

PROBLEMS IN CAPTURING WILD TURKEYS WITH TRICHLOROETHANOL

R. WAYNE BAILEY, Wildlife Resources Commission, Milton, NC 27305

ROBERT V. DOEPKER, Department of Natural Resources, Lansing, MI 48909

Abstract: In 1976-77 21 attempts were made to capture wild turkeys (*Meleagris gallopavo*) in Michigan and North Carolina with whole corn mixed with trichloroethanol. Many attempts failed and mortality of birds captured was unacceptably high. Trichloroethanol was not recommended for use in capturing wild turkeys.

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Generally following the procedures described by Williams et al. (1973), 2,2,2-tribromoethanol ($C_2H_3Br_3O_3$) was successfully used in capturing wild turkeys in North Carolina in the late 1960's and early 1970's. Beginning in 1975 the drug became difficult to procure and when available was very expensive, exceeding \$200/kg. At the suggestion of a chemical firm representative, a decision was made to test 2,2,2-trichloroethanol ($C_2H_3Cl_3O_3$), a less costly relative of tribromoethanol but having similar chemical properties, in capturing wild turkeys.

Both drugs are corrosive and hygroscopic; both decompose, under light, to form an acid and other compounds, all poisonous. Trichloroethanol decomposes less rapidly than its counterpart but, being an oily liquid, evaporates more rapidly; hence, both, when applied to bait under field conditions retain narcotic potency only a few hours. Potency is especially decreased on warm, sunny days. Both chemicals are nearly insoluble in water.

Tribromoethanol is a white, "platey" crystal. Its decomposition products are dibromoacetaldehyde and hydrobromic acid. In medicine it is used as a basal anesthetic. The lethal oral dosage for cats is 150 mg/kg (The Merck Index 1968:1066).

Trichloroethanol decomposes to chloroform, hydrochloric acid, carbon dioxide, and carbon monoxide. In reacting hygroscopically with water, trichloroacetic acid is formed. It has been proposed as a basal anesthetic. The lethal dosage for rats is 600 mg/kg (Stecher 1968:1069).

The apparent lesser lethality of trichloroethanol was an important factor in the decision to test its use in capturing turkeys.

Current price quotations on tribromoethanol, when it is available, are in the \$200-\$300/kg range. In 1976 trichloroethanol was available (Aldrich Chemical Corporation) at \$16.90/kg in 100 kg quantity.

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METHODS

The effectiveness of trichloroethanol in capturing turkeys was tested in Michigan and North Carolina. The methods employed in both states were similar. Shelled whole corn was used for bait. Drug dosage was measured with a hypodermic syringe and mixed thoroughly with the dry corn just prior to placement, usually at dawn. In Michigan, dosages varied from 3 to 6 ml per cup of corn; in North Carolina, they varied from 4.6 to 8.0 ml per cup.

In both states pure caffeine in sodium benzoate was used intramuscularly to prevent mortality from overdosage or to assist comatose birds to recover, as described by Bailey (1972). Long-handled fish nets were used in capturing and securing affected birds.

In Michigan 6 tests were conducted in February and March 1977, in North Carolina 4 tests were made in 1976, 11 during February-March 1977.

RESULTS AND DISCUSSION

North Carolina Tests

The initial (1976) trials were promising. In the first, a yearling male consuming corn at the 6cc/cup level did not become comatose and was hand-netted while on his feet and in full strut. He recovered in 3 hours. In the second test a barely comatose yearling male reacted with such vigor when hand-netted that he escaped. In the third an adult male was captured with 1 cup of corn treated with 8 ml of the drug, but recovery time was 44 hrs. On a hot, sunny afternoon in September 1976, an attempt to capture an adult male with an 8 ml dosage failed. He ate well, lay down for a few minutes but walked off without staggering.

The 11 tests conducted in North Carolina in 1977 were less promising. In both years a total of 43 turkeys, including repeats, fed on trichloroethanol-treated corn; 30 (70%) escaped, 13 (30%) were captured, and 5 (38%) of those captured died. One that recovered from the drug died of internal injuries. Two were likely saved through surgical removal of crop contents and by flushing the crop with water; both quickly recovered. Of those recovering without surgery, more than half required over 20 hrs to do so.

Michigan Tests

Tests were run on flocks numbering from 92 to about 175 birds. Less than 25 percent of the birds ingesting the bait were captured. Attempts to "milk out" crops of deeply anesthetized birds with mineral oil were unsuccessful. Turkeys required 24-36 hrs to recover from the effects of trichloroethanol.

A dosage of 6 ml placed in 1 cup piles resulted in the capture of 35 turkeys and a mortality of 83 percent. Dosages of 3-4 ml in $\frac{1}{3}$ - $\frac{1}{4}$ -cup piles resulted in the capture of 10 turkeys, but the majority ingesting the bait were insufficiently narcotized for capture. Even with the reduced dosage, mortality was 37.5 percent.

In both states the use of caffeine in sodium benzoate was thought to have saved some birds from death by overdosage. Also, observers noted that most drugged turkeys reacted violently when touched, resulting in considerable defeathering.

CONCLUSIONS

Trichloroethanol, a fast-acting relative of tribromoethanol, differs from the latter in having variable, delayed, often fatal, effects. Through evaporation and by chemical collapse activated by light, trichloroethanol, a liquid, deteriorates more rapidly, than tribromoethanol, a solid. Its decomposition products may pose hazards to the heart and liver (Goodman and Gilman 1970:83-84 and 125). It is not a good drug for capturing turkeys. It can probably be used with reasonable success and with acceptable mortality if the crops of birds captured are immediately opened and flushed with water and caffeine administered intramuscularly. Thus handled and properly sutured, the birds will suffer few, if any, after effects.

At our present state of knowledge, or ignorance, of trichloroethanol, we believe that for capturing turkeys tribromoethanol is far superior to trichloroethanol and more than worth its current high cost.

LITERATURE CITED

- Bailey, R. W. 1972. Use of stimulants in reducing mortality in narcotized wild turkeys. Proc. Ann. Conf. S. E. Assoc. Game and Fish Comm. 26:212-213.
- Goodman, L. S., and A. Gilman. 1970. Pharmaceutical basis of therapeutics. Fourth Edition. McMillan Co. New York, N. Y.
- Stecher, P. G. (ed.). The Merck Index. 8th ed. Merck and Co., Inc. Rahway, N. J.
- Williams, L. E., Jr., D. H. Austin, T. E. Peoples, and R. W. Phillips. 1973. Capturing turkeys with oral drugs. Pages 219-227 in G. C. Sanderson and H. C. Schultz, Eds. Wild turkey management: current problems and programs. Univ. of Mo. Press, Columbia.