

STATE AGRICULTURE DEVELOPMENT COMMITTEE
POLICY

Farmland Stewardship Deer Fencing Program

I. Purpose

To make Farmland Stewardship Program cost-share grants available for the installation of high-tensile woven wire deer fencing on farms enrolled in a permanent farmland preservation program.

II. Authority

N.J.S.A. 4:1C-11, et seq.

N.J.S.A. 13:8C-43, et seq.

N.J.A.C. 2:76-20.1, et seq.

III. Definitions

"Committee" means the State Agriculture Development Committee established pursuant to N.J.S.A. 4:1C-4.

"Established farmer" means an owner-operator or immediate family member of the owner-operator of a family farm who actively participates in the operation and management of a farming operation, is a resident of the State of New Jersey, spends a substantial portion of time in carrying out a farming operation and planted a crop or acquired livestock or aquatic organisms which were on the farm at the time of the completion of the feasibility plan application. If the applicant is a cooperative, a corporation, a partnership or a joint operation, it must be primarily engaged in farming, that is, the applicant entity must derive over 50 percent of its gross income from all sources from its farming operation and its principle place of business shall be in New Jersey.

"Farmland preservation program" means any permanent program as developed pursuant to the Agriculture Retention and Development Act, N.J.S.A. 4:1C-1 et seq., the Garden State Preservation Trust Act, P.L. 1999, c.180, N.J.S.A. 4:1C-43.1, N.J.S.A. 4:1C-31.1 and which has as its principal purpose the long term preservation of significant masses of reasonably contiguous agricultural land within the agricultural development areas adopted pursuant to N.J.S.A. 4:1C-11 et seq., P.L. 1983, c.32 and the maintenance and support of increased agricultural production as the first priority use of that land from which a permanent development easement has been acquired or retained for farmland preservation purposes and which land is eligible for the benefits of the farmland preservation program.

"Feasibility plan" means an application by established farmers for deer fencing projects that are necessary and may feasibly result in enhancing the economic viability of the farm operation.

"Implementation projects" are projects recommended in approved feasibility plans that may feasibly result in enhancing the economic viability of the farm operation.

“Military veteran farmer” means an established farmer who served in the active military, naval, or air service anywhere in the world at any time since September 11, 2001, and discharged or released therefrom under conditions other than dishonorable at the time of application.

IV. Eligibility for Cost-Share Grants

Applicants must meet the following criteria in order to become eligible for cost-share grants to install high-tensile woven-wire deer fencing:

- a. Applicant must be an established farmer
- b. The land on which the deer fencing is to be constructed is permanently preserved farmland enrolled in the Farmland Preservation Program (FPP) or Transfer of Development Rights (TDR) Program approved by SADC.
- c. Applicant must participate in a Committee-approved deer fence installation training session.
- d. Applicant must install deer fencing in accordance with the specifications prescribed in this policy document.

V. Policy Statement

With an estimated \$5-10 million per year in crop losses due to deer densities that exceed in some instances more than ten times the land’s carrying capacity, the use of fencing to exclude deer and protect a farmer’s investment in crops is critical to a preserved farm’s economic viability. Effectively precluding deer requires the installation of high-tensile woven wire fencing according to prescribed specifications (Exhibit A1 and Exhibit A2), which can be cost-prohibitive without any available cost-share. Offering cost-share for deer fencing is considered a “Stewardship activity” as defined in N.J.S.A. 13:8C-43 (the “Preserve New Jersey Act”), because such work is beyond routine operation and maintenance, and serves to improve lands that have been preserved for farmland preservation purposes under N.J.S.A. 4:1C-11, et seq. (the Agriculture Retention and Development Act). The installation of such deer fencing must be undertaken on preserved farmland in compliance with the Deed of Easement.

