

# CONTROLLING DEER DAMAGE IN IDAHO HORTICULTURAL CROPS AND GARDENS

By

Danny L. Barney and Mark S. Taylor

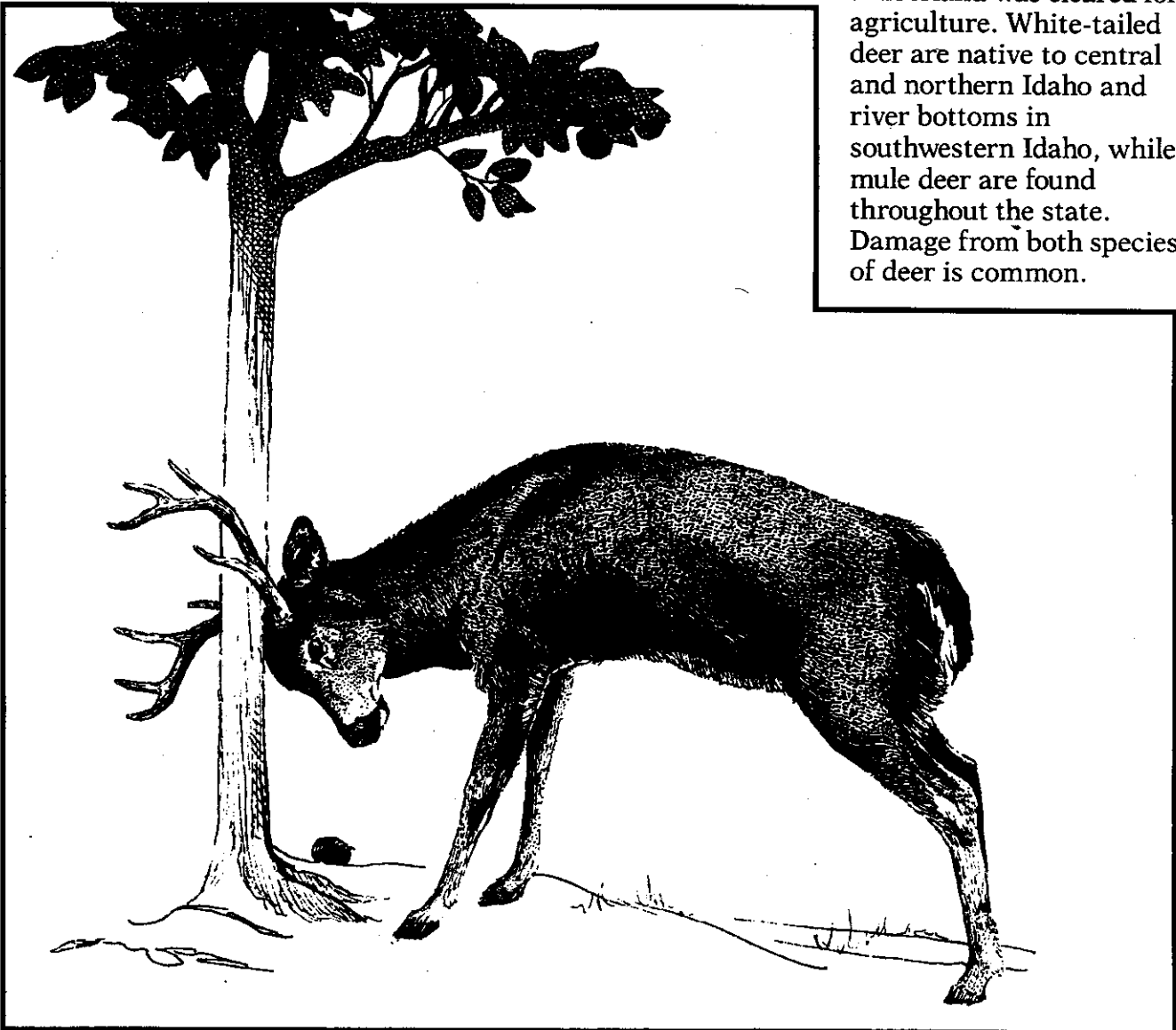


# INTRODUCTION

Deer are among the most widely-distributed and easily-recognized large mammals in North America, and they have great aesthetic and economic value. For many Idaho landowners and vacationers, seeing a deer is an exciting and memorable experience. In fact, many people move to Idaho because of its scenic beauty and abundant wildlife. In addition, money from hunting licenses and permits, as well as other hunter expenditures, is an important part of the state economy. This is the good news. A large deer population, on the other hand, may have some negative impacts.

Deer damage to commercial crops and home gardens is a serious and chronic problem in parts of Idaho. Deer live along forest edges, seeking shelter in the dense forest cover, but feeding in clearings. Because of this, deer find gardens and agricultural fields bordered by woods highly attractive. Not only do they feed in fields and gardens, they also may damage trees and shrubs by rubbing their antlers against the woody plants to remove antler velvet or perform mating rituals.

During the past century, deer numbers have increased throughout the United States as timberland was cleared for agriculture. White-tailed deer are native to central and northern Idaho and river bottoms in southwestern Idaho, while mule deer are found throughout the state. Damage from both species of deer is common.



# WHAT DO DEER EAT?

Deer generally prefer to feed on the leaves, twigs, and buds of shrubs and trees. In the spring, deer also eat new succulent grasses. Broad-leaved plants are an important source of nutrition during the spring and summer. In late summer and fall, fruits, nuts, and acorns may provide an important food source.

The following farm and garden crops are attractive to deer:

- alfalfa and other forages
- berry canes and leaves
- flowers

- fruit tree twigs, leaves, and fruit
- ornamental nursery stock
- small grains
- vegetables
- young Christmas tree shoots

A deer's nutritional requirements vary according to its age and sex, the time of year, and its reproductive status (whether a doe is pregnant). An average adult white-tailed deer weighs 100 to 150 pounds and eats about 5 pounds of food per day. Does consume the greatest amount of food in the fall, just before the breeding season.

