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Wire Fencing For Controlling Jackrabbit Damage

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Wire Fencing for Controlling Jackrabbit Damage

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This publication reports an evaluation of wire fencing to protect trees, haystacks and cultivated crops from black-tailed jackrabbits (*Lepus californicus*). Evans et al. (1970) described the evaluation made in Idaho in a research program. Simple use of lightweight wire fencing is illustrated, and some general information is given on jackrabbits and fencing.

Where Jackrabbits Live

Black-tailed jackrabbits live mainly in shrubby, desert-rangeland areas in the western U.S. A few also occur in some eastern states. In Idaho and several other states, they inhabit areas dominated principally by big sagebrush (*Artemisia tridentata*). Elsewhere in the West, they live in areas dominated by such shrubs as greasewood (*Sarcobatus vermiculatus*), creosote bush (*Larrea divaricata*), mesquite (*Prosopis* spp.) and various species of sagebrush.

During the day, jackrabbits may be found resting quietly in the desert above ground under shrubs. At dusk, they become active and venture onto nearby farmlands to feed on agricultural crops. Some jackrabbits remain in crops during daylight hours; however, most return to the desert by sunrise.

The Jackrabbit Problem

Jackrabbits annually cause several million dollars worth of damage in 17 western states (Hegdal 1966). In the winter of 1981-82, they caused an estimated \$10 million damage in eastern Idaho (Associated Press 1982). Many states are similarly affected when jackrabbit populations are high.

Where Damage Occurs — Farmland next to sagebrush areas are particularly vulnerable to jackrabbit attacks (Fagerstone et al. 1980). Damage in fields is greatest along the outer edges. Although there are exceptions, crops more than a mile from desert habitat generally receive little or no damage. However, there are thousands of miles of desert-farmland edge in the West.

Crops Damaged — During the summer when desert forage and moisture become scarce, jackrabbits congregate near farmlands and feed on and

damage grains, alfalfa, sugarbeets and high-cash crops such as beans and peas grown for seed production. Limited forage and severe winter conditions also force jackrabbits into farmlands where they feed on and sometimes destroy fruit trees (Fig. 1A), trees planted for shelterbelts and reforestation, and haystacks (Fig. 2A).

Peak Damage Years — Peak jackrabbit densities and damage seem to occur about every 6 to 10 years. Fortunately, these peaks do not occur in the same year throughout the West, and some peaks are not as great as others. Unfortunately, relatively high jackrabbit populations and damage in some areas will persist for several years. We do not know how to predict highs, precisely, or determine how long peaks will last or exactly when damage levels will decline to economically tolerable levels.

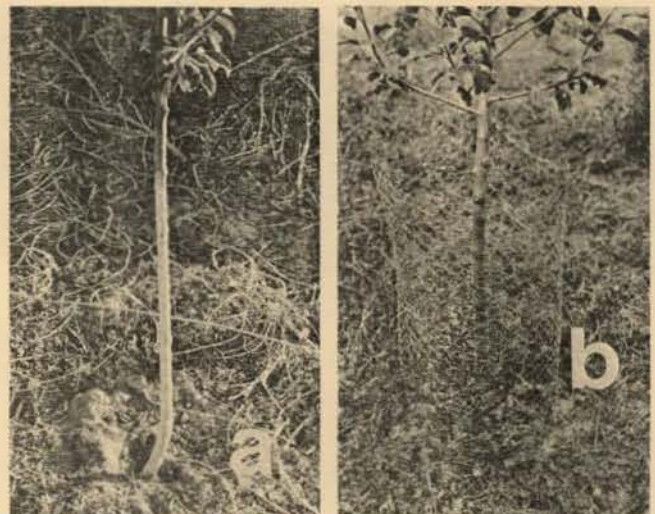


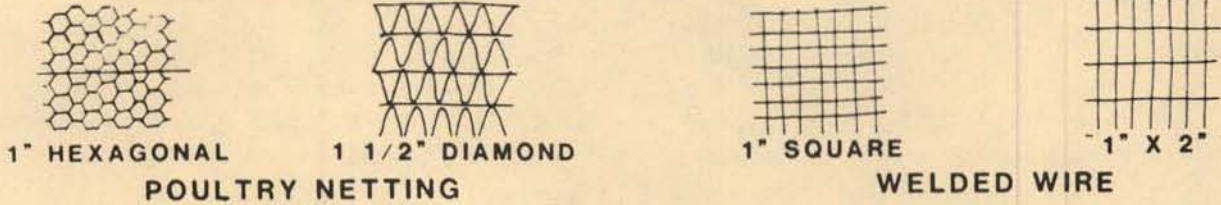
Fig. 1. Damage to apple trees by jackrabbits (A) can be prevented with a poultry wire cylinder (B).