VI. Application Procedure

To be eligible for a Farmland Stewardship Program cost-share grant for deer fencing, an established farmer must submit a feasibility plan within a program round announced by the Committee that includes the following:

- a. A map showing the proposed location of deer fencing, including all gates and corners.
- b. An estimate of the linear feet of fence required.
- c. An estimate of the acreage to be fenced.
- d. Crops currently grown within the area to be fenced.
- e. Crops planned to be grown within the area to be fenced.
- f. If available, the current gross dollar loss from deer damage in the area to be fenced as documented by crop insurance claims.
- g. A description of hunting or other deer abatement measures, such as DEP depredation permits, that have been used for the land to be fenced.
- h. Documentation of applicant’s status as a military veteran farmer, if applicable.
- i. Documentation that applicant meets the definition of an established farmer.

VII. Feasibility Plan Determination

The Committee will make grants available for implementation projects subject to available funding. The Committee will undertake an analysis of each feasibility plan to determine if the proposed projects are feasible. Only approved feasibility plans will become eligible for funding as implementation projects. The Committee will approve feasibility plans based on the following criteria:

- a. A demonstrated need for deer fencing as demonstrated by the deer density within the deer management unit and/or deer management zone(s) where the established farmer proposes installing fencing, whether the area is in a no firearm discharge zone, whether the farmer has obtained NJDEP depredation permits, whether the premises is open to hunting, and whether the adjacent parcels are included within state, county, municipal, or non-profit open space where hunting is prohibited.
- b. A demonstrated need for deer fencing as demonstrated by the type of crops grown or planned to be grown in the area to be fenced. No implementation projects will be approved for fencing farmstead complexes unless said complexes contain cropland, pastureland, or woodland. Projects that propose to fence any portion of woodland must have a signed Woodland Management Plan or Forest Stewardship Plan with deer fencing as a recommended management practice.
- c. The proposal's compliance with the deed of easement, including, but not limited to, Paragraph 7 (natural resources conservation) and all other applicable laws, rules, and regulations.

VIII. Ranking of Applications

Implementation projects will be ranked by means of a numeric rating scale as shown in Exhibit B and funding will be expended for a given program round by rank order (highest to lowest) until available funding has been exhausted. The numeric rating scale shall incorporate the following criteria:

- a. Deer density per square mile.
- b. Type of crop currently grown or planned to be grown.
- c. Status of firearm discharge zones (whether land is located in no discharge zone or not).
- d. Adjacency to state, county, municipal, or non-profit open space where hunting is prohibited.
- e. Status of hunting access (whether premises is posted to no hunting or not).
- f. Status of deer depredation permits (whether applicant has obtained them or not).
- g. Whether owner-operator is a military veteran farmer.

In the event of a tie score between applications, applications will be prioritized according to the earliest date submitted during a given program round. In the further event of a tie, an established farmer may submit documentation of the extent of crop damage from deer and associated annual gross dollar loss for the previous calendar year along with a letter of support from Rutgers Cooperative Extension, or alternatively, submit evidence of a crop insurance claim.

IX. Approval of Implementation Projects

The Committee, by resolution, will grant approval to all projects in the order ranked for each funding round, until funding is expended. Any fencing installed before funding is awarded will be ineligible for reimbursement. The date of the resolution will be considered the approval date.

X. Reimbursement Procedure

The Committee will provide a cost-share grant in the form of a reimbursement to the established farmer for the installed deer fencing, as set forth below, only after the implementation project has been completed and all requirements have been satisfied in the reasonable discretion of the Committee:

- a. An established farmer must complete a Committee-approved deer fencing installation training prior to installing the fence.
- b. The fencing must be installed in compliance with the attached design specifications (Exhibit A1 and Exhibit A2), which includes additional fence, gate, corner, post, and other component minimum design specifications.
- c. The fencing must be installed in compliance with the time period set forth in N.J.A.C. 2:76-20.18(a), namely, the implementation project shall commence within six months of approval by the Committee and be completed within three years of said approval.
- d. All approved projects shall be implemented and maintained at all times in conformance with the restrictions set forth in the Deed of Easement and for a lifespan of at least 10 years.
- e. An established farmer must have an approved conservation plan for the area to be fenced.
- f. Upon completion of the project, the farmer shall request payment on a form authorized by the Committee. The Committee shall verify the documentation and that the deer fencing has been installed satisfactorily in accordance with the design specifications (Exhibit A1 and Exhibit A2), the Deed of Easement, this Policy, and all other applicable laws, rules and regulations. If all program requirements are met, the Committee shall forward payment of the grant to the established farmer.

