

CAPTURING HOGS WITH ALPHA-CHLORALOSE¹

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Abstract: Since January 1965 approximately one hundred feral swine (*Sus scrofa*) have been captured with alpha-chloralose on whole corn at bait sites intended for wild turkeys (*Meleagris gallopavo*). A series of experiments on penned feral and domestic hogs was conducted to determine minimum and maximum dosages of alpha-chloralose and preferred baits for the safe capture of free-ranging hogs. A method to capture feral hogs with alpha-chloralose applied to baits is described.

During the past several years feral hogs have become increasingly more important as game animals in Florida, especially on public hunting areas. This has led to increased emphasis on trapping them from refuges and areas where they are not wanted, for release in public hunting areas. Hogs are well known as pests in many situations and this problem has become more acute in agricultural areas and some national forests and parks recently.

Although most hogs are not very wary of mechanical traps and can be captured in them in large numbers, there are circumstances in which such devices are not entirely satisfactory—such as with large and especially vicious or trap-wary animals, and in relatively inaccessible places. Even when captured in traps, large hogs can be difficult to handle without risk of injury to personnel or to the hogs themselves. It appears that other methods of capturing and handling wild hogs would be useful.

Field trials with alpha-chloralose to capture wild turkeys during the winter of 1965 offered an opportunity to observe the effects of light dosages on the hogs which often visited the bait sites. At least 100 hogs were captured incidental to the research with turkeys at dosage levels between 2 and 20 grams of alpha-chloralose per cup of whole corn. Turkey trapping procedures were presented in a previous report (Williams, Austin, and Peoples 1966).

Narcotized hogs were easy to handle and transport. Only two of those caught at turkey bait sites died of overdose. This experience suggested that alpha-chloralose might represent an efficient way to capture feral hogs for relocation and similar purposes and an easy way to remove them from turkey bait sites where they created a considerable nuisance.

Information about alpha-chloralose and its use to capture several species of wildlife can be found in other reports (Williams 1966; Williams, Austin, and Peoples 1966; and Crider and McDaniel 1967) and references listed by them.

The field work was done in the Lykes Fisheating Creek Wildlife Refuge. We would like to thank Lykes Bros., Inc. for the use of their land and for their participating interest in Florida wildlife management. Lovett Williams, Wildlife Research Supervisor, has been very helpful with field work and suggestions on this paper. Acknowledgment is also extended to Game Managers Herchell Haywood and Gerry Youdall for their assistance with some of the field work.

MATERIALS AND METHODS

Materials

Alpha-chloralose can be obtained from Fisher Scientific Company, 690 Miami Circle, N. E., Atlanta, Georgia 30319; Nutritional Biochemicals Corporation, 21010 Miles Avenue, Cleveland, Ohio 44128; or British Drug Houses Canada Ltd., Barclay Avenue, Toronto 18, Ontario. Methylcellulose (Methocel, SA-1181) can be obtained from Dow Chemi-

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cal Company, Post Office Box 512, Midland, Michigan 48641, and at some pharmacies. An automatic baiting device can be purchased from Lehman Equipment Company, Route 3, Box 53, Corpus Christi, Texas. Baits and minor materials were obtained at local stores.

Experimental Animals

The so-called "wild" hogs on the study area were feral animals representing mixtures of various breeds and probably some of the original strains brought to the southeastern United States by the early Spaniards (Hanson and Karstad 1959). The penned feral hogs in these experiments were captured from the same source and confined briefly for easy observation. The domestic hogs were of mixed strains, primarily Landrace. The effects of alpha-chloralose on wild-ranging animals, those recently confined, and domesticated hogs did not seem to vary significantly.

Baits Tried

One of the objectives of this study was to find a way to capture hogs at sites baited for turkeys with shelled corn. At first we thought that different baits should be used for hogs and turkeys with appropriate dosages, because previous experience had suggested that hogs might require somewhat heavier drug dosages than turkeys. A number of potential bait substances was presented to free-ranging hogs, but unfortunately the new types of bait did not appeal to them as much as the corn for turkeys they were accustomed to finding at the bait sites. Some of the baits tried were: raw and cooked sweet potatoes, apples, watermelon, cantaloupe, oranges, tangerines, grapefruit, hot dogs, ground beef, ground pork, bread and syrup mixtures, flour and sardine mixtures, and peanut butter, syrup, and flour combinations. Mixtures of flour, peanut butter, sardines, and syrup were more acceptable to the hogs than the other baits, except corn. Their preference for corn was probably largely a matter of habit. Corn might be replaced in preference by another bait if a new one were available for a long enough period of time. The hogs showed a preference for crunchy peanut butter over the regular kind.