Fencing for Jackrabbits

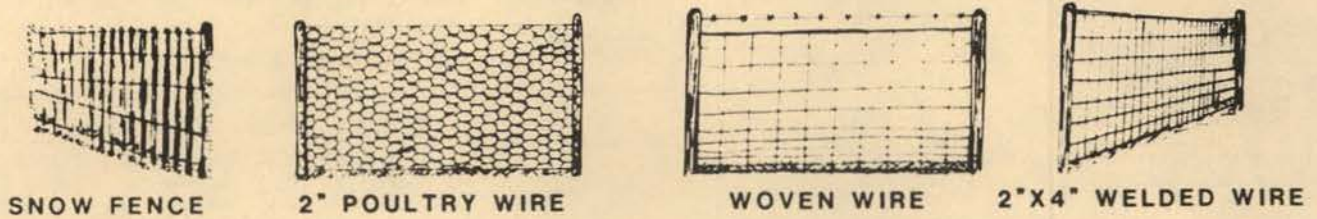
Fencing has been used against jackrabbits and other lagomorphs (rabbits and hares) in the U.S. and elsewhere since the mid-19th century (Palmer 1896; Fitzwater 1972). Solid wood and wooden lath snow fences, woven wire stock fences, poultry-

garden fencing, plastic netting, canvas, camouflage cloth, wire netting and other materials have been tried with varying degrees of success. Plate 1 illustrates several common types that **discourage** jackrabbits but **do not prevent** them from causing damage and types that **do prevent** them from causing damage.

TYPES OF FENCING THAT WILL STOP JACKRABBITS

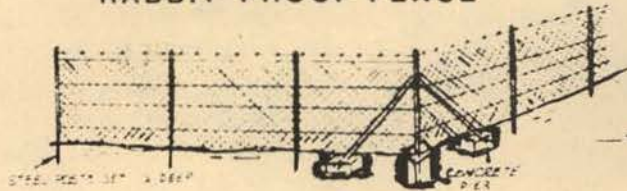


FENCES THAT DISCOURAGE BUT DO NOT STOP JACKRABBITS

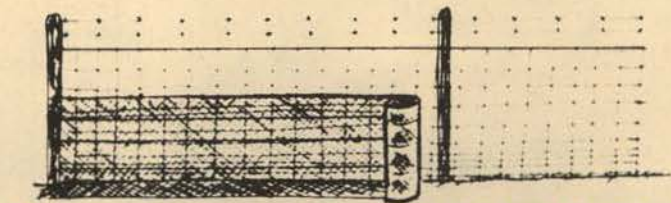
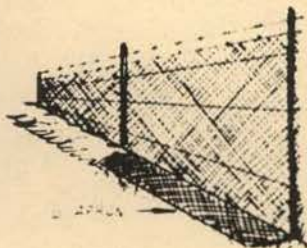
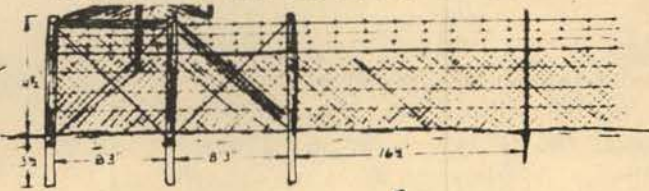