# DEER CONTROL METHODS

Many methods are available to control deer damage. Some are simple and inexpensive, while others are very expensive. No single method works for all situations, and you may have to try several different techniques to hit upon one that works for you. A combination of techniques may be the answer in particularly difficult cases.

Whatever method you adopt, remember that deer are creatures of habit. They learn both by experimenting and by watching other deer. Once they develop a habit, breaking that habit may be extremely difficult. If you suspect that deer will be a problem, take steps early to prevent them from feeding on your crops.

Preventing or reducing deer damage involves: 1) discouraging deer from entering an area or eating a specific plant, 2) fencing deer out of fields or gardens, or 3) removing deer from an area. Before beginning deer control, evaluate your control needs. It makes little sense to apply a \$5,000 solution to a \$500 problem.

## Crop and Site Selection

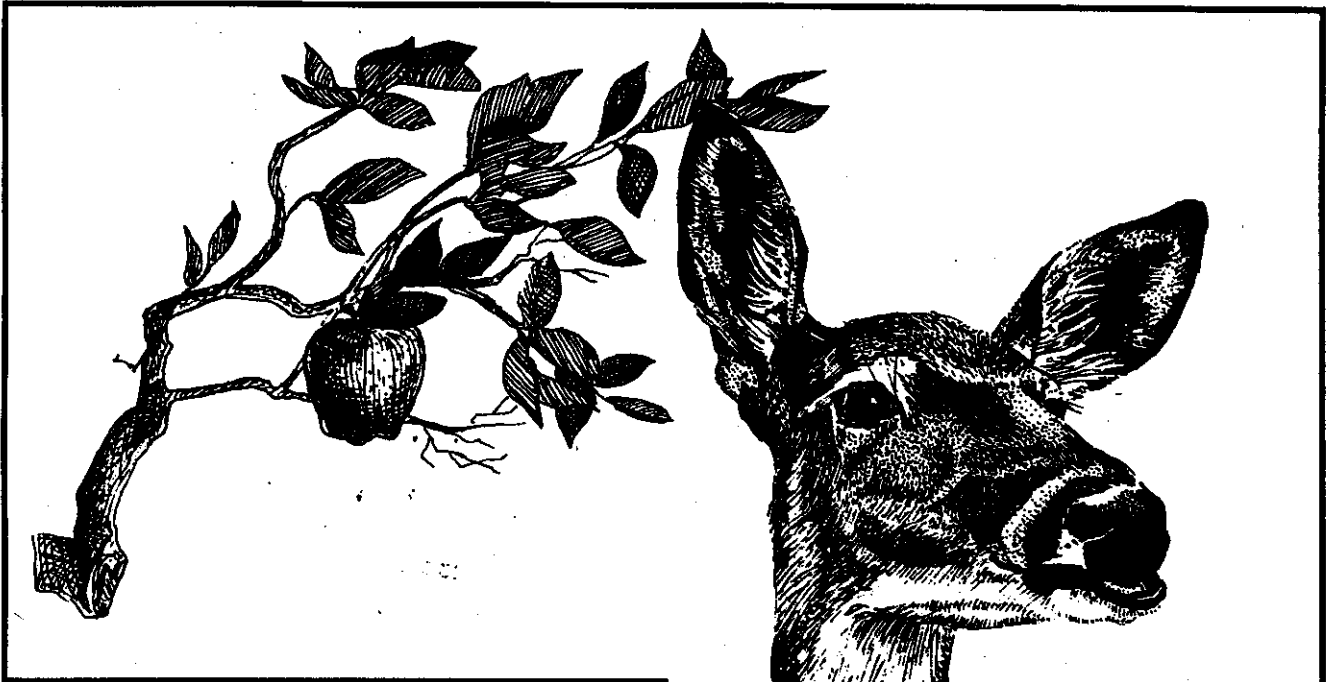
One of the simplest and most effective methods of preventing damage is to grow crops that aren't preferred deer foods. If you are raising ornamental trees, for example,



you might choose conifers rather than highly-attractive deciduous trees like aspen.

However, you should realize that deer easily adapt to different places and foods: Plants that are not desirable in northern Idaho might be very desirable in southern Idaho. Deer also feed on less palatable or nutritious plants, such as young conifer shoots, when more desirable food is in short supply.

If you intend to raise a crop which is susceptible to deer damage, try to select a



planting site that discourages deer from approaching. Heavy forests or brushy draws near a field or garden provide deer with shelter and a means of approaching your crops unseen. Choose areas that are surrounded by level, open land. Your local Idaho Department of Fish and Game conservation officer may be able to help you select a site that will minimize deer damage.

### **Repellents**

Repellents discourage deer from entering a particular area or feeding on certain plants. Blood meal, cat urine, bags of human hair, soap, rotten eggs, hot pepper sauce, bone tar oil, mothballs, the fungicide Thiram, and an array of other materials have been used to repel deer. These materials have odors and/or tastes that deer find offensive.

*Area repellents* produce odors that keep deer out of an area. *Taste repellents* are sprayed directly on crop plants and make them undesirable to deer. Be sure to follow label directions when using these products on crops that humans or livestock will eat.

Repellents can effectively prevent deer damage for short periods of time. However, they do have limitations. Because repellents can be costly and labor-intensive, they are generally best suited to small agricultural

operations and gardens.

