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COST OF CONTROLLING PINE VOLES BY DIFFERENT METHODS

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A question often raised by apple growers, researchers, and agencies is "What does it cost on a per-acre basis to control pine and meadow voles?". In most cases this question refers to the methods and techniques presently known. At the Second Pine and Meadow Vole Symposium we described a new long-term study (Sullivan and Hayne 1978). This study provides answers to some of these basic cost questions. This year I am presenting some cost figures for the 1977 and 1978 seasons, recorded in treating the orchards in the study described at Beltsville. The efficacy of the treatments in controlling voles is not considered in this paper.

METHODS: I recorded the cost figures for using rodenticides or clean culture in our experiment in Henderson County, North Carolina. The rodenticide applications of baits and ground sprays were made to 8-16 plots both years, while with clean culture herbicides and mowing were used together only the second year, with only mowing the first.

In calculating the costs of using each control method, certain constant costs were used (Table 1). The rodenticide baits used were Rozol

Table 1. Constant values used in calculating the cost of pine vole control.

Item	Unit	Cost per unit
Labor	hour	\$3.00
Tractor and sprayer (ground spray)	acre	^{1/} \$5.91
Tractor and sprayer (herbicide)	acre	^{2/} \$4.00
Tractor and mower	acre	^{2/} \$4.00
Rozol concentrate	gallon	\$47.50
Endrin (emulsion, 1.6 lb./gal.)	gallon	\$7.50
Commercially prepared bait	pound	\$0.65
Bait covers	each	^{3/} \$0.03

^{1/}Figure provided by Duane F. Neuman, Extension Economist, Farm Management, N. C. State University.

^{2/}Estimated from ground spray figure, using less expensive equipment.

^{3/}Assuming that the pieces of roofing last 4 years.

and Ramik Brown; the rodenticide ground sprays were endrin and Rozol concentrate. The costs of materials are those of growers buying from chemical dealers. The time required to apply the materials includes preparing to spray, spraying and the clean-up after spray. Several herbicides were used, with in most cases a combination in each block (1.6 applications) because only one block had a past history of a herbicide program. Therefore herbicide costs cited here may be higher than those under continuing herbicide management of the vegetation.

The cost of \$5.91 per acre for use of a tractor and the heavier sprayer used for ground spraying was provided by Duane F. Neuman, Extension Economist, Farm Management, North Carolina State University. Based on this, I approximated at \$4.00 the cost per acre of using less expensive machinery for mowing and herbicide spraying. The blocks under clean culture were mowed an average of 6.4 times per year (5.0 times in 1977, 7.9 times in 1978) with sickle bar or bush-hog. The man-hours required were recorded for all operations of spraying, mowing and baiting; a basic rate of \$3.00 per hour was used.

RESULTS: A summary of per-acre costs of the different methods of pine vole control is presented in Table 2.

Table 2. Costs of programs to control pine voles by different methods.

	Times per year	Materials	Machinery	Labor	Total
Commercially prepared baits	1	\$11.62	^{1/} \$6.00	\$2.82	\$20.44
Endrin ground spray	1	\$16.87	\$5.91	^{2/} \$12.25	\$35.03
Rozol concentrate ground spray	1	\$36.10	\$5.91	^{2/} \$12.25	\$54.26
Clean Culture:					
Herbicides	1.6	\$62.87	\$7.86	\$11.28	\$82.01
Mowing	6.4	----	\$25.75	\$17.00	\$42.75
Total	8.0	\$62.87	\$33.61	\$28.28	\$124.76

^{1/} Bait covers ("shingles").

^{2/} Average labor cost of ground spray for both materials; 2 men present for safety.

DISCUSSION: The costs presented here are specific to our experimental work and must be increased or decreased to fit other operating policies. The information is offered only as a guide to the grower or researcher who may have a need for such facts. Enough detail is provided

to allow costs to be estimated for other combinations of these methods. No comparison of the efficacy of these control measures is made here.

LITERATURE CITED

Sullivan, W. T., Jr. and D. W. Hayne. 1978. An experimental comparison of vole control methods. Proc. Second Eastern Pine and Meadow Vole Symposium, Beltsville, MD:49-51.