FENCING FOR JACKRABBITS

RABBIT-PROOF FENCE



RABBIT- & LIVESTOCK-PROOF FENCE



RABBIT-PROOFING AN EXISTING FENCE

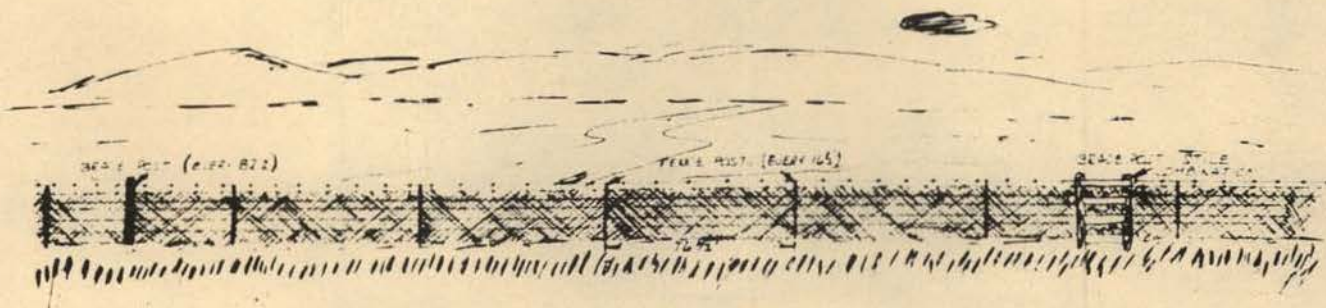
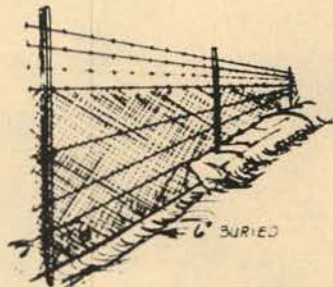


Plate 1. Fence materials and designs for jackrabbit fences.

Electrically charged wires and fencing for rabbit control have been reported (McAtee 1939; Nicholson 1939). In 1970, we recommended against use of electric fences because of potential hazards and various limitations such as the need for ground moisture to make an electric shock effective. Later, we also found that the constant maintenance necessary to keep jackrabbits from digging under single and multiple strand electric wire fences made these fences impractical. Recent nonlethal electric barriers of 1-inch steel poultry mesh for rodents (Shumake et al. 1979) may have utility against jackrabbits.

Standard, nonelectrical, 20-gauge poultry netting, however, will prevent jackrabbit damage. The mesh size should not exceed 1½ inches and the height need only be about 30 inches above ground/snow level. Jackrabbits can jump a 7-foot-high solid wood, canvas or cloth fence but very seldom attempt to jump fences they can see through, even when frightened or chased.

Recommendations

We recommend the following methods of fencing to protect trees, haystacks and crops from jackrabbits. All have use against other lagomorphs.

Tree Protectors — A simple cylinder of 1-inch-mesh poultry wire (Fig. 1B) fully protects trees from jackrabbits. Cylinders should be 24 to 30 inches high; inside diameter can vary but should not be less than 3 inches. Although not always necessary, wooden laths or stakes may be used to anchor and support the cylinder. The bottom 4 to 6 inches of the cylinder can be buried for added support and to prevent jackrabbits and other animals from digging under. Other homemade devices (Storer and Jameson 1965) and commercially available tree protectors (Campbell and Evans 1975; Baer 1980) are also effective against jackrabbits.

Wire Wraps for Haystacks — Most haystacks can be readily protected with 1-inch-mesh, 36-inch-high, poultry netting wrapped tightly around the bottom (Fig. 2B); 60-inch-high wire is recommended where snow presents a problem. Wooden laths or stakes can be used for support but are not really necessary. For large stacks exposed to dense concentrations of jackrabbits for long periods of time, the bottom 6 inches of netting can be bent out forming an apron to assure jackrabbit exclusion. The apron can be secured with wire pins, wooden stakes or covered with dirt. Permanent fences — those that will last for several years — are recommended for large size, year-to-year hay storage sites where rabbits are a problem.

Fences — Rabbitproof fences are used to confine jackrabbits to the desert (Fig. 3). Plate I shows some basic designs for rabbitproof fences. Detailed designs for building fences and gates can be found in publications by Timmons (1971) and Yoakum et al. (1980, p. 389-403). State and county agricultural Extension agents can also help plan fence construction. The appendix lists the materials needed for rabbit-proof and rabbit- and livestock-proof fences.

Building a Rabbit-Proof Fence — A new rabbit-proof fence should be constructed with steel line posts evenly spaced 16½ feet (or closer if desired). Steel corner and end posts should be set in concrete; wood corner and end posts should be sunk at least 3 feet and braced (see Timmons 1971, p. 9-12).