Bait Sites and Pre-Baiting

Bait sites were chosen in areas which hogs were known to frequent, or near heavily used trails. The visibility near ground level was relatively unobstructed to reduce the difficulty of finding narcotized animals and to facilitate trailing sub-narcotized individuals. Bait sites were not near bodies of water because narcotized animals tend to drown easily. Most important, drugging sites were located in places remote from human activity to minimize disturbance during capturing operations. An observer was on hand during drugging operations, usually in a pre-established blind with good visibility of the surroundings.

Success was directly related to the regularity and consistency with which a bait site was baited in advance. Shelled corn was used in our work to establish a site because it was readily taken by hogs and could be distributed regularly by an automatic feeding device (Williams, et al. 1966). The same bait substance to be used in the drugging operation should be used for at least a few days immediately before drugging at a bait site. The probability of successful capture is lowered when a new type of bait is used in the drug mixture.

When automatic baiting devices were used in pre-baiting, they were left in place and inactivated a few days before drugging. The operator who planned to administer the drug baited the site by hand for a few days before drugging. This precluded undue wariness of the animals due to finding unusual conditions at the site and enabled the operator to anticipate situations that arose during the capture attempt.

Preparing Drug-Bait Mixtures

Besides shelled corn, the most preferred bait used in these trials was a mixture of peanut butter, syrup, and wheat flour. These mix-

tures were stirred thoroughly for even distribution of the drug and divided into the desired number of servings.

Small, individual portions were sometimes prepared (rather than simply dividing large batches) but they proved of no particular advantage. No differences were noted between the effects of the two methods of mixing baits.

When shelled corn was used, the bait was thoroughly dampened and the alpha-chloralose was stirred in slowly for homogenous distribution. About one teaspoon of Methocel per cup added to this mixture of corn prevented the loss of the relatively insoluble alpha-chloralose from the surface of the corn.

Presenting the Bait

There were usually no changes whatever in the baiting routine during the capture attempt except the presence of drug in the bait and the presence of an observer in the blind. Bait of the same type as used in pre-baiting should be presented at the same time and in the same manner.

When dough cakes were used, more bait was sometimes presented after hogs arrived by tossing additional bait from the blind. This is not advisable with shelled corn because of the near impossibility of gathering up the uneaten corn which, if left at the site, presents a danger to other animals. Bait corn should be placed in piles of about one cup each, somewhat in excess of the anticipated requirements. The excess should be removed after the capture attempt.

Feral hogs are less wary than most wild animals. This permitted the operator more freedom in routine than with animals such as turkeys or deer. But it is advisable for the observer to be situated down-wind from the bait because of the hog's keen sense of smell.

Handling After Capture

Anesthetized or heavily narcotized hogs were placed in shaded spots as soon as feasible. When vultures were present, care was taken to prevent them from attacking the narcotized hogs. Hogs which were not fully anesthetized were tied briefly for transporting to holding pens when appropriate means of confined transportation was not available. Usually, a pickup truck with a custom-made hog-hauling body was used.

RESULTS

Table 1 contains the results of experimental dosages administered on baits to penned feral hogs. Due to the many variables involved in oral administration of drugs in this manner, the data are difficult to interpret. But some conclusions can be drawn and the effective dosage range is apparent. Dosages in excess of one gram per 10 pounds of body weight were not safe. Effective dosages ranged between one gram per 10 to 40 pounds of body weight.

As animal weight per gram of drug increased above 40 pounds there was a definite decrease in narcotic effect. Symptoms of drowsiness were observed in animals up to 73 pounds per gram. Above this weight no symptoms were apparent.

Narcotic Effects

Hogs which consumed a heavy dosage of drugs usually started staggering within 15 to 20 minutes. Within 30 to 45 minutes they usually lost much of their muscle control and laid down. Soon after this they slept. Hogs on subeffective dosages sometimes staggered for an hour or more without lying down. The duration of narcosis varied greatly, depending upon the dosage, size of the animal and probably some other factors. Nearly all animals receiving moderate dosages of alpha-chloralose recovered fully within 12 hours. One slept for approximately 24 hours before recovering fully and one slept for about one day, recovered partially for another day, and then died.