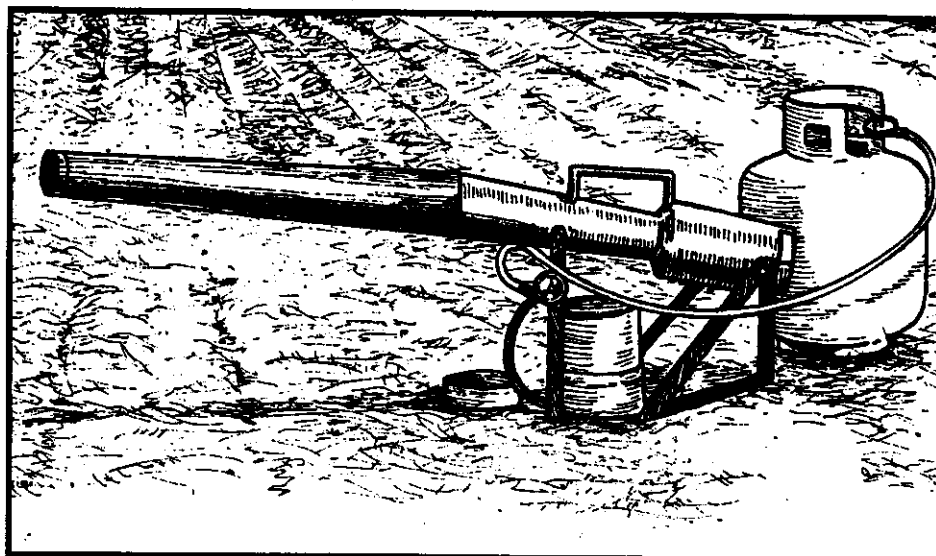
Most repellents don't weather well, and must be reapplied frequently. Recent research showed that a variety of commercial and homemade repellents were effective in keeping deer away from apple and apple twig baits for only 1 to 3 days.

Not only do many repellents wash and wear off quickly, they don't cover plant growth that occurs after a repellent has been applied. Also, chemical repellents are less effective when food is in short supply, because hunger can overcome a deer's aversion to unpleasant tastes and odors.

### **Scare Devices**

Noisemakers, flashing lights, aluminum

foil strips, scarecrows, and other scare devices are another type of repellent intended to frighten deer away from an area. While the idea is sound, the effectiveness of scare devices may be short-lived. Deer quickly become used to noise and visual stimuli. It's not unusual to find deer on military firing ranges or airports where noise levels are very high.



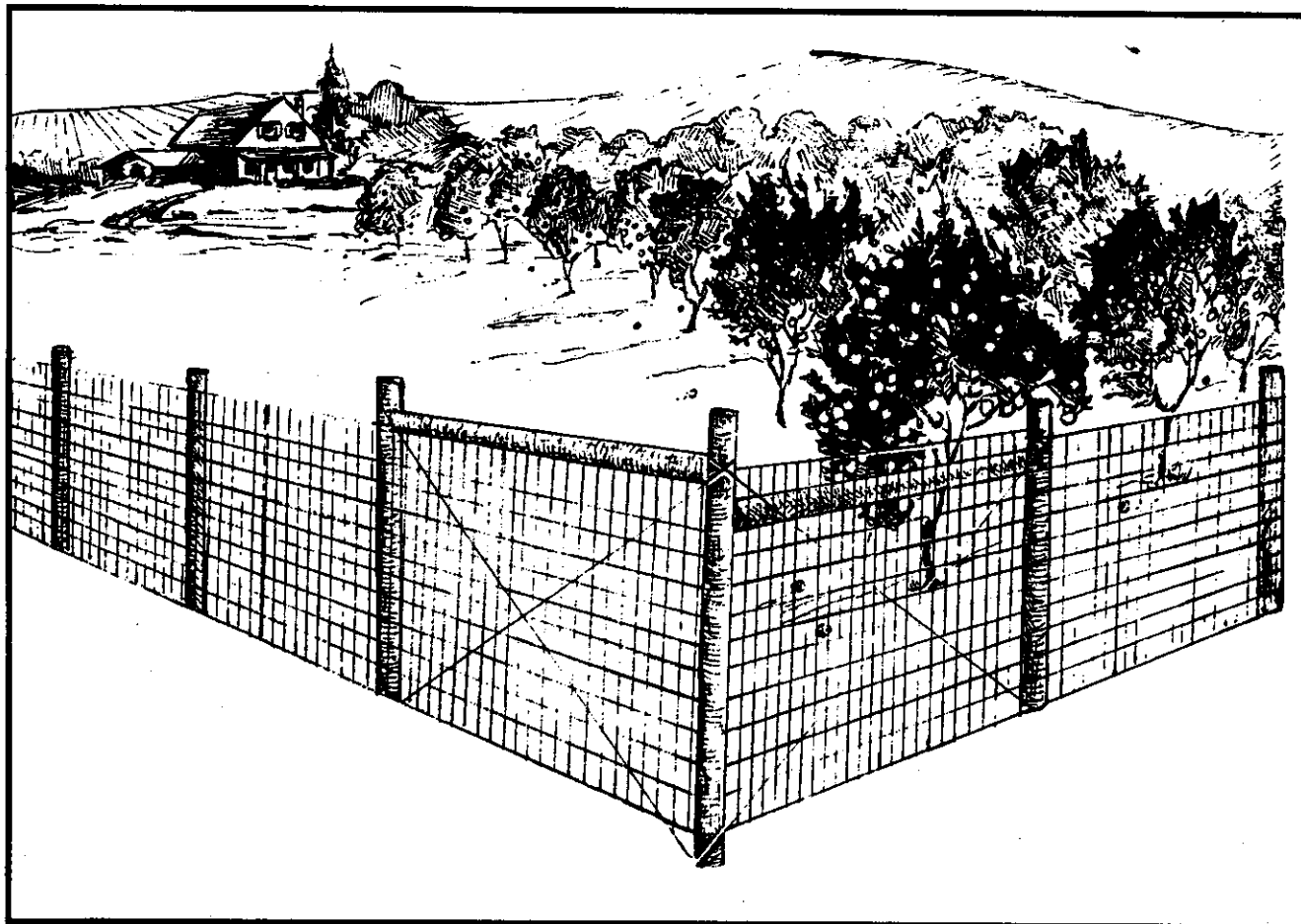
to chase deer at large is illegal and is a sure way to offend your neighbors.

