
Effects of Nitrate Fertilizer and Treated Wheat on the Bobwhite Quail

RICHARD P. MARTIN, Oklahoma Department of Wildlife Conservation

Often in the fall sportsmen and landowners observe that bobwhite populations appear to decrease. It is commonly theorized that quail were poisoned by eating pellet-type nitrate fertilizer and/or treated wheat, since the apparent decline occurs during or after wheat-planting time.

The objective of this study was to determine if the bobwhite quail population might be affected in the fall by the availability of nitrate-pellet fertilizers and the planting of treated wheat. More specifically the objectives were to determine:

1. if bobwhite quail would consume pelleted nitrate fertilizer and treated wheat under simulated natural conditions; and
2. if they do consume them would they be lethal.

Ten quail were placed in a large pen with a chicken-wire bottom, which was located to provide a natural food supply of green winter wheat and chittam berries. Sorghum and millet heads were placed in the pen as additional food. Three feedings, 0.25 lb. each, of 16% nitrogen, 20% phosphorus pellet fertilizer, were scattered in the pen. After three days of observation a large quantity of fertilizer in a container was installed. After seven days all fertilizer was removed and normal feeding was resumed. After one week the food supply was removed to induce hunger. Approximately 2 lb. of wheat treated with Ceresan M, a poisonous substance consisting of 7.7% ethylmercury *p*-toluenesulfonanilide, was then placed in the cage.

RESULTS

The birds consumed the first 0.25 lb. of nitrate fertilizer in 10 min. and the second in 15 min. The third dose was not entirely eaten. No abnormal behavior was observed during the following three days. During the seven days that the large quantity of nitrate fertilizer was available the bobwhite were frequently observed picking and scratching in the container. No fatalities or abnormal behavior occurred before or after the fertilizer was removed. No abnormal reactions resulted from exposure to treated wheat, and after observation the birds were returned to a normal ration. All appeared healthy and normal during the following week.

CONCLUSION

No toxic effects resulted from exposure of bobwhite quail to either nitrate fertilizer or treated wheat. It is not known if higher concentrations would change the results of the test. The 16-20-0 fertilizer is near the maximum concentration of nitrate used in agriculture.

Ethylmercury *p*-toluenesulfonanilide apparently does not affect the physiology of bobwhite in the concentration used. It is not known if there might be cumulative poisonous effects from either of these tested materials.