The top edge of 36-inch-wide, 1- to 1½-inch-mesh poultry netting is fastened with hog rings 30 inches above ground to a top strand of 14- to 17-gauge smooth wire for gardens or 12½- to 15½-gauge barbed wire for field crops. (Other horizontal wires spaced 12 inches from the top can be used for added sturdiness but are not essential.) The fencing is best fastened to the outside (desert side) of the posts. At least 6 inches of wire should be buried underground

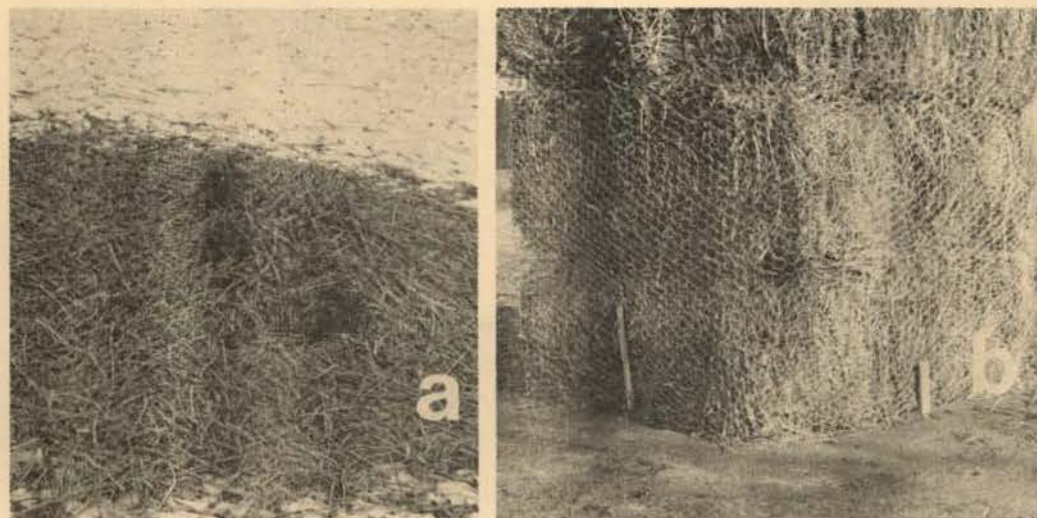


Fig. 2. Jackrabbits severely damage unprotected haystacks during winter (A). Poultry netting wrap (after 6 months of exposure) greatly reduces haystack damage (B). Note rabbit droppings indicating heavy use.

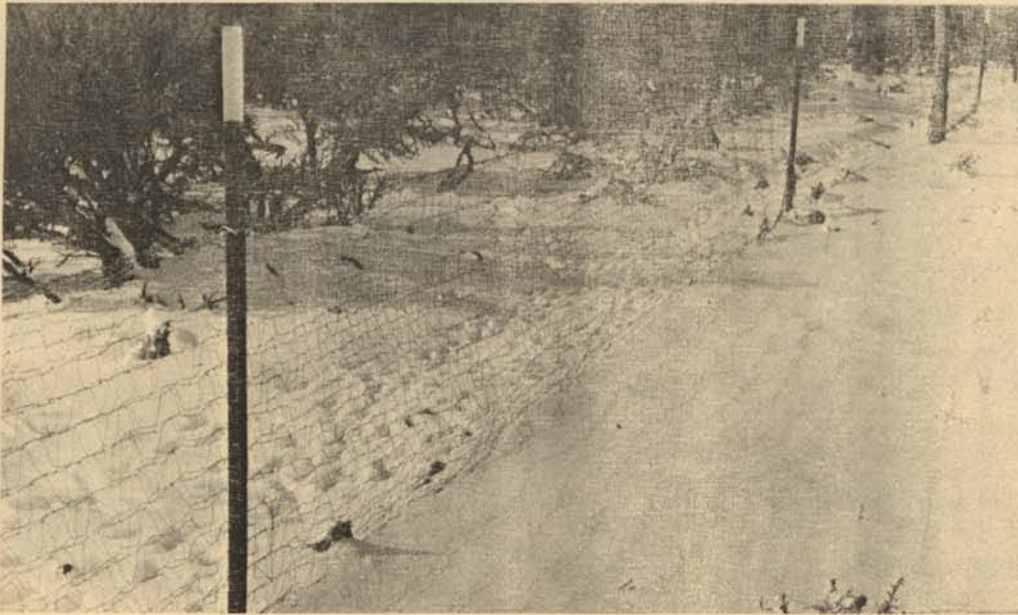


Fig. 3. A rabbit-proof fence of 1½-inch, diamond shaped poultry wire. Note the rabbit tracks on the sagebrush side of the fence.

or turned outward forming an apron and covered with soil (Plate 1).