TABLE 1—RESULTS OF EXPERIMENTAL DOSAGES OF ALPHA-CHLORALOSE ON HOGS.

Weight of Animal (pounds)	Alpha-Chloralose Dosage (grams)	Pounds of Animal per Gram of Alpha-Chloralose	Duration of Anesthesia or Narcosis (hours)
85	20.00	4.25	Died
43	7.66	5.61	12.0
48	8.00	6.00	Died
150	20.00	7.50	Died
80	7.36	10.87	5.8
35	2.50	14.00	12.0
160	10.00	16.00	3.3
135	8.00	16.88	5.4
54	3.00	18.00	4.7
185	10.00	18.50	5.3
185	10.00	18.50	2.5
170	8.00	21.25	6.5
82	3.00	27.33	4.5
35	1.25	28.00	8.0
107	3.80	28.16	6.1
85	3.00	28.33	5.8
117	4.00	29.25	2.8
125	4.00	31.25	3.8
40	1.25	32.00	7.0
97	3.00	32.33	3.5
137	4.00	34.25	2.3
107	3.00	35.67	4.3
117	3.20	36.56	2.3
125	3.30	37.88	5.7
116	3.00	38.67	5.2
139	3.50	39.71	2.0
135	3.00	45.00	Not Anesthetized
185	4.00	46.25	0.3
139	3.00	46.33	3.3
135	2.48	54.44	0.3
170	3.00	56.67	4.0
185	3.20	57.81	1.3
185	3.07	60.26	Staggering
185	2.94	62.93	Staggering
170	2.48	68.55	0.3
170	2.48	68.55	Staggering
160	2.19	73.06	Groggy
135	1.04	129.81	No Evidence
160	0.98	163.27	No Evidence

DISCUSSION

The feeding trials with penned feral hogs (Table 1) give an indication of the minimum, median, and maximum safe effective dosages of alpha-chloralose for the sizes of animals involved. The maximum dosage is about one gram of drug per 10 pounds of body weight. The minimum effective dosage (one enabling the animal to be easily captured by hand) is about one gram of drug per 40 pounds of body weight. The median effective dosage would, therefore, be one gram of alpha-chloralose per 25 pounds of body weight.

There is no way to predict the amount of bait a hog might consume in a given case, when an excess is provided. This report is, therefore, preliminary in the sense that a field dosage has not been fully tested. However, the hogs captured at turkey bait sites (bait mixed at two grams per cup) usually slept for three or four hours, suggesting that they had received approximately a median effective dosage (Table 1). Further, when heavier dosages were deliberately used to remove hogs

from turkey bait sites, they slept considerably longer. We believe that a drug to bait ratio of two grams of alpha-chloralose per cup of bait to be a very effective dosage for hogs. It will be tested extensively in the near future.

When treated shelled corn is used to capture hogs, there is considerable risk that other wildlife will be narcotized by the remaining bait left widely scattered by the hogs. Great care should be taken to remove all excess bait after a drugging operation. Continued research should be encouraged to find baits which hogs like better than corn and which are not generally preferred by other species.

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RADIOACTIVE ZINC AS A FECES TAG IN RABBITS, FOXES, AND BOBCATS¹

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ABSTRACT

The radioactive isotope, ⁶⁵Zn was fed and injected into rabbits, opossums, foxes, and bobcats. When injected, ⁶⁵Zn was detectable in feces from these animals for over a year after injection. The radioactive zinc present in the fecal pellets is also very stable to weathering. The injection of ⁶⁵Zn is an excellent technique for long-term marking of feces in censusing, home range, and migration studies. Public health dangers, although largely imaginary, seriously limit the use of this technique and are discussed.

INTRODUCTION

Feces tagging has been most frequently used as a technique for study of movements and home ranges of various mammals. Sowl and Minnimon (1963) used glass beads to mark the feces of peccaries, a dog, and a fox, in each case the majority of the beads were passed within 36 hours. Kindell (1960) fed dyes to ruminants and found they marked the feces for 2-4 days. New (1958) used dyed bait to study the movement of small mammals and was able to identify the feces up to 48 hours after ingestion.

Feces tagging could be used as a censusing technique if employed as a modified Lincoln Index. A small number of animals would be feces tagged and released, then the percentage of marked feces in the field would give an indication of the total population.

The major disadvantage of the above methods of feces tagging is the short period of time the tag is detectable. The purpose of this study was

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