

STUDY TITLE:

Acute toxicity of diphacinone in Northern bobwhite: Effects on survival and blood clotting

PROJECT LEADER:

Barnett A. Rattner Patuxent Wildlife Research Center, U.S. Geological Survey, Department of the Interior, 10300 Baltimore Avenue, BARC East-308, Beltsville, MD 20705, USA

COLLABORATORS:

Katherine E. Horak National Wildlife Research Center, Animal and Plant Health Inspection Service, U.S. Department of Agriculture, Ft. Collins, CO 80521, USA

Sarah E. Warner Patuxent Wildlife Research Center, U.S. Geological Survey, Department of the Interior, 10300 Baltimore Avenue, BARC East-308, Beltsville, MD 20705, USA

John J. Johnston National Wildlife Research Center, Animal and Plant Health Inspection Service, U.S. Department of Agriculture, Ft. Collins, CO 80521, USA

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EXECUTIVE SUMMARY

The anticoagulant rodenticide diphacinone was slightly toxic (acute oral LD₅₀ 2014 mg/kg) to Northern bobwhite (*Colinus virginianus*) in a 14-day acute toxicity trial. Precise and sensitive assays of blood clotting (prothrombin time, Russell's Viper venom time, and thrombin clotting time) were adapted for use in quail, and this combination of assays is recommended to measure the effects of anticoagulant rodenticides. A single oral sublethal dose of diphacinone (434 mg/kg body weight) prolonged clotting time at 48 h post-dose compared to controls. At 783 mg/kg (approximate LD₀₂), clotting time was prolonged at both 24 and 48 h post-dose. Prolongation of in vitro clotting time reflects impaired coagulation complex activity, and was detected before overt signs of toxicity were apparent at the greatest

dosages (2868 and 3666 mg/kg) in the acute toxicity trial. These clotting time assays and toxicity data will assist in the development of a pharmacodynamic model to predict toxicity, and also facilitate rodenticide hazard and risk assessments in avian species.