Plowing a single furrow along the fence line before setting posts simplifies burying the wire. Backfilling or turning a furrow against the fence helps anchor the wire apron.

Building a Rabbit- and Livestock-Proof Fence — Often it is desirable to protect stacks of hay, crops or gardens from livestock and jackrabbits. This can easily be done with a rabbit-proof fence topped with three strands of barbed wire. Longer corner, end and line posts are needed as listed in the Appendix and illustrated in Plate 1.

Rabbit-Proofing an Existing Fence — Wire mesh fences of various heights and designs are commonly used to protect field crops from livestock. They are generally ineffective against jackrabbits, especially

young of the year. Existing stock fences can easily be made rabbit-proof by fastening 36-inch-wide, 1-inch-mesh poultry netting to the outside of the fence (Plate 1). This is done by securing the top of the netting to the fence with hog rings 30 inches above ground and bending the lower 6 inches outward to form an apron. The apron can be anchored with wire pins, wooden stakes or covered with soil. The netting can be made more secure by fastening it with additional hog rings to one of the lower wires of the existing fence.

Special Considerations — Cattle guards prevent livestock but not rabbits from passing through a fence line. Thus, gates are needed for vehicle use. These gates are made rabbit-proof by simply adding poultry wire to them (Fig. 4). The sides and bottom can be fitted with a wire apron or can be made to fit tight against gateposts and a baseboard. Gates with an apron should open toward the desert.

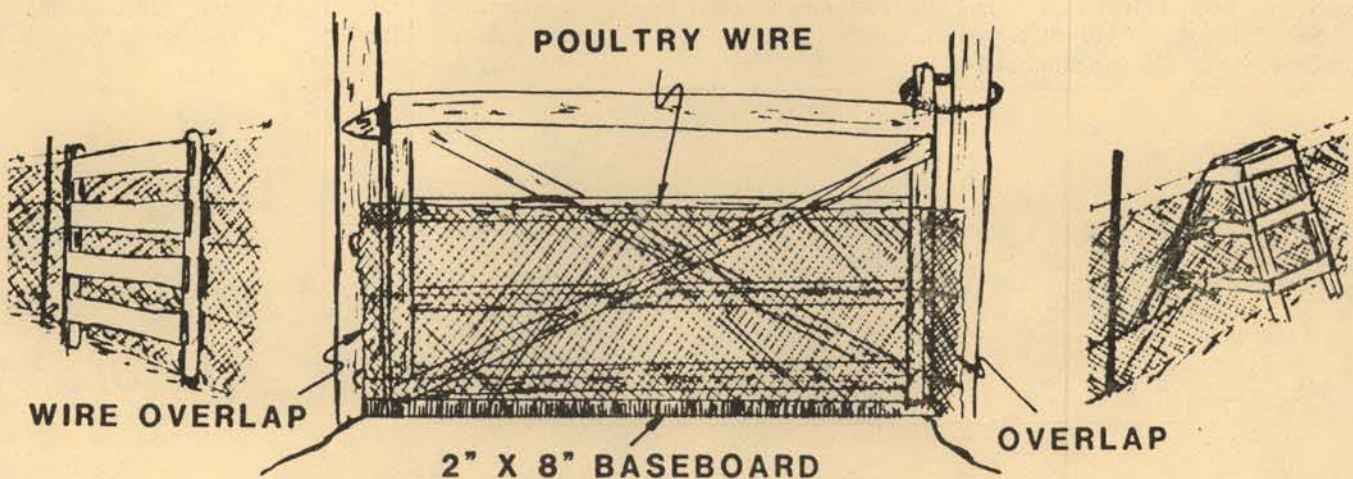


Fig. 4. Ways of rabbit-proofing a gate and two types of stiles for climbing fences.

Floodgates, culverts and other systems must also be rabbit-proofed where fences cross waterways that are periodically without water. Wooden stiles or ladders (Fig. 4) should also be provided to reduce damage from people climbing fences.