XI. Reimbursement Amounts and Conditions

The grant amounts available to established farmers will be up to 50% of the verified reasonable costs of materials and installation based on the submittal invoices and field inspection, as determined by the Committee. In-kind services performed by the applicant or applicant's employees (such as labor) shall be permitted to be used as the applicant's matching portion of costs for an implementation project reimbursed. Grants will be based on common deed ownership and shall not exceed \$200.00 per acre or a total grant amount of \$20,000. The cost-share of installed fencing not retained for the requisite 10-year lifespan will be recaptured on a pro-rated basis, rounded to the closest month, determined through annual monitoring visits to the Premises.

Exhibit A1
State Agriculture Development Committee
Farmland Stewardship Deer Fencing Program
High-Tensile Woven Wire Deer Fencing Design Specifications
Policy P-53

These specifications must be followed at a minimum for effective implementation of exclusionary deer fence. Equivalent materials may only be used if approved prior to installation.

Fence Height:

- For maximum protection of high value crops, fencing must be at least 96 inches (8 feet) high
- Two systems of fencing are permitted:
 1. System using full 96-inch high-tensile woven wire
 2. System using 75 to 96-inch high-tensile woven wire with high-tensile smooth wires 9 inches apart to reach the full 96-inch height

Fence Posts:

- Post must be preservative pressure treated such as CCA 0.40 lbs. Southern Yellow Pine or equivalent. Do not use Red Pine. Post must be well-seasoned or kiln-dried to minimize warping. If untreated, use durable posts of species such as red cedar, black locust or Osage orange with bark removed.
- Total post length must be 12 feet or greater
- Line Post dimension – 4x4 inches or 4 inch round
 1. Line posts must be placed in ground a minimum of 36 inches
- Corner/End Post dimension – 6x6 or 6 inch round (All corners and ends must be braced)
 1. Corner/end posts must be placed in ground a minimum of 40 inches
- Brace post dimension – 5x5 inches or 5 inch round
 1. Brace posts must be placed in ground a minimum of 36 inches
 2. See Rutgers Fact Sheet FS889 General Construction Guidelines (Exhibit A2) for brace specifications and schematics. In the event of a conflict in design specifications between Rutgers FS889 and State Agriculture Development Committee Policy P-53, Policy P-53 will prevail.
- Post spacing must be 25 feet or less
- Post placement may be pounded or augured
 1. Augured posts must be anchored on corners, ends and low points

Wire:

- All wire must be high-tensile 12.5 gauge steel class 3 galvanized
- High-tensile woven wire may have graduated spacing from 3 to 8 inches for horizontal wires and no more than 6 inches for vertical wires.
- If graduated spacing, high-tensile woven wire is used the small spacing will be placed closest to ground
- High-tensile woven wire must be a minimum of 75 inches. Additional strands of 12.5 gauge smooth high-tensile wire will be added at a maximum of 9 inch intervals above until the full height of 96 inches is reached.
- Wire must be attached on the outside of the posts.
- 1 ¾ inch steel staples will be used

These specifications are derived from the following sources:

High-tensile Woven Wire Fences for Reducing Wildlife Damage – FS889 – Rutgers University March 2010

Deer Fence Bid Specifications – NJ Division of Agriculture and Natural Resources November 2004

Fence Technical Reference (382) – NJ-NRCS November 2014

NJ Deer Exclusion Fence Installation and Removal Guidance for (382) Fence – NJ-NRCS October 2015

High-Tensile Woven Wire Fences for Reducing Wildlife Damage

Exhibit A2, Policy P-53

Fact Sheet FS889

Cooperative Extension

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Where wildlife is abundant and/or crops are high value, fencing can be an effective tool for excluding deer and small mammals. High-tensile woven wire (HTWW) fences provide a physical barrier that keeps wildlife outside the protected areas. HTWW fencing is effective in reducing crop damage in areas that have moderate to high wildlife pressure, and can be low maintenance and long-lived when properly installed.

