

REPORT OF RESULTS OBTAINED IN A PIGEON CONTROL PROGRAM  
AT HILLCREST MEDICAL CENTER  
TULSA, OKLAHOMA

**Purpose**

To evaluate the efficacy of Avitrol Whole Corn (0.5% 4-Aminopyridine) for the dispersal of feral pigeons from roosting, nesting or loafing on structures in the general vicinity of the test site further described in this report. Further, to establish the efficacy of Avitrol against other methods of control previously considered or employed that provided unsatisfactory results.

## **Problem Area**

Hillcrest Medical Center, which is located in downtown Tulsa, Oklahoma, was the problem area. The area is bordered by Utica Avenue on the East Troost Street on the West, 12th Street on the South, which runs parallel to a park and Rainbow Bakery on the North. The predominate structures were eight hospital buildings ranging from 2 to 10 stories tall. Hospital structures constructed with ledges, air conditioning systems on roofs, and retainer walls provided excellent shelter for pigeons to nest, roost or loaf with near by feeding areas. Hillcrest personnel indicated that pigeons had been a problem for years in the hospital complex.

## **Procedures**

### A. Observations:

An extensive survey of the area was performed on 5/15/78 at the request of Hillcrest officials, to determine the size of the pigeon population in the area and their habits relating to feeding, roosting nesting and loafing ' Buildings 1-7 and the physician's buildings (see attached diagram) were surveyed to determine the extent of the pigeon problem. Pigeons were observed loafing and nesting on ledges and roof tops while flight patterns around the hospital complex were frequent. Feeding was observed in the park across the street and Hillcrest personnel indicated that people in the park also provided food for the birds. Many nests containing eggs and squab were observed throughout the hospital area on ledges and rooftops.

Although pigeons were observed throughout the general area, buildings 1, 2, 5 and 6 (see Attachment ' 1) seemed to be the structures most frequented by pigeons and the structures most heavily contaminated with droppings and nests.

Alternative methods of control previously considered or employed, either did not perform or were cost prohibitive. Hillcrest personnel attempted to trap pigeons and release them on the outskirts of town, but as many pigeons were coming into the area as they were trapping and taking out. Hillcrest officials considered the application of a tacky product, which is placed on ledges. This program was rejected due to excessive cost and it offered protection for treated ledges only.

## B. Prebaiting:

After surveying the area, it was determined that the initial prebait would be placed on roofs of buildings 1, 2, 3, 4, 5, 6 and the physician's buildings. Prebaiting was necessary to establish feeding on untreated whole corn to get maximum acceptance of Avitrol blended bait. Prebaiting was placed throughout the area to determine where the pigeons are best feeding. This procedure indicated the best position for the Avitrol blended bait after prebait was accepted.

On June 10, 1978, 180 pounds of untreated whole corn were placed at 42 different baiting sites. Each baiting site contained 4 to 5 pounds of untreated whole corn placed approximately every 20 feet. Within a few days, the prebait was readily accepted and within 10 days completely consumed. Due to extremely rainy weather a period of 10 days passed before a second prebait could be applied. A rain on the prebait causes the corn to spoil and is considered to be undesirable for the pigeons. Due to the 10 day interval between prebaiting, another 150 pounds of whole corn was applied on June 21, 1978, in the same areas, excluding the physician's building, for one week to ensure good bait acceptance. The physician's building was not prebaited the second time because very few birds were observed in this area. The acceptance for the second prebait was again excellent and was completely consumed within one week. An estimated 100% of the pigeon population was feeding on the untreated whole corn prebait.

## C. Baiting:

The information gained during observations and prebait dictated the proper baiting procedures to be followed. Since pigeons were readily feeding at all prebait stations, Avitrol bait positioning was not all that critical. However, Avitrol blended bait should be placed where the pigeons consume the most prebait. Avitrol blended bait was stationed on the roofs of buildings 1, 2, 3, 5, 6 (see Attachment 1). Baiting sites were reduced from 42 prebait sites to 20 Avitrol blended bait sites. For the initial cleanout operation 90 pounds of Avitrol blended bait was applied on the morning of July 2, 1978. Three pounds of Avitrol Concentrate was blended with 87 pounds untreated whole corn to make a ratio of one treated kernel to 29 untreated kernels. A high ratio of 1-29 was used to minimize pigeon mortality due to the fact that the prebait was readily accepted by the pigeons and the project was located in a congested downtown area. The amount of pigeon mortality is determined by the ratio of treated to untreated bait. Generally, if the prebait is well accepted, a low ratio of 1-10 will result in a high mortality (approximately 10-15%) while a ratio of 1-29 will result in a low mortality (approximately 5-10%). The initial baiting sites remained out for a period of 3 weeks and were replenished when necessary by Hillcrest personnel.