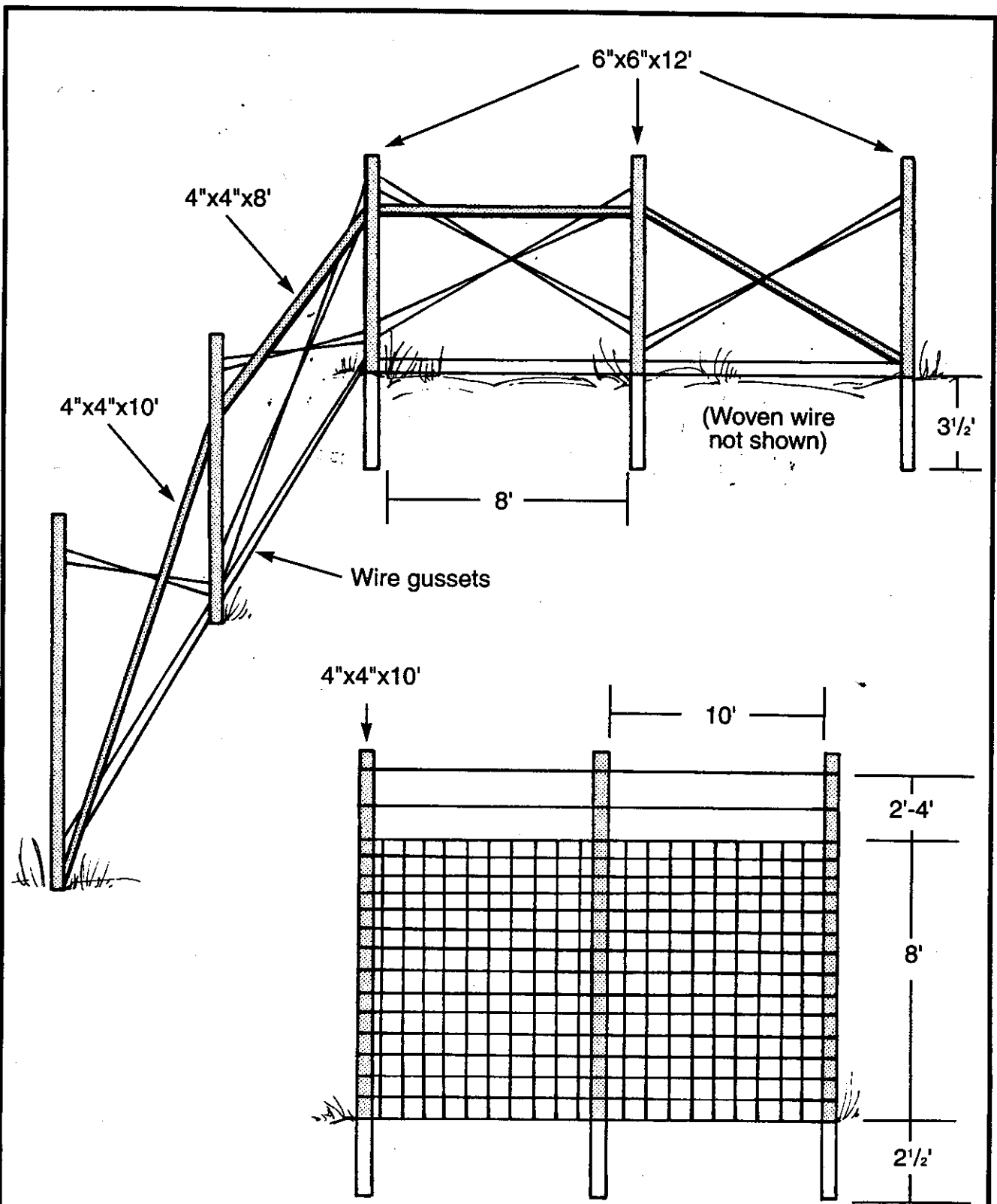
### Hazing

Dogs kept fenced in a run or garden can effectively keep deer out of small areas. Be sure to provide food and water for the dogs, and don't let them run free. Allowing dogs