Important note: It is critical to properly install high-tensile woven wire fences! During installation, the fence is tightened to hundreds of pounds of tension. This requires properly installed ends, corners, and brace post assemblies. If installation is substandard, the corner posts and ends will have a tendency to be “pulled-out”. Properly installed, HTWW fences can provide 20 plus-years of near maintenance-free performance.

As with any commercial fencing design, lumber and labor constitute the major costs. Costs range from \$4.50–\$7.50 per foot depending on terrain, the number of corners, height of fence, and the number and style of gates needed. **Remember: Rigid brace assemblies—ends, corners, and gates, make up the backbone of all high-tensile fence systems.**

Frequently Asked Questions About Wildlife Fencing

How high should I build my fence to keep deer out?

The height of a deer fence is critical to reducing deer crop damage. However, fence height has a major impact on the cost of installation. Woven wire deer fences eight feet high are generally considered nearly 100% effective in fields with significant deer crop depredation. However there are several considerations when determining fence height: for example, availability of other food sources, deer population and value of crops grown.

The higher the fence the longer the post needed, substantially increasing cost. The use of woven wire fencing, with additional high tensile smooth wires above, as noted in Diagram 3, can be an effective method of reducing cost while still providing an effective fence. Utilizing high tensile smooth wires near the top of the fence is considered effective since deer do not have enough momentum to compromise the fence near the top

of their jump. Smooth wires spaced nine inches apart above 6-1/2 feet yielding a finished fence height of eight feet or higher have proven effective for New Jersey farmers as determined in the Rutgers University deer fence farmer survey 2005 NJ Supplemental Deer Fencing Program Evaluation Survey and On-site Evaluation Results.

The height range of farmer installed deer fencing generally is from seven to 10 feet.

Why is the planning stage important?

It is important to lay out your fence design in advance to determine:

- the scope of work required to prepare the fencing site;
- the location of corners and gates;
- the high and low points along the fence line (to allow for proper line post locations);
- the number of corner, line, and brace posts required; and
- the amount of HTWW needed.

Do I need a permit to put up a fence?

Many areas require a variance or permit due to height restrictions on fences. “Right-to-Farm” ordinances may also be applicable. Always check the local ordinances by contacting the town clerk or zoning officer for information before you start construction.

Should I use a contractor or do it myself?

If you have the labor and equipment (tractor, auger or post driver), you can save approximately 50% of the cost of the fence by doing it yourself.

Do not take shortcuts; build it right the first time. Use the proper wire, posts, gates, and construction techniques. Improperly installed fences greatly increase long term costs and reduce effectiveness.

Where do I find a contractor?

Focus on contractors that specialize in wildlife “exclusion” type fencing. Wildlife fence dealers and distributors, ads in farming publications, word of mouth, the Internet, and the Yellow pages are good places to start when seeking out contractors. Ask about the contractor’s experience and references, and ask to see installations.

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Make sure you compare the same materials between contractors (one contractor may seem less expensive than another because the materials may be different, e.g. wire tensile strength, number of horizontal and vertical wires, and galvanizing class [class III recommended for long life]).

Evaluate the equipment used to install the fence, e.g. heavy-duty equipment to ensure proper post and fence installation vs. hand tools.

How many years will the HTWW fence last?

If appropriate materials and construction techniques are used, the fence can last 25–30 years. (Remember to amortize fence costs based on its life expectancy.)

Utilities and hazards?

Before you dig, call 1-800-272-1000. IT'S THE LAW! This is a free service for marking underground utilities.

What about gates?

There are several types of gates to consider which vary in costs, quality, and ease of use. Remember, choose convenient gate locations during your planning phase.

