



AZA Wildlife Contraception Center

OVOCONTROL™ G 0.25% and OVOCONTROL™ P 0.5% (nicarbazin) Ready to Use Bait

Manufacturer – Innolytics, LLC, Rancho Santa Fe, CA

Product Information – OvoControl G interferes with the hatchability of avian eggs. The active ingredient, nicarbazin, is registered both by the **FDA** and **EPA**. Originally used as a drug to control coccidiosis in chickens, the compound has been developed and registered for hatch control in pest birds such as Canada geese and feral pigeons. Further EPA registration applications in other avian species are pending.

OvoControl interferes with the development of the vitelline layer separating the egg white and yolk. This membrane is vital to the viability of the egg and without it the egg cannot develop or hatch. Nicarbazin has been tested in mallard ducks, Japanese quail, feral pigeons, Canada geese, domestic turkeys and chickens and Pekin ducks. While all avian species are considered sensitive, different doses may be required to achieve the optimal contraceptive effect.

At the recommended dose, the bird will continue to lay eggs, although the eggs will not hatch. At higher dose levels, the bird may actually stop laying eggs altogether.

OvoControl is considered a restricted use pesticide due to its potential to interfere with the hatchability of non-target avian eggs. Care should be taken to avoid administration to non-target birds and other animals. For a current copy of the EPA approved label, see the Innolytics website at www.hatchcontrol.com.

Dosage - The recommended contraceptive dose for a resident Canada goose (average body weight = 4.5kg) is 28mg of nicarbazin/kg body weight, or 50 grams of OvoControl G 0.25%/day. The recommended dose for feral pigeons (average body weight = 0.32kg) is 83.3 mg of nicarbazin/kg body weight or roughly 5 grams of OvoControl P 0.5%/day. In order to maintain a contraceptive blood level, OvoControl must be administered daily. The product is not toxic and has a wide range of safety.

OvoControl must be consumed for several days to achieve blood levels that affect the hatchability of eggs that are forming. Nicarbazin is undetectable in the plasma of Canada geese, mallards, and chickens 4-6 days after consumption of the OvoControl bait has stopped. The levels of DNC in the blood are reduced by half within one day after bait consumption stops. Once the level of DNC falls by approximately one half its peak levels, the effect on egg being formed has almost disappeared. By two days after bait consumption has stopped, no effects on the egg being formed is seen.

Toxicity - The LD50 of nicarbazin is greater than 25,000 and 10,000mg/kg body weight in the mouse and rat, respectively. A recent study in pigeons (Avery, 2006) showed no adverse effects at a dose level of 206/mg/breeding pair (2.5 x the recommended dose) over 36 days. The recommended dose to achieve contraception in pigeons is 82.5mg/kg bw/day. Too much OvoControl does not harm the bird and overdoses will

result in a reduction, eventually dropping egg production to near zero. No adverse effects, other than hatchability, have been noted at any of the dose levels or studies.

Side Effects - The main side effects of nicarbazin when used to control coccidiosis in chickens include reduced hatchability of eggs; reduced numbers of eggs laid, and reduced eggshell pigment in eggs that contain the brown pigment porphyrin. No side effects have been noted when used to control hatchability in other birds.

Teratology - There has been no reported teratology from the use of OvoControl or nicarbazin in any species. There appears to be a threshold level of DNC in the blood or egg below which the embryo forms normally and hatches normally to yield a healthy gosling and above which the embryo does not develop and does not hatch. Also, there have been no reports over the past 50 years of teratogenic effects in birds in the literature.

Secondary toxicity - Fortunately, the chemistry of the active ingredient assures that there is an extraordinarily low risk of any secondary effect on a raptor. A raptor would have to consume a treated goose daily, immediately following the ingestion of the bait and while it is still in the crop and unabsorbed—and this repeatedly, consistently and daily, and during the raptor's own breeding season. Once OvoControl is digested and absorbed, it is no longer biologically available to a secondary species. While raptor exposure is theoretically possible, it is nearly impossible to have a secondary effect.

Aquatic toxicity - Nicarbazin as a complex has poor solubility in water. As nicarbazin goes into solution it dissociates into DNC and HDP. HDP facilitates the absorption of DNC in the gut. As nicarbazin is excreted as DNC and HDP, DNC excreted in the form of goose feces would not be well absorbed from the gastrointestinal tract and would pass through the animal with very minimal absorption.

Recommended Use - OvoControl baiting should begin 14 to 21 days before the onset of nesting or a minimum of 7 days prior to the laying of the first egg. It is difficult to administer exact doses of OvoControl under free-feeding conditions such as those that will exist using bait stations or broadcast feeding. However, OvoControl has been shown to have a wide margin of safety and efficacy.

It is possible that the geese may not eat enough bait over the period of a few days in a row to reach the target dose. In this case, the level of DNC in the blood would be too low to affect the egg being formed that day, and, therefore, that egg may hatch. If the same goose ate the target amount of nicarbazin bait the next day, then the egg formed with enough DNC in the blood could be affected and the egg would not hatch.

Efficacy - OvoControl has no effect on the adult or juvenile population of resident birds. Under ideal conditions, with all mating geese consuming the appropriate dose during the breeding season the expected outcome is no new goslings.

It is quite likely that each female Canada goose will still lay a clutch of eggs. If the OvoControl dose is high enough and the blood DNC levels are high enough, fewer eggs than normal may be laid. OvoControl mainly works to reduce hatching of the eggs that are laid. Recent studies in Pekin ducks (Barbato, et al., 2006) demonstrated that egg laying will actually cease at higher dosages.

Non-targets - OvoControl only has a contraceptive effect in birds. Studies of the effects of nicarbazin on animals other than birds that lay eggs have been limited to snakes. When brown tree snakes were treated with nicarbazin, reproduction was not affected. The number of eggs laid, the hatchability of the eggs, and the health of the offspring were not affected by treatment of the snake with nicarbazin.

Reporting requirements - All institutions using OvoControl are asked to submit a complete [Contraception Center Survey](#) to the AZA Wildlife Contraception Center. It is essential that accurate records of doses and intervals be maintained and results reported to the Wildlife Contraception Center Database to contribute to dosage development and to monitor any possible side effects.

Storage - Cool and dry storage conditions

Ordering Unit - OvoControl G (20-lb bags) and OvoControl P (30-lb bags) are available direct from Innolytics, LLC

Ordering Information- Email: Innolytics@cox.net
FAX: 858-923-2060
Phone: 858-759-8012
Website: www.hatchcontrol.com