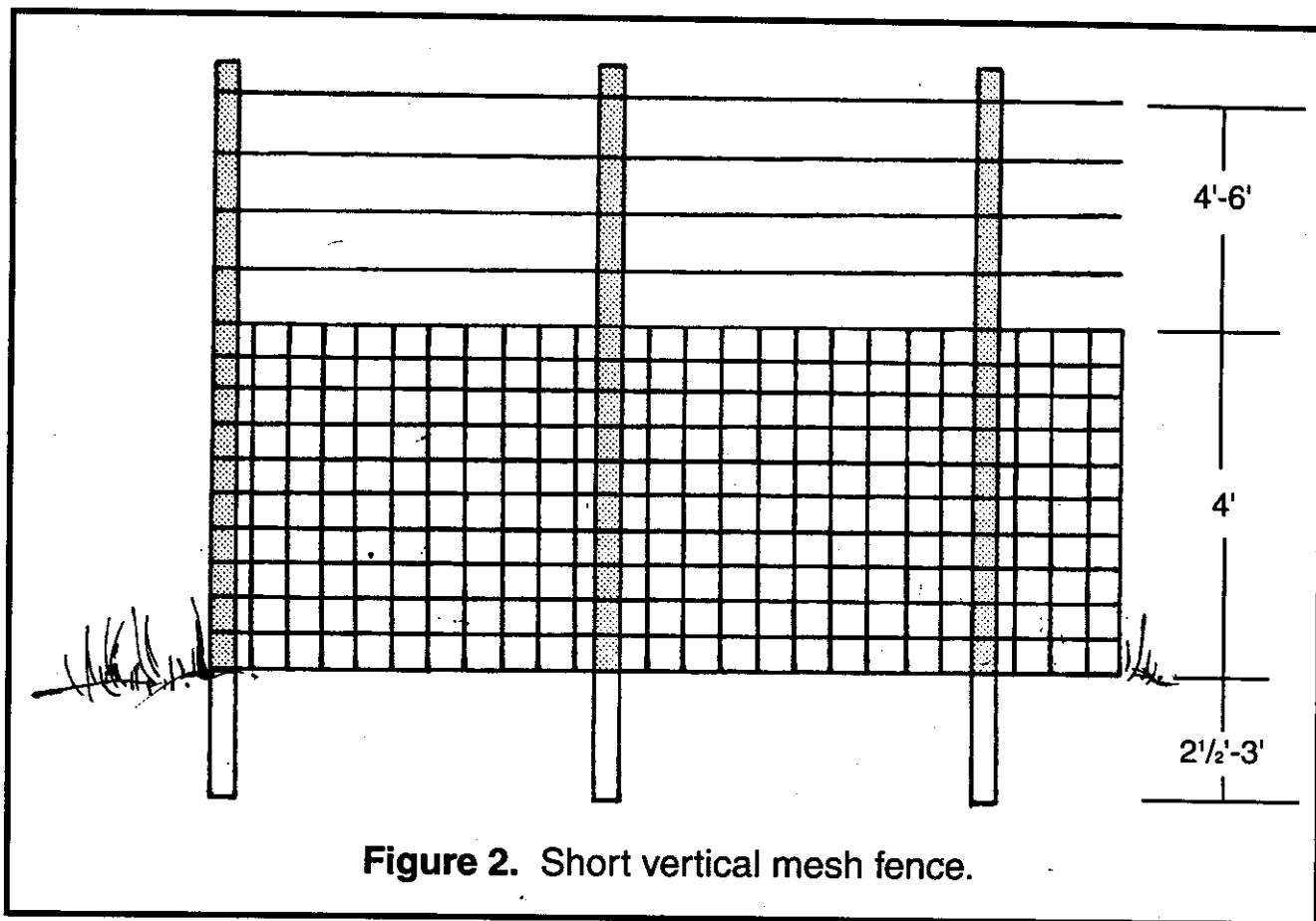
### Fences

Fences are the only sure nonlethal way to prevent deer damage to crops. Many different fence styles are available, ranging from 4 to 10 feet high and from relatively





**Figure 1. Tall vertical mesh fence.**



inexpensive to very expensive. The type of fence you choose depends upon the amount of deer pressure on your crop, the value of your crop, the location of your crop, and your budget.

Deer are tremendous high-jumpers and can clear an 8-foot-tall fence from a standstill. But they are poor long-jumpers unless they have a running start. Regardless of their jumping abilities, deer usually prefer to crawl under or through fences. Deer fences are designed to take advantage of these behavioral patterns.

The most effective deer fence, and the most expensive, is a woven-wire or mesh fence at least 8 feet tall (see Figure 1). You can also place strands of barbed wire, high-tensile wire, or twine above the mesh to a height of 12 feet.

This type of fence provides absolute protection, not only from deer, but also from most other farm and garden pests, such as rabbits. Make sure that the fence extends down to the soil surface around the entire perimeter of the fenced area, especially

where the fence crosses draws, creeks, and other depressions.

The short mesh fence is a variation of the woven-wire fence, and is only about 4 feet high (see Figure 2). Above the mesh, at intervals of 10 to 12 inches, you can run strands of barbed wire, high-tensile wire, or twine to a height of 8 to 10 feet. The high-tensile wire may also be electrified.

Because of their cost, mesh fences are normally used only for small areas or very valuable crops.

Electrified fences are probably the most cost-effective method of deer control for large fields. When properly designed and constructed, they are less expensive than mesh fences, very durable, and quite effective. They do require more maintenance than a mesh fence, however, and might pose a hazard to children in populated areas.

The simplest electric fence discourages deer from approaching a field or garden. String one or more strands of electric wire to a height of about 3 or 4 feet. Coat strips of aluminum foil with a 50:50 mixture of

peanut butter and vegetable oil, and fold the strips, coated side in, over the electrified wire. As deer are attracted by the scent of the peanut butter and approach to sniff or taste it, they receive a powerful, but nonlethal shock.

Recent studies show that this fence may be even more effective if you coat the aluminum strips with a chemical repellent rather than peanut butter. Construct this type of fence before deer establish a feeding pattern in a field, and maintain it regularly. The "peanut butter fence" is best suited to areas where deer pressure is light.

Most new electric deer fences are 8 to 12 feet high and are of the "New Zealand" style, which makes use of high-tensile, galvanized

wire (see Figure 3). Because the high-tensile wire has tremendous breaking strength and spring, fence wires remain taut at all times. Tensioners and springs on the fence also help prevent sagging wires. High-tensile wires generally snap back without damage if falling trees bring down a fence. The galvanized wire also resists rusting and provides many years of service. You can use lighter high-tensile wire (Class 3) for gardens and other small spaces.

Large New Zealand-type energizers are recommended to electrify deer fences. You can power these energizers with 12-volt batteries or 110-volt alternating current. When using batteries, you should include a solar-powered battery recharging system.

