

New Jersey Department of Agriculture (“NJDA”)

Wildlife Fence Cost-Share Program for Unpreserved  
Farms (“WFCS Grants”)

Appendix B

Electric Bear Fencing

Design and Installation Specifications



**NEW JERSEY**  
DEPARTMENT OF AGRICULTURE

**NJDA Wildlife Fencing Program**

**Appendix B:**

**Electric Bear Fencing**

**Design and Installation Specifications**

Electric bear fencing shall be installed in accordance with the attached NJ DEP Electric Fencing factsheet, other electric fencing construction guidance provided by NJ DEP as appropriate, and the following provisions:

- The installed fencing must be permanent, i.e., it must have a lifespan of at least 10 years.
- The installed fencing may not be temporary, i.e., any recommendations in the factsheet regarding temporary fencing shall not be considered part of this Appendix B.
- Any other recommendations in the factsheet shall be considered requirements.
- The installed fencing must follow generally accepted standards for materials and construction.

The specifications included in this Appendix B must be followed at a minimum for the effective implementation of exclusionary bear fencing. Farmers wishing to deviate from the specifications must seek and get approval from the NJDA in writing, in advance, prior to installation.



# ELECTRIC FENCING



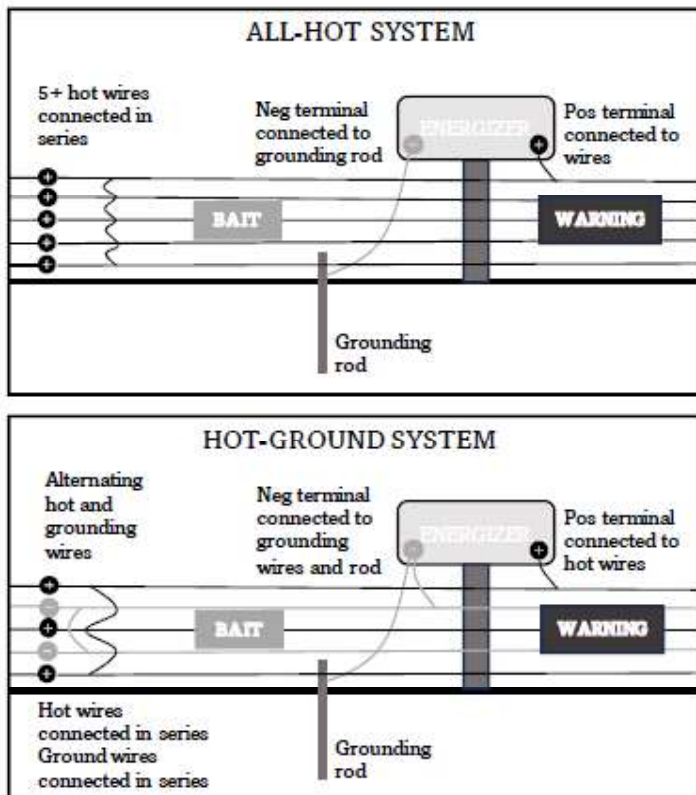
*Properly installed electric fencing is the most effective and efficient method of preventing black bear damage to livestock, beehives, crops, silage bags, orchards, gardens and compost piles.*

## Supplies

Item	Description
Energizer	AC, DC, or solar. Must have a minimum joule rating of 0.7 J and deliver at least 6,000 volts.
Posts	One for each corner and every 8 ft of fencing. For permanent fences, pressure treated 4x4s or metal T-posts are recommended. Both wooden and metal posts require post insulators to prevent the wires from touching the posts and thereby grounding the system. Plastic or fiberglass posts may be used for temporary fences.
Wire	14 or 12 Ga steel wire. 14 Ga aluminum wire or 9+ strand polywire may be used for temporary fences.
Ground rod	At least 6.5 ft of 3/4" or 5/8" galvanized steel. One per joule of energizer's output.
Voltmeter	Allows safe measurement of a fence's voltage.
Vegetation control	Herbicide, mulch, wood chips, or landscaping fabric.
Warning signs	To inform people that the fence is electrified.

## Construction

- Establish where the fence will be located. It should be 4-5 ft from the structure it will protect. This should be away from any trees, which a bear could climb and then drop down into the area.
- Clear all vegetation in an 18-in strip along the fence line.
- Install fence posts at corners and at every 8 ft of fencing.
- Install post insulators if using. There should be an insulator for each strand of wire on each post.
- Put up wires, starting at the gate post. Stretch wires to eliminate sagging.
  - For an All-Hot system, use 5+ strands of wire with the lowest wire 8-12" above the ground and the top wire 36-42" high. Wires should be spaced to prevent a bear from going under, passing through or climbing over without fully touching at least 1 of the wires.
  - For a Hot/Ground system, use 5+ strands of alternating hot and ground wires with the lowest wire 8-12" above the ground and the top wire 36-42" high. The bottom and top wires should always be hot wires. Wires should be spaced to prevent a bear from going under, passing through, or climbing over without fully touching 2 of the wires.
- For Hot/Ground system: Attach extra wire to the positive terminal and hot wires. Attach a second wire to the negative terminal, ground rod(s) and ground wires.
- Drive the ground rod(s) at least 6 ft into moist soil near the post where the energizer will be located.
  - In very dry or rocky soils, drive the rod deeper than 6 feet or drive it at a steep angle at a shallow depth to maximize surface area. Frequently water dry soil around the ground rod.
- Attach energizer to post.
- Energize all wires in the fence system.
- Verify with a voltage meter that sufficient current is running through each hot strand.



### All-hot vs. hot-ground electric fences: Which one is right for you?

While both systems can provide great protection from black bear damage, there are some considerations to make before you begin construction. All-hot systems require consistently moist ground, as the soil moisture is what completes the circuit between the bear and the energizer's ground system. As long as there is soil moisture, the bear will receive a shock when touching any one of the hot wires. Hot-ground systems are better for dry areas or during a drought. No soil moisture is required in this system, but the bear must touch both a hot wire and a ground wire to complete the circuit and receive a shock.

## Baiting

- Bait the fence on all sides at 3 ft high. This will direct a mild shock to the muzzle of a bear, which is the most sensitive area. If the shock is delivered to a bear's hide, it may not be felt.
- Options for bait include bacon or peanut butter in tin foil wrapped around the wire.

## Maintenance

*The following tips are offered to ensure proper maintenance and effectiveness of your electric fence.*

*Every time you visit the site, and at least one a week, check the following:*

- Make sure the wires are tight.
- Check voltage on all wires with a voltage meter.
- Keep wires baited at all times.
- Ensure solar-powered chargers are positioned properly and are not located in the shade.
- Change the batteries as needed. Marine battery terminals and lead composition eyelets resist corrosion.
- Remove vegetation beneath the fence that may be touching the wires and any debris, like branches, that may fall on the fence.

**To report black bear nuisance or aggressive behavior, contact your local police department or NJDEP Fish & Wildlife at 1-877-WARNDEP (1-877-927-6337).**