Manual gates, such as livestock gates and pipe gates, must be constructed and installed with the same attention to detail as the rest of the fencing system. Wildlife will compromise the fence at gate areas if gate selection is inappropriate. (A manually closing gate can also aid in reducing trespass and vandalism to fields where this is a problem.)

Electric gate openers are available, but they can be expensive and difficult to maintain.

Cattle grates, instead of gates, provide easy vehicle access, but are expensive. (Consider doing it yourself to save on costs.) Inquire about cattle grate effectiveness among users.

General Construction Guidelines for High-Tensile Woven Wire Fences

Ends and corners are the most important part of the fence construction. The posts should be at least 5–6" in diameter, and installed 36–40" below grade.

When auguring is the installation technique, it is very important to tamp the bottom of the hole tight. This should also be done during the back-fill process.

If posts are augured in, they should be set with a wood block or wire "spider" at the bottom (see Diagram 2). These help "anchor" the post.

The length of the brace at corners should be twice the height of the fence. The high-tensile brace wire must be installed opposite the direction of the pull of the fence.

Use good quality posts, CCA #40 treated *Southern or Northern pine*. (CCA #40 treated poplar or oak posts may present problems.)

Posts should be spaced 25–30' apart depending on terrain, and set in the ground a minimum of 36".

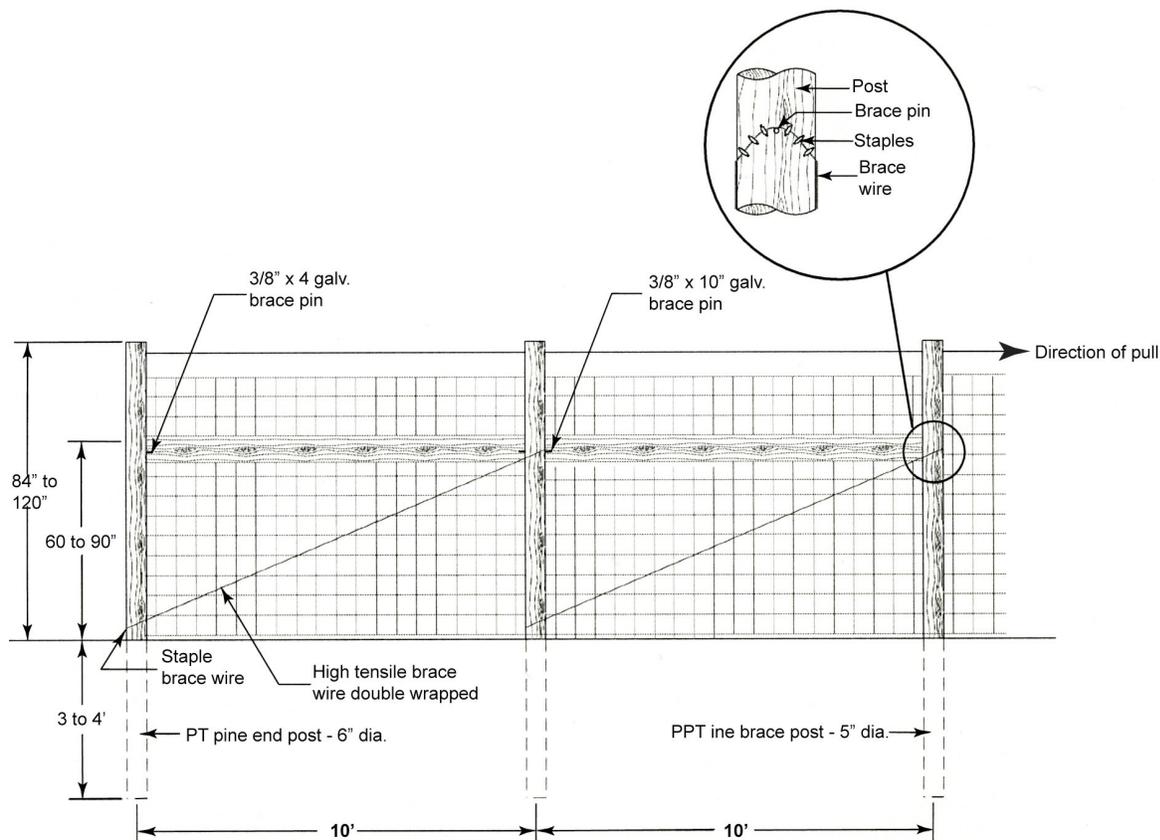


Diagram 1: Double Horizontal Brace Assembly for Corners

Line posts need to be set at high and low points along your fence line. Low points must be anchored (see Diagram 2) to reduce potential for pulling out of the ground.