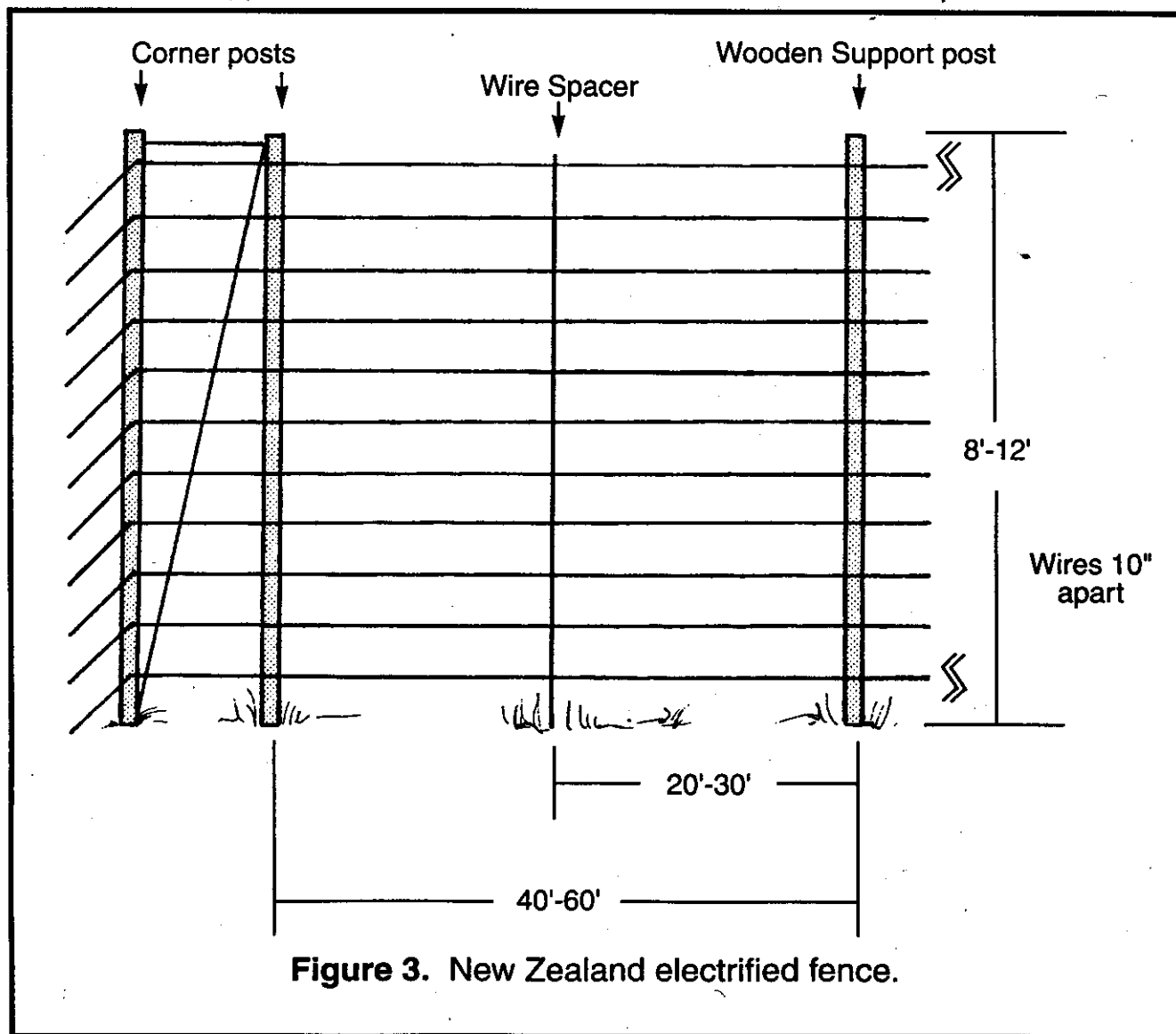
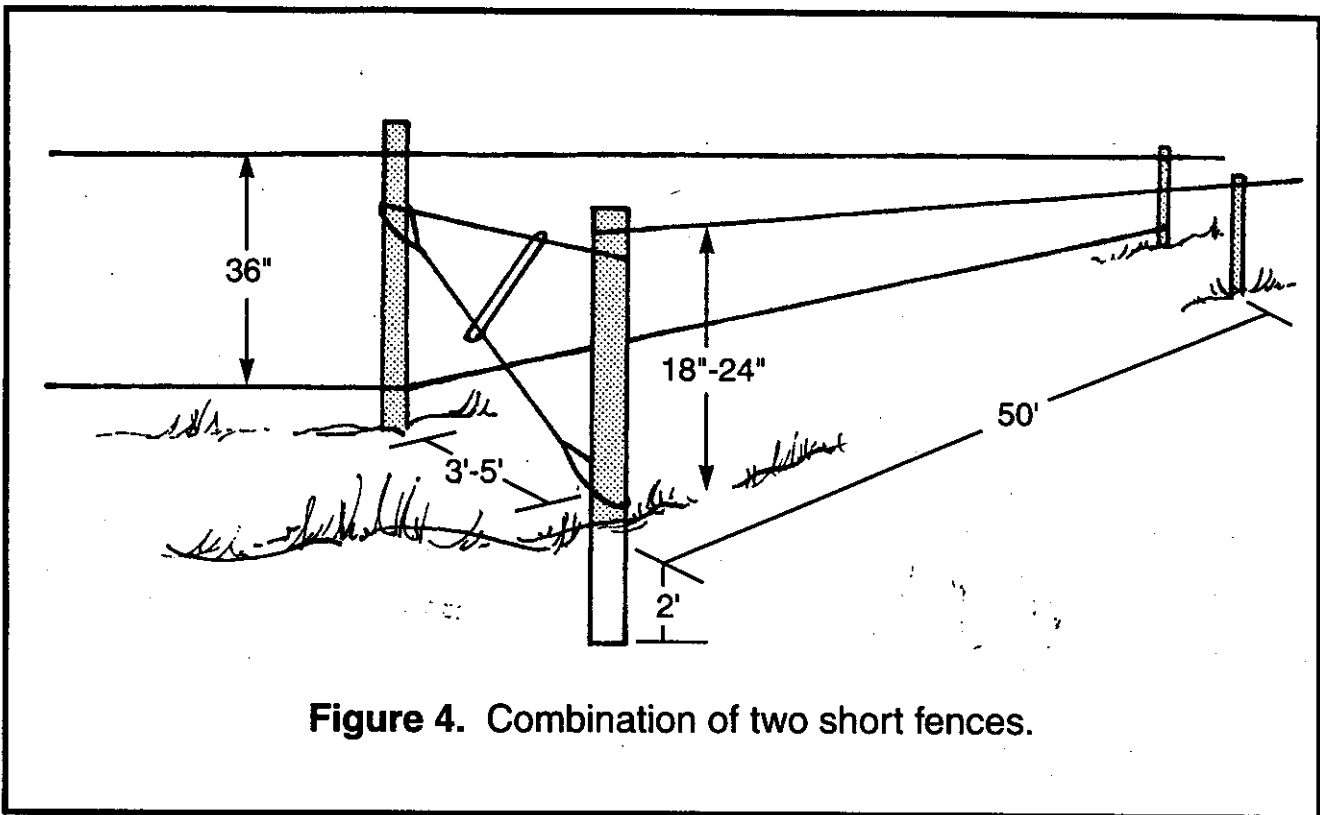


Figure 3. New Zealand electrified fence.





