field trials around the world against several species of cockroaches will also be presented. As more German cockroach populations are discovered that display an aversion to gel baits containing sugary phagostimulants, by offering a highly palatable bait matrix based on unique food ingredients and novel phagostimulants, this clothianidin gel bait will effectively control populations that have developed (or are developing) bait aversion characteristics. The bait gel market today is dominated by just two chemical classes, the phenylpyrazole and oxadiazine insecticides with modes of action as GABA gated Cl<sup>-</sup> channel agonists and voltage dependent Na<sup>+</sup> channel blockers, respectively. This clothianidin gel bait has a distinctive mode-of-action, acting as an agonist at nicotinic acetylcholine receptors, which will be effective in rotation strategies to limit development of insecticide resistance. This new product has important attributes: the bait formulation is free of all common food allergens, the formulation is practically non-toxic to mammals, and is eligible for classification as a least toxic pesticide under the LEED Tier III classification scheme. These and other attributes were recognized by the US EPA when designating this new product was eligible for an expedited, reduced-risk registration decision.