Only use posts to support the fence. A fence should stand on its own. Trees or other means of support are generally not a good idea. Remember, longevity and low maintenance are what lower the cost of a fence over time!

Auguring vs. Driving Posts

Auguring can be more readily accomplished due to the lower cost and availability of post augers. The post drivers utilized for HTWW fences are generally heavy-duty and capable of driving 5–6" diameter posts 4 ft into the ground.

Drivers can be either tractor or truck mounted. Post driving leaves the soil undisturbed, with no need to backfill holes. Installation is quick. Truck mounted post-driver accessibility can be difficult.

Auguring is time consuming due to the need to back-fill holes. In addition, you will need to anchor corners, low points, and ends (see Diagram 2).

Rocks: For each site, soil/rock considerations are important in the decision to drive or auger posts. (Attempting to drive posts in rocky soils can result in shattered posts.)

Do-it-Yourself Installation of High-Tensile Woven Wire

A good way to handle HTWW is to roll it out close to the line of posts. Make sure the more closely spaced line wires are at the base of the fence.

Splicing, initial tensioning, adjusting to dips and gullies, final tensioning, and stapling are all critical aspects of HTWW fence construction. It is vital that you consult installation guides or videos.

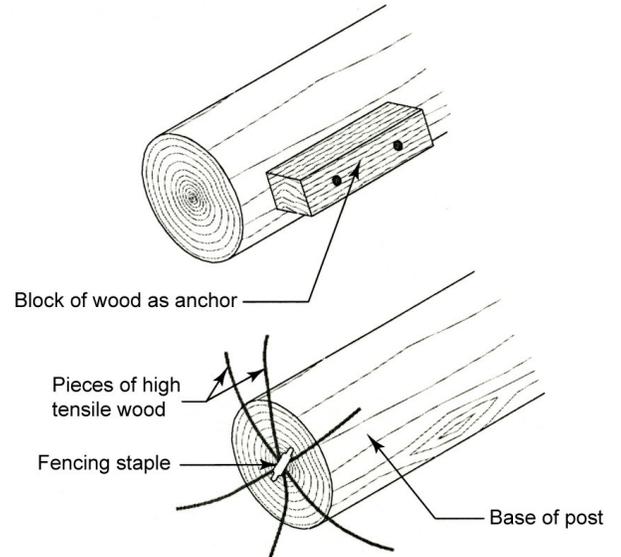


Diagram 2: Block and Spider - to help set post

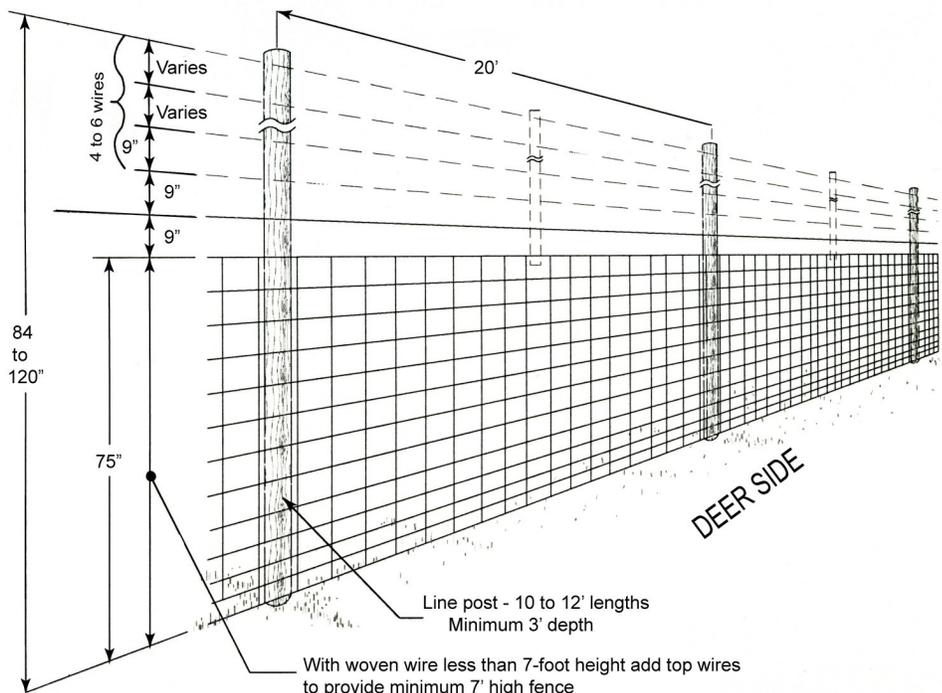


Diagram 3: High Tensile Woven and Smooth Wire Non-Electrical Deer Fence

Fencing Materials: Cost Ranges in New Jersey (2000)

Lumber (Southern or Northern Pine CCA-treated #40 posts)

5-6" diameter:	4-5" diameter:
12'-\$20.00	12'-\$14.00
10'-\$16.00	10'-\$9.50
8'-\$9.00	8'-\$8.00

Wire (all wire is high-tensile)