**Figure 4.** Combination of two short fences.

Deer have heavy coats of hollow hair that provide good insulation from electric shock. To be effective, electric fences must be properly grounded. Control weed growth under fences to prevent the fences from grounding out.

On a New Zealand fence, the wires are normally spaced about 10 inches apart, especially close to the ground. Use heavy corner posts and brace them so they can withstand several hundred pounds of tension in each of the wires. Use lighter posts and battens between the corner posts to maintain wire spacing. You can install gates in a New Zealand fence.

Detailed plans for electric fence construction are given in *High Tensile Wire Fencing and Building an Electric Antipredator Fence*. See the Suggested Reading section for publication sources.

Several kinds of short fences have also been used to control deer damage with limited success. The short, double fence (see Figure 4) consists of two fences 3 to 5 feet apart. The inner fence should be either mesh or electrified. The outer fence, which acts as a psychological barrier, can be a simple strand fence. Deer hesitate to jump over

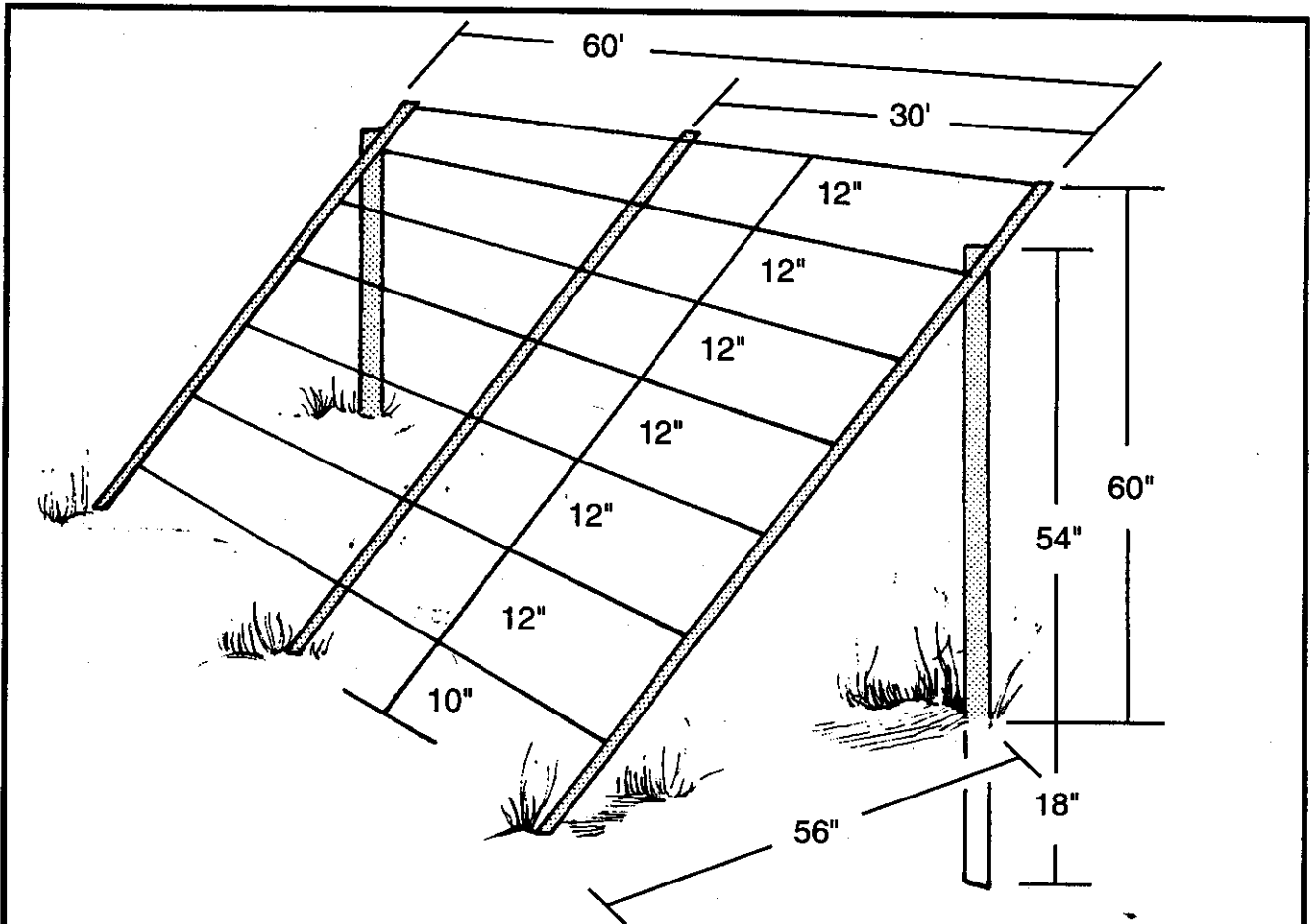
both fences or to jump into the narrow space between the fences.

To make the fences highly visible, keep the areas around and between the fences mowed. Baiting the outer fence with chemical repellent may also increase its effectiveness.

A slanted or inclined fence (see Figure 5, page 10) is an alternative to a vertical fence. In this design, the top of the fence is pointed outward, away from the field, normally at a 45-degree angle. Make sure the top of the fence is at least 5 feet above the ground. Space the fence wires 10 to 12 inches apart, with the lowest wire no more than 10 inches above the ground.

As deer approach the fence, they walk under the overhang, but then can't jump the fence. Electrifying the fence helps ensure that deer don't crawl through it. Slanted fences are more difficult and expensive to construct than vertical fences. Weeding or mowing under an inclined fence can also be hard.