Distress calls and erratic bird behavior began on the evening of July 2, 1978, and continued during the morning of July 3, 1978. No bird irritation was observed the morning of July 2, 1978 due to the fact that bait was applied too late in the morning after natural feeding had already occurred.

## D. Population reduction:

A reduction of the pigeon population began almost immediately when feeding started the evening of July 2, 1978. Within 48 hours after baiting with Avitrol the bird population was reduced by 80% with a total mortality of 16 pigeons. After 72 hours the population was reduced by 95% with a total mortality of 36 birds at the end of the first week.

While baiting was occurring, windows were being cleaned and the ledges were also scheduled to be cleaned of droppings and nests. This helped to irritate and discourage the birds in the area. Hillcrest personnel supplied personnel to continually watch for and pick up all dead birds in the area. At no time during the project was a non-target species observed or found dead in the area.

#### E. Final Observations:

At the end of two weeks from the initial baiting, observation revealed that the pigeon population at the hospital complex had been reduced from 300 pigeons to one dozen birds.

## **Discussion**

#### A. The Problem:

The pigeon infestation which resulted in contamination of ledges and roof tops due to droppings and nests had become so great that Hillcrest Medical Center officials had ordered the problem solved.

Many other potential problems were created as a result of the bird plague.

1. Financial Loss - Suffered by those responsible for continued sanitation and upkeep of hospital buildings.
2. Nuisance Factor - Involved with flight patterns and resting sites on and around hospital buildings.
3. Government Condemnation - As a result of unsanitary conditions.
4. Potential health hazards to employees. - Pigeon droppings are directly responsible for an average of 150,000 Americans contracting the common cold or flu-like disease Histoplasmosis each year. Further, *Salomonellum tirithreum* the most frequent cause of salmonella poisoning in man is also present in one pigeon of every 50 according to a study by the U.S. Public Health Service. Several lung diseases are also associated with pigeon droppings. Lice, which live as ectoparasites of birds, may also find their way inside buildings through air conditioning systems.

B. The solution: The following techniques proved successful in assuring control of the nuisance population in the test area.

1. The flock frightening responses evoked from reacting members of the population resulted in a conditioned response of area repellency wherein a given locale was considered undesirable by the population that witnessed the frightening reaction or reactions. In order to assure that the entire population of pigeons witnessed the action and was conditioned to leave the area, baiting took place throughout the entire test area.
2. The pigeons inhabited the entire area. As baiting began, the birds became anxious to find cover in the different areas available and established different feeding habits as they became wary of their habitat.
3. Following observations we had acquired the necessary information to begin what we call the "initial clean-out operation". The operation was designed to reduce the bird population by approximately 70% to 80% as quickly as possible. This was accomplished by baiting in successive days to achieve maximum reaction and irritation in the population.

## **Conclusions**

Avitrol whole corn when used as recommended as a repellent to disperse pigeons will reduce a pigeon population by 80% or 90%. No other means of harassment or agitation was needed to assist in the complete control of the population. The time required for dispersal is dependent on the application procedures and length of time pigeons have been in the area. Pigeons that have inhabited an area for a long period of time-are more difficult to disperse than pigeons that have been in an area for a short period of time. Baiting of the entire area for maximum irritation due to the subtle reaction of the pigeon caused only the target birds in the test area to be affected and dispersed. A 95% population reduction was obtained in less than 10 days and is still maintained three months after initial treatment. This performance substantially exceeds the 80% reduction in the three to five weeks agreed upon by contract.

## **Recommendations**

Avitrol can be used to maintain control of the area and alleviate the problem of new birds becoming a resident population. Baiting on a reduced scale should be performed on a monthly basis or whenever necessary to disperse a new buildup of pigeons.

## **Acknowledgements**

The Avitrol Corporation acted only as a supervisor to the project. Hillcrest Medical Center provided all personnel for the cleanout and maintenance programs.