Woven wire fencing: Available in 6', 7', and 8' heights in 330' rolls. Prices vary from \$145-\$350 depending on height, number of horizontal wires, distance between vertical stay wires and style of knots (e.g. fixed-knot, hinge-lock, solidlock, etc.). High-tensile smooth wire (12-1/2" gauge, class three galvanized) 4,000' roll-\$65-\$72.

Accessories

1-3/4" Barbed staple: 50 lb pail:	\$40-\$50
Stretcher bar puller:	\$95-\$120
Fence stretcher bar and puller:	\$110-\$140
Wire reel (spinning Jennie):	\$60-\$80

Seven-foot and eight-foot high-tensile woven wire fence designs and other wildlife fencing options are on display at the Snyder Research and Extension Farm in Pittstown, New Jersey. They are part of Rutgers University Extension Outreach/Center for Wildlife Damage Control. For further information, call Snyder Farm at 908-730-9419.

This fact sheet does not provide complete information on proper installation of HTWW fencing. It is only intended to provide preliminary information for individuals considering exclusion-type fencing for their farms, properties, parks, etc.

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Cooperating Agencies: Rutgers, The State University of New Jersey, U.S. Department of Agriculture, and County Boards of Chosen Freeholders. Rutgers Cooperative Extension, a unit of the Rutgers New Jersey Agricultural Experiment Station, is an equal opportunity program provider and employer.

Exhibit B
State Agriculture Development Committee
Farmland Stewardship Deer Fencing Program
Numeric Rating Scale Ranking Criteria
Policy P-53

CRITERIA	QUALIFIER	POINTS	FEASIBILITY PLAN SCORE
Deer Density Per Sq. Mi.	Greater than 45 Deer Per Sq. Mi.	25	
	30 - 45 Deer Per Sq. Mi.	15	
	15 - 30 Deer Per Sq. Mi.	10	
	Less than 15 Deer Per Sq. Mi.	0	
Crop Type to be Fenced	Fruit, Vegetable, and Nursery	25	
	Grain and Forages	15	
	Woodland	10	
	Farmstead Complex	0	
Premises Located in No Firearm Discharge Zone	Yes	10	
	No	0	
Premises Located Adjacent to Public Open Space with No Hunting	Yes	10	
	No	0	
Premises Open to Hunting	Yes	10	
	No	0	
DEP Depredation Permit for Premises	Yes	10	
	No	0	
Military Veteran Farmer	Yes	10	
	No	0	
Total		100	