

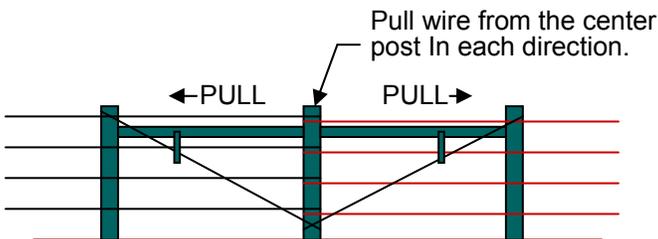
1. Barbed Wire Fences

Barbed wire fences must have 4 strands for perimeter and interior fences when used for cattle and horses and 7 strands for sheep and goats.



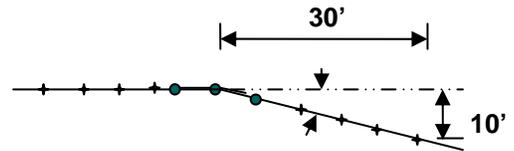
- Use new materials (except steel pipe and utility poles in excellent condition). Trees, stumps, in-service utility poles or landscape timbers are not allowed. Wooden posts will be Osage Orange, red cedar, black locust or treated posts labeled as specified in AWPA standard UC4A.
- H-braces or welded angle braces will be used for all fences (except one and two wire electric fences). Single H-brace or angle brace assemblies are sufficient at gates and for full assemblies every 1,320 feet for barbed wire and barbless cable, 660 feet for woven wire, and 2,640 feet for high-tensile electric wire with more than two wires. Double H-brace or angle brace assemblies must be used with any 20-degree change in direction and slope changes in excess of 8 percent. The horizontal brace shall be a minimum of 6-10 feet long and use 3-inch diameter wood or 1 7/8-inch diameter steel pipe.

DOUBLE "H" BRACE



- A Double "H" is Required When:
- Length is > 1,320'
 - Change of direction > 20 degrees
 - Change in elevation > 8 percent

CHANGE IN DIRECTION



> 20 degrees requires double H braces



- Corner, gate, end and pull posts will be either 5-inch diameter wood or composite or 2-3/8 inch diameter steel pipe. Capping of steel pipe is required to slow rust and painting is recommended. Posts will be driven or set 36 inches where possible and 24 inches with concrete 6 inches around the post when not feasible. Wooden corner posts should be thoroughly tamped. A tension wire is required on all wood braces, consisting of two complete loops of 12-gauge or stronger wire with a twitch stick or inline wire tightener. Corner posts will be 36 inches plus the height of the fence in length.



- Line posts will be 3-inch wood posts driven 24 inches or steel T-posts (weighing 1-1/4 pounds/foot) driven to the top of the anchor plate. Posts will be used every 20 feet (or 30 feet with stays) for barbed wire and barbless cable. The post spacing for woven wire fences is recommended to be every 10 feet or less.



- For barbed wire, each line must be two twisted strands of 12-1/2 gauge malleable or 15-1/2 gauge high-tensile wire, with either 2 or 4 point fixed barbs. For woven wire, the top and bottom strands shall be 12-1/2 gauge or heavier with intermediate strands 14-1/2 gauge or heavier.

Fences with 32-inch woven wire shall have at least one 12-gauge or 15-1/2 gauge high-tensile barbed, barbless or 12-1/2 gauge smooth wire at least four inches above the woven wire. The base of the woven wire shall be near ground level.

- High-tensile wire (12-1/2 gauge) with a minimum of 170,000 psi will be used. **Do not** electrify barbed wire. Electric fencing warning signs should be posted where the public has access to the fence.



- Fence chargers must be high voltage/low impedance, short pulse units which can produce a minimum of 5,000 volts output. Monitor fence voltage with a digital volt meter. Install a surge protector at 110-volt connections to provide protection from lightning.



- A minimum of 3 ground rods 1/2 inch in diameter must be installed 10 feet apart near the energizer. The rods will be connected with one continuous wire back to the charger terminal and do not mix dissimilar materials.

The ground rods should be 6-feet long and located in moist, deep soil. Keep ground rods 25 feet from other grounding systems.



- All underground wire installations must be double insulated, molded, high-tensile strength 12-1/2 gauge wire. Placing the wire in nonmetal conduit or PVC pipe buried deep enough to protect the wire is recommended.



11. Gates can be made of smooth high-tensile wire, cable, polytape, polybraid or polyrope.



12. Insulators must be high density plastic with UV protection or porcelain with a 10-year warranty.
13. Cutoff switches are recommended at each secondary fence feeding off the main line to assist in tracing shorts.



17. Height of a one-wire fence for cattle and horses should be around 36 inches or at the height of an animal's outstretched nose. Two-wire fences probably work best at 40-44 and 28-32 inches.

For more control, three wires at 40-44 inches, 32-36 inches, and 24-28 inches are effective. For small ruminants, three wires at 6-10, 16-20, and 36-30 inches should be effective. Goats may require four wires.



14. An H-brace is not required for one- and two-wire fences. Corner posts shall be set 36 inches deep or buried in at least 24 inches of concrete 6 inches around the post.
15. Pre-fabricated corners may be used for electric fencing.
16. Line posts can be steel posts, rigid plastic, fiberglass, steel rods, or composite posts. Fiberglass and rigid plastic posts shall be at least 3/8-inch diameter. Posts shall be located every 60 feet or less for multi-wire fences, dependent on the terrain. One- or two-wire fences may have posts 100 feet apart on level ground.

For additional information

Contact your local NRCS or USDA Service Center for information, including detailed design criteria and specifications. Our local offices are listed in the phone book under U.S. Government, or visit our Web site at <http://www.nrcs.usda.gov>.

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