

Exposure of non-target species to anticoagulant rodenticides

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Anticoagulant rodenticides (AR) are often used to control rodent pests. The delayed effect of these agents causes two ways of potential poisoning of non-target animals. On the one hand there is a risk to ingest bait from bait stations (primary poisoning); on the other hand the poison can be transferred from poisoned rodents to their predators (secondary poisoning). Until now systematic investigations of these risks are missing in Germany. Hence our aim is to analyze, if residues of ARs can be detected within the food chain (bait, prey, and predator). The focus concentrates on non-target rodents and owls as predators on and around farms. In a field experiment non-target rodents are trapped along different distances to the farm before and after a standardized rodent control. Additionally we trap target animals and collect fresh barn owl (*Tyto alba*) pellets from known nesting or resting sites. We use Brodifacoum for pest control, because it is

the most commonly used AR following our farmer within the investigation area (Muenster, North-Rhine Westphalia, Germany). Liver samples of all trapped animals and pellets are analyzed for the eight agents (Brodifacoum, Bromadiolone, Chlorthalaceton, Coumatetralyl, Difenacoum, Difethialone, Floucomafen and Warfarin), licensed as biocides to control rats and house mouse. Additionally we monthly collect pellets to analyze the food composition of the owls. These data, in combination with the results of the residue analysis, will give us a background to calculate a potential risk of secondary poisoning of barn owls. Because of seasonal variation of the owl's food composition and variation of species within the trapping different seasons of the year will be under investigation. Preliminary results of the field work and the food composition of barn owls will be presented as well as methods used in this project.