Instead of fencing an entire area, you may "fence" individual plants using plastic netting, mesh, or tubes. These materials, which are available from forestry supply companies, can be slipped over young

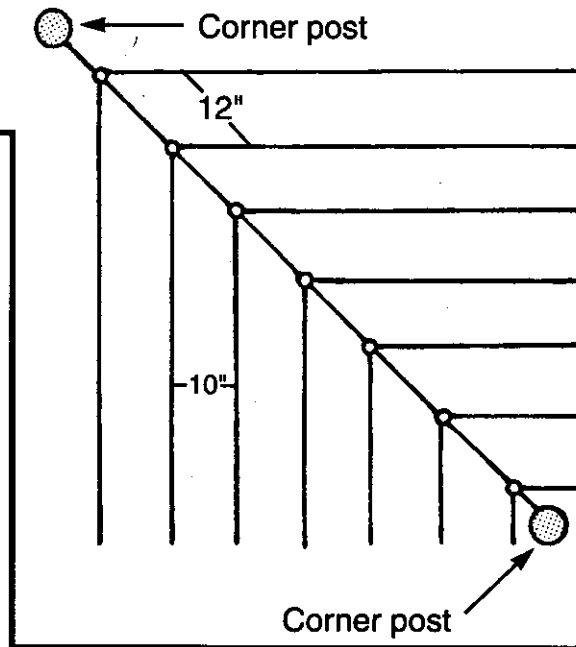


**Figure 5.**  
Inclined deer fence.

seedlings or the leaders of larger seedlings and grafts. You may have to attach plastic mesh and tubes to stakes to hold them in place and avoid distorting the leader.

Tying a rag soaked with a chemical repellent to the tree may provide additional protection. You can protect larger trees and shrubs with a 6- to 8-foot-high, 3-sided fence made of 2" x 2" boards and chicken wire (see Figure 6).

Whatever fence design you use, remember to keep the fence intact all of the time. Don't turn off an electric fence, leave gates open, or leave broken or sagging fence sections unrepaired. Once deer get inside an enclosure, it's very difficult to get them out.



# DEER REMOVAL

If other deer control methods haven't worked, removing deer or reducing deer numbers may help prevent deer damage.

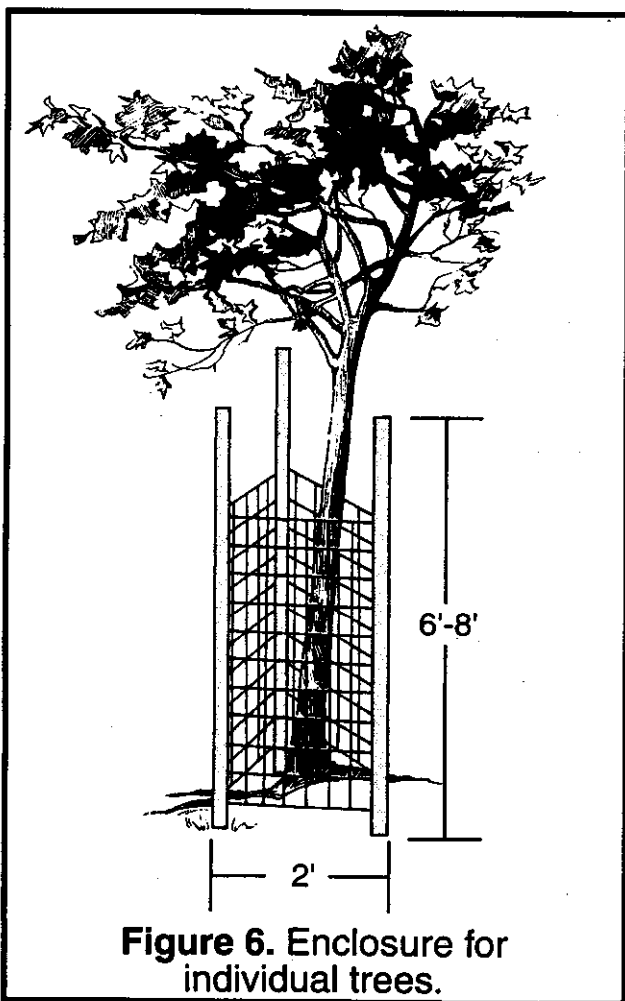
Deer have great emotional appeal, so live trapping and relocating deer may appear to be the most humane method of deer removal. This method has a few problems, however. Trapping deer is difficult and expensive. More importantly, deer become easily stressed in this process, and some deer may die. For these reasons, live trapping is seldom used.

Hunting is a more effective, less expensive way to remove deer. In addition, well-managed hunting programs help maintain healthy, manageable deer populations.

Deer are protected by state regulations, and can only be hunted during prescribed

times and in prescribed ways. Idaho law doesn't allow landowners to kill deer out of season or in excess of bag limits without the permission of the Idaho Department of Fish and Game—even when deer are damaging crops.

Other hunters, therefore, can be very helpful in reducing crop damage. You can control deer damage on and near large commercial farms by providing access to hunters during the deer season. Clearly mark areas open to hunting and take steps to protect your employees. Monitor the hunters to ensure that they are hunting safely and courteously.



**Figure 6.** Enclosure for individual trees.

## SUGGESTED READING

An Evaluation of Visual and Auditory Electronic Devices to Repel Deer. R. B. Roper and E. P. Hill. 1986. Proceedings: Second Eastern Wildlife Damage Control Conference, pp. 186-191. North Carolina State University, Raleigh, NC.

Building an Electric Antipredator Fence, PNW 225. D. deCalesta. 1983. OSU Agricultural Communications, Publications Orders, Oregon State University, Admin. Services A422, Corvallis, OR 97331-2119.

High Tensile Wire Fencing. A. W. Selders and J. B. McAninch. 1987. NRAES. 152 Riley Robb Hall, Ithaca, NY 14853.

Screening of Odor and Taste Repellents for Control of White-tailed Deer Browse to Apples or Apple Shoots. R. E. Byers, D. H. Carbaugh, and C. N. Presley. 1989. *Journal of Environmental Horticulture* (4):185-189.

Understanding and Controlling Deer Damage in Young Plantations. Extension Circular 1201. D. DeYoe, D. deCalesta, and W. Schaap. OSU Agricultural Communications, Publications Orders, Oregon State University, Admin. Services A422, Corvallis, OR 97331-2119.