

*Zinc phosphide for rodent control in Saskatchewan – caution advised*

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Zinc phosphide (ZP) has recently been approved for use in Saskatchewan to replace strychnine for control of Richardson's ground squirrels (RGS). Approved products include treated oats or pellets in 2% formulations. Baits are typically placed in spring when RGS are emerging from winter hibernation to search for food. Like strychnine, ZP is highly toxic and there is no antidote available. Upon contact with stomach acid, ZP is hydrolyzed to produce phosphine gas. Phosphine gas is a multi-organ system poison. The onset of clinical signs is rapid, occurring in as little as 15 minutes after ingestion. Clinical signs include gastrointestinal signs (severe vomiting, often with blood), neurologic signs (seizures, coma, and paralysis), respiratory distress, and cardiac arrhythmias. Liver failure may be delayed and is a cause of death in animals or people that survive the acute symptoms of toxicity. An unpleasant odor of rotten fish or garlic has been associated with phosphine gas but is not always present.

Secondary poisoning is the process where an animal becomes poisoned through ingestion of a poisoned animal. Secondary poisoning is thought to be less likely with ZP as it does not accumulate or persist in the tissues of animals. This is an advantage of ZP compared to strychnine, where secondary poisoning is a commonly implicated in the poisoning of dogs and other scavengers like skunks and birds of prey, among others. Additionally, ZP is not environmentally persistent.

However, as with any rodenticide use, poisonings in non-target species tend to follow use and misuse of these products. Animal owners and veterinary professionals need to be aware of the following risks associated with the approval of ZP use in Saskatchewan:

1. The inhalation of phosphine gas from poisoned animals represents an extreme human health risk. Phosphine gas is very toxic to humans. Owners transporting poisoned pets to hospital and veterinary staff rendering treatment in clinic or in field (e.g., an actively vomiting animal in the hospital or passing a nasogastric tube in a poisoned horse) are at the greatest risk of poisoning.
2. Although secondary toxicity is less likely with ZP, animals invariably gain access to bait when label instructions are not followed, or bait is stored improperly. There is no specific antidote to treat poisoned animals. Symptomatic and supportive treatment is challenging and complex due to multi-organ involvement, often carrying a guarded prognosis once clinical signs develop.
3. Malicious poisonings may increase as there is no established analytical method available for ZP in the province to confirm poisoning cases. It is diagnostically a challenge to confirm a poisoning.

Judiciously following label instructions and storing ZP baits away from livestock or pets can help minimize non-target species poisonings. If ZP poisoning is suspected in an animal, veterinary professionals and others in contact with the animal need to consider the associated personal health risks.