Fences should be inspected in spring and fall and kept in repair. Clearing of brush and weeds and other types of maintenance are also advised. Burning brush next to fences should be avoided — burned poultry netting rusts rapidly.

Conclusions

We consider fencing one of the most reliable ways of controlling jackrabbit damage. Rabbit-proof fences that are properly built and maintained greatly reduce the jackrabbit impact on crops for many years regardless of population densities. Standard 20-gauge, rust resistant poultry netting, for example, lasts about 10 years or more in southern Idaho; 17-gauge, stucco netting will last about 20 years or longer. Fencing for jackrabbit control is a good investment.

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Appendix A — Minimum Materials Recommended For Jackrabbit-Proof and Jackrabbit- and Livestock-Proof Fences

I. Materials list for 1 mile of rabbit-proof fence (1 strand barbed wire) and 1 mile of rabbit- and livestock-proof fence (4 strands barbed wire).

Item	Rabbit-proof fence	Rabbit- and stock-proof fence	General information
"T" steel fence posts, standard	321 5-foot posts	321 6-foot posts	Spaced 16½ feet, set 1½ feet deep
Wooden brace line posts, treated	68 6-foot posts	68 8-foot posts	5-inch diameter, spaced 82½ feet, set 3 feet deep
Poultry netting, rustproof, 1-inch mesh	35.2 rolls	35.2 rolls	36 inches high, bottom 6 inches buried, 150 feet per roll
Smooth wire, galvanized	9 coils	—	14-gauge, 10-pound coil, 600 feet per coil
Barbed wire, high tensile	4 rolls	16 rolls	12½-gauge, 2-point, ¼ mile per roll
Fence clips, standard	13 pounds	36 pounds	No. 101 metal clips, 50 per pound
Hog rings, galvanized, heavy duty	25 boxes	25 boxes	100 per box
Miscellaneous	Gates, culverts, stiles, nails, staples — as needed		

II. Materials list for a square 40-acre, 1 strand barbed wire, rabbit-proof fence.

No. and item	Description and use
316 line fence posts	5-foot standard steel "T" posts, spaced 16½ feet, set 1½ feet deep
4 corner posts	5-foot standard steel "T" posts set 6 inches in concrete piers 6 inches below surface
8 corner braces	6- to 7-foot standard steel angle iron set 6 to 8 inches in concrete 8 inches below surface
60-line brace posts	6-foot wooden, treated, 5-inch diameter, spaced 82½ feet, set 3 feet deep
35.2 rolls poultry netting	1-inch mesh, 36 inches high, buried 6 inches (150 feet per roll)
9 coils smooth wire	14-gauge wire, top line wire for poultry netting, 10-pound coil, 600 feet per coil
4 rolls barbed wire	12½-gauge high tensile, 2-point, ¼ mile per roll
13 pounds fence clips	Standard metal clips for smooth and barbed wire; 50 per pound
25 boxes hog rings	Heavy duty galvanized, 100 per box
Miscellaneous	Gates, culverts, stiles, staples, nails — as needed

III. Materials list for a square 40-acre, 4 strand barbed wire, rabbit- and livestock-proof fence.

No. and item	Description and use
312 line fence posts	6-foot standard steel "T" posts, spaced 16½ feet, set 1½ feet deep
4 corner posts	8-foot wooden, treated, 6-inch diameter, set 3 feet deep
16 corner brace posts	8-foot wooden, treated, 5-inch diameter, set 3 feet deep
8 braces, horizontal	8-foot, 3-inch wooden, treated, 4-inch diameter
8 braces, diagonal	9-foot, 6-inch wooden, treated, 4-inch diameter
3 coils, brace (tie) wire	2 double strands each tie, 9-gauge wire, 180 feet per coil
60-line brace posts	8-foot wooden, treated, 5-inch diameter, spaced 82½ feet, set 3 feet deep
35.2 rolls, poultry netting	1-inch mesh, 36 inches high, buried 6 inches (150 feet per roll)
16 rolls, barbed wire	12½-gauge, high tensile, 2-point, ¼ mile per roll
36 pounds fence clips	Standard metal clips; 50 per pound
25 boxes, hog rings	Heavy duty, galvanized, 100 per box
Miscellaneous	Gates, culverts, stiles, staples, nails — as needed

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