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OPP-2004-0033 Rodenticides: Availability of Revised Comparative Ecological Risk Assessment

COMMENTS:

As an entomological consultant dealing with the structural pest management industry for the past 30 years, I was on retainer as a consultant for the pest management program at the Philadelphia Zoo (The Nation's First Zoo) from 1980 through 2002. Dr. Wilbur Amand, Director of the Zoo at the time and a registered veterinarian and professor at the University of Pennsylvania School of Veterinary Medicine, was in charge of the overall pest management effort. As new products would come onto the marketplace, we would very carefully implement limited programs of control and prevention using such products.

In the early 80's, a new rodenticide called Talon (brodifacoum) was introduced to the pest control industry by ICI Americas. At the time the product was available as a pink, pelletized bait formulation and was labeled for indoor use only. After careful review of the product literature, we were given a supply of Talon by representatives of ICI Americas for trial use at the Zoo.

The initial trial was to be performed at the Bird House where there was an exhibit of free-flying birds in a separate building with a tropical setting with vegetation, streams, and waterfalls. Birds included hummingbirds, shore birds, tree-nesting birds, and ground dwellers. The exhibit had an infestation of American and Surinam cockroaches, which were allowed to roam freely as one of the food sources for the birds. Other pests found in the exhibit were ants (which commonly trailed up trees to the hummingbird feeders) and fruit flies, which were purposefully released into the exhibit as another source of food for the birds. Mice were prevalent and were often found nesting in some of the cork-covered fake tree trunks and also dug into the soft soil and beneath rock formations. Control of the mouse populations was the aim of the initial Talon rodenticide introduction.

In addition to mechanical trapping, Talon was used as the sole rodenticide and was placed in small, tamper-proof bait stations throughout the exhibit. Approximately 30 bait stations were used. These bait stations were inspected on a daily basis to insure the rodenticide was not being dragged out of the stations and thus being exposed for direct feeding by the birds. As far as could be determined, the pink pellets remained in the stations. They were however being fed upon by the mice as well as the cockroaches and ants. Missing bait was continually replenished. Although it was obvious the mice were consuming the bait, very few dead mice were found in the exhibit.

Within one month, we had killed the only breeding pair of Avocets in North America. In the next few weeks, birds were found dead throughout the exhibit. At least a dozen more birds were found dead. Alarmed by the situation, we immediately pulled out all the bait stations. We sent several of the dead birds from the exhibit plus a bird which had died on the grounds and was not associated with the initial trial to a laboratory for analysis. All submitted birds from the exhibit were found to have brodifacoum in their systems. The one sent as a "control" did not have brodifacoum residues.

We had several meetings about this tragedy and came up with the following ways the birds may have received the brodifacoum:

1. Direct ingestion of pellets – this was thought to be a remote possibility because there was no evidence of such.
2. Ingestion of cockroaches and ants – this avenue certainly was a possibility for there was evidence of direct feeding on the bait by these insects and it was commonly known the birds would feed on these insects during their activities.
3. Ingestion of dead mice – in certain situations, birds in captivity will often eat mice, if they can catch them. A dead or dying mouse is a target for a number of kinds of birds in the exhibit. Smaller birds however would not have been able to swallow a whole mouse.

In response to the calamity at the Philadelphia Zoo's Bird House, representatives of ICI Americas invited me to fly to Goldsboro, North Carolina on their corporate jet to view their laboratory facilities. After arriving, I was placed in a room to view a series of auto-tutorial narrated slide presentations about the company and the product Talon. It was during this presentation I learned Talon was a potent avicide! When confronted with this revelation [to me], the Director

of Research stated point blank to me, "We know it's an excellent avicide, but we're in the business of killing rodents, not birds." It was then I realized we were duped. We never again used brodificoum in any form at the Philadelphia Zoo.

What is really upsetting to me with the use of brodificoum across the world is the way the outdoor label was obtained by the manufacturer. As far as I can recall, to obtain data for the basis of an outdoor label for Talon, the manufacturer conducted a barn owl study in New Jersey. Barns and farms with known active nests of barn owls were baited for rodents, utilizing tamper-proof bait stations. The barn owls were apparently not harmed by the effects of the rodenticide during the study. With these data, the manufacturer soon received clearance from EPA for use of Talon outdoors. What these data actually prove is barn owls do not normally feed on dead and dying commensal rodents around buildings. Instead they feed on Microtus and other mammals in orchards, fields and open lands.

The use of Talon in outdoor environments has to have had an effect on predators, such as owls, hawks, foxes, and others. In the early days of Talon, the use of this material by broadcasting methods in orchards and fields had a dramatic effect on non-targets. The color of the pelletized bait apparently was changed to green because of the attractiveness of the pink pellets for direct ingestion by non-targets, including the potential for children to ingest the pellets. According to data I've seen, the active ingredient remains in a carcass for a number of days after the animal dies. The brodificoum therefore is available to be ingested by any predator or scavenger feeding on a dead or dying animal.

It's time EPA looked more closely at the effects of brodificoum in the ecosystem and its effects on non-targets. Do we really need an "excellent avicide" as a rodenticide in our ecosystem?

Respectfully submitted,

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