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METHODS OF REPELLING DEER IN GARDENS, ORCHARDS AND FIELDS IN VIRGINIA

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INTRODUCTION

Deer damage complaints from landowners in the state of Virginia have increased the past few years. This has happened, oddly enough, in areas where the deer population has been reduced considerably through heavy hunting pressure and other causes.

The deer browse problem is not new and is statewide in all types of gardens, orchards and fields. The extent of damage differs with the area and type of crops involved. Methods of control and types of repellent have varied according to available materials. The degree of damage also varies according to the landowner. That is, some will not complain until a lot of damage has been done, while others call if one or two trees are browsed.

It had been the policy in past years to issue a permit to allow the nuisance animals to be removed. Because of the reduction in some of the deer herds, sportsmen complained if certain landowners were allowed to shoot the deer out of their fields. Consequently, considerable effort has been spent during the last four years trying to help the farmers and orchard men with their deer problems, by using some of the common deer repellents. It was interesting to learn that a personal discussion of the problem usually appeased the landowner and made further contact with him more agreeable. Some of them did not complain about deer damage again.

It should be pointed out here that we have not found the perfect technique to repel deer. With the exception of the tankage experiment in a peach orchard, that will be discussed later, no formal studies were set up to test the different repellents. In most cases the materials were distributed to landowners with advice on their use and the results were evaluated by County Game Wardens and Biologists at a later date. Admittedly, information gathered in this manner is often inadequate to lead to definite conclusions about the effectiveness of a product.

TYPES OF DAMAGE

Most of the deer damage in the western part of the state has been

confined to gardens and cornfields, whereas gardens, soybean and peanut fields have been attacked in eastern Virginia. In the orchard counties to the north, peach and apple trees have been hit hard. Frederick County, for example, has over 600,000 apple and peach trees for deer to browse on. In Rockingham County, where large numbers of turkeys are fed on open range, deer have been reported eating their feed. The most recent damage complaint has come from the U. S. Forest Service which reports that deer are eating pine and poplar seedlings set out in stand conversion plots. Damage is so heavy consideration is being given to not reseeding some of the plots.

REPELLENTS USED

Firecrackers, called M-80 Salutes, exploded by Japanese booby trap firecrackers tied to twine that encircled an orchard in Bedford County, was one of the first things used to keep Elk from damaging trees. Although effective, the technique proved dangerous to those installing the devices, and there was some loss of animals from the heavy firecrackers. There was also an element of danger to the public that came into the orchard to steal the firecrackers.

The M-80 Salutes also were used with fuseropes that exploded at intervals. These were effective under certain circumstances, but their value is questionable if used over a long period of time. This was found to be the case by Flyger and Thoerig (1962).

One method used by a Game Manager on an Army Base was brought to this country from Germany. The area had a very high deer population and loss to crops that surround the base was heavy. Burlap bags, soaked in coal oil, were hung on stakes every 200 yards around the edge of a field and burned. This was done every two weeks and the odor from the burned burlap repelled the deer. No evaluation has been made of this technique.

DEER-PROOF FENCE

Another attempt involved building a deer-proof fence. The type used was six-foot chicken wire with two-inch mesh, slanted at an angle described by Jones and Longhurst (1958). Its use is limited to gardens and other small plots since the cost of fencing large fields where fences are already established would make it prohibitive. A fence of this type possibly could be used around special areas such as airport runways and truckfarms. Three have been used in Virginia and all had good results. One was built in Clarke County by a man who has a summer home on top of the mountain where deer are numerous. It cost him $50.00 for material to fence approximately one acre of garden. Recently he reported it had successfully turned deer for the third summer.

TANKAGE

Next to building a deer-proof fence, the most successful repellent used has been tankage. This is residue of animal tissue (50% protein, 5% fat, and 3% crude fiber and other unknown material) and is used in some parts of the country as a feed supplement for hogs. The odor of the tankage does the repelling. It is applied in "3 x 5 AA grade tie parts bags" * which are hung on fences, stakes, or individual trees. There is one sight observation of a deer that shook its head when it caught the odor from one of the bags.

Since 1962, tankage has been used in many ways in the state. One farmer used it for the third year with success, tying bags of it 15 feet apart to the fence of his 20-acre cornfield. However, on a large soybean field it was ineffective. In one instance it was used to turn deer away from a watermelon patch. In orchards it has worked well enough that the owners came back each year for another supply. This summer the U. S. Forest Service used some to protect poplar seedlings, but this experiment has not been evaluated.

Tankage costs $5.10 a hundred and the small bags, 1.2 cents apiece in large lots. One hundred pounds of tankage will fill 500 small bags.

* Sold by Millhiser Bag Co. Inc., P. O. Box 1117, Richmond, Virginia.

This can be stretched somewhat by filling the small bags half full. If used on small trees, the bags should be put on two or three times a year, since there is some loss of them to coon, fox and dogs that reach the bag and eat the tankage.

To test the effectiveness of tankage more closely, an experiment was set up in 1964 on 800 peach trees in the Whitacre Orchard in Frederick County. The first planting was damaged so badly by deer that it took 700 trees for replacements. Considerable damage was done to the new trees before this study began. The heaviest damage was through the center where the animals crossed. Tankage was used twice a year on 21 rows of trees, with five rows left untreated. The trees were treated early in the spring before the leaves came out and late in the summer before browsing and rubbing resumed.

After two growing seasons, a tally was made on five treated and five untreated rows. Both areas are adjacent to the woods and had comparable damage before the treatment was started. The results are as follows:

5 Untreated Rows (103 trees)

29 old trees with fresh browse (heavy)
28 trees replaced a third time
21 of the 28 new trees with fresh browse

5 Treated Rows (175 trees)

25 old trees with fresh browse (light)
3 trees replaced a third time
None of the three trees browsed

It was felt the tankage was effective in reducing the degree of browsing to two or three buds on a tree, thus allowing the trees to attain a height out of reach of deer and cutting replacements to a minimum.

CONCLUSION

Damage to crops by deer in Virginia has been a problem since the early 1950's and has no correlation with a high population. Complaints have been received from all types of landowners. No repellent or method used to turn deer has been 100 percent effective, with the exception of the one garden cited. Some repellents will work in one area but not another.

The best mechanical method for a small plot is a leaning fence that has kept deer out of a garden for three growing seasons. The use of animal tankage proved the most successful around small fields, on individual trees in an orchard, or in gardens. It did not work, in most cases, on larger crop fields. It proved successful in a two-year experiment on young peach trees, getting them through critical browse periods to a size that deer would not bother as much. Some tankage, where it is used over a long period of time, will be lost to fox, coon or skunks that bite the bottom out of the bags to eat the contents.

There is some benefit gained from personal contacts with those having crop damage. The effort spent helping a landowner protect his crops, and discussing the problem with him, often does as much good as the use of the repellents themselves.

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