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FIVE YEARS OF CONTROLLING MEADOW AND PINE VOLE WITH RAMIK BROWN

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Testing of Ramik for control of orchard mice was begun in 1972 in New York. By 1974 there were many test locations all over the Northeast, and by 1975 tests were conducted all over the country. Analyzing the results of some of the early testing suggested some refinements of application technique and formulation. These changes were made to better adapt Ramik to the conditions found in the orchard, and to make it more attractive to the voles. Some of the parameters examined are outlined below:

1. Bait flavor
2. Weather effects on the bait
3. Pellet size
4. Toxicant concentration
5. Method of placement
   a. Bait stations
   b. Hand placement vs. machine application
   c. Trail builder application
   d. Band vs. broadcast treatments
   e. Aerial vs. ground application
6. Timing of application

By 1975, the refining of Ramik Brown was complete with 0.005% diphacinone in an apple flavored, weather resistant, 3/16 X 3/16 inch, extruded pellet. Optimum placement varies with the vole species and is still not completely agreed upon. For pine vole, placement in the active vole tunnels is generally most satisfactory but some researchers have shown good results with broadcast, band, or trail builder applications. Meadow vole control has generally been with the broadcast or band applications.

Several of the above parameters, plus the effect of different rates of product per acre, were compiled from the many locations where they were tested and are presented below. All rates were converted to a broadcast per acre basis for uniformity. Control is expressed as a mean percent control based on the change in vole captures or activity from pre-treatment to post-treatment monitoring for individual treatments, and are adjusted for changes in the untreated control plot.

Pine vole control with Ramik Brown has been tested at 20 locations in the Northeast at four rates of product per acre. These locations were in Virginia, West Virginia, Pennsylvania, New York, Connecticut and Massachusetts. The mean per cent control obtained with three rates of Ramik Brown (Table 1), indicates only fair control obtained with single applications, while the two applications of 10 pounds of Ramik Brown per acre gave good control.

Table 1: Control of pine vole with Ramik Brown hand placed into active vole tunnels.

Pounds of product per acre	Mean % Control	Number of Test Locations
10 + 10	85	9
10	68	18
20	72	7

Control of meadow vole with Ramik Brown appears to be approximately 10% better than the control of pine vole at comparable rates (Table 2). Again, only three rates are compared out of five tested in over 25 locations in the states of Connecticut, Massachusetts, New York, Pennsylvania, Virginia, West Virginia, Ohio, Michigan, Oregon and Washington. As in the pine vole test, the single applications were less efficacious than two applications spaced approximately three weeks apart. For control of either species of voles, the 20 pound per acre rate appeared to have no advantage over the 10 pound per acre rate when applied only once in a season.

Table 2: Control of meadow vole with Ramik Brown applied to orchards.

Pounds of product per acre	Mean % Control	Number of Test Locations
10 + 10	93	13
10	75	21
20	78	6

The standard treatment for meadow vole control in many states is zinc phosphide-treated, cracked corn. Comparison of the efficacy of that treatment to Ramik Brown (Table 3) indicates that, in six locations in the Northeast, where direct comparisons were made, Ramik Brown provided control while zinc phosphide-treated cracked corn did not.

Table 3: Comparison of Ramik Brown with zinc phosphide (2%) on cracked corn for meadow vole control in orchards.

Pounds of product per acre	Mean % Control with Ramik Brown	Mean % Control with zinc phosphide
10 + 10 (1)*	82	1
6.7 to 10 (6)	72	17

* Number in ( ) is the number of test locations.

To illustrate flexibility in methods of application of Ramik Brown for control of meadow vole; three rates of Ramik Brown are compared with three applications methods in Table 4. There was no apparent difference between either ground or aerial broadcast applications of the bait. There also was no apparent difference between broadcast treatments and the same amount of Ramik Brown applied in a band under the dripline of tree rows. The band treatments concentrate the bait into the area of greatest vole activity.

Table 4: Comparison of application methods for meadow vole control with Ramik Brown applied to orchards.

Pounds product per acre	Band	Broadcast Ground	Broadcast Aerial
10 + 10	96 (2)*	93 (7)	82 (1)
10	77 (8)	68 (8)	81 (4)

* Number in ( ) represents the number of locations that rate and

application method were used.

Ramik Brown has been found to be an effective rodenticide for control of orchard voles, in extensive testing, under many conditions. Two applications, at approximately three week intervals, have provided the best control of both meadow and pine vole, but single applications have also been effective. Increased rates of Ramik Brown at a single application have not normally increased control. Ramik Brown has provided better control of meadow vole than did zinc phosphide, in all locations where direct comparisons were made. Aerial and ground applications of Ramik Brown for meadow vole control have resulted in no apparent difference.