

Fence: Barbed & Woven Wire

Iowa Job Sheet

Natural Resources Conservation Service (NRCS)
Des Moines, Iowa

Iowa Conservation Practice 382
September 2018

Definition

A constructed barrier to animals or people.

Purpose

Facilitate the application of conservation practices by providing a means to control movement of animals and people.

Conditions Where Practice Applies

This practice may be applied on any area where management of animal or people movement is needed. Fences are not needed where natural barriers will serve the purpose.

General Criteria and Specifications

A. Barbed Wire

Barbed wire fences shall have a minimum of 4 wires for farm borders. A minimum of three wires shall be used for interior fencing, cross fencing, or excluding livestock from special areas such as wildlife areas, forested tracts, or other special use areas. Wires shall be placed approximately an equal distance apart. The top wire shall be at least 42 inches high and 2 inches below the top on wood posts and 1 inch below the top on steel posts. Wire shall be spaced no more than 12 inches apart.

Each barbed wire shall consist of 2 twisted strands of either 12 1/2 gauge wire or 15 1/2 gauge high tensile strength wire. The barbs shall be either 2-point barb or 4-point barb. Wire shall be stretched taut and attached after the posts are properly set and backfilled. Attached wire to the side of the post closest to the livestock, except on corners and curves where the wire should be placed on the outside of the corner or curve.

Barb wire fences shall not be electrified.

B. Woven Wire

Top and bottom strands of woven wire shall be a minimum of 12 1/2 gauge. Wire for intermediate strands shall be 14 1/3 gauge or heavier. Woven wire fences 32 inches or less in height shall have at least 2 barbed wires above the woven wire, spaced 8 to 12 inches apart. Fences constructed with woven wire 33-47 inches shall have at least 1 barbed wire above the woven wire. Woven wire fence 48 inches are not required to have barbed wire above except if it is needed to contain livestock or deter predators. The base of the woven



wire shall be placed near the ground surface. Optional barbed wire may be ran near the ground. The top wire shall be at least 42 inches above the ground level and 2 inches below the top of wood posts and 1 inch below top of steel posts. All wire shall be galvanized (Class 3). Wire shall be stretched and attached after the posts are properly set and backfilled. Attach wire to the side of the post closest to the livestock, except on corners and curves where the wire should be placed on the outside of the corner or curve.

C. Staples

Staples shall be 9 gauge steel or heavier with a minimum length of 1 1/2 inches for soft woods and a minimum length of 1 inch for close grained hardwoods. Space should be left between the staple and the post to permit free movement of the wire. Wires may be attached to steel posts by use of manufacturer's clips or by 14 gauge galvanized wire twisted at least two turns.

D. Posts

All wooden posts (except red cedar, osage orange, or black locust) shall be treated with creosote, pentachlorophenol, or chromate copper arsenate (CCA) by a method that ensures complete penetration of the sapwood. Quality of treated wood shall provide sufficient strength and quality to last for the expected life of the fence. At least half of the diameter of red cedar shall be heartwood.

E. Corner, Gate, Brace, and End Posts

Corner posts, gate posts, end posts, pull posts and brace posts shall be wood with sufficient length for the construction of at least a 42 inch high fence and permit setting the post at least 36 inches deep. Earth backfill shall be thoroughly tamped. Where soil depth is restricted to less than 36 inches, additional anchors or deadman applied against the direction of pull may be needed. Wood posts shall have a minimum top diameter of 5 inches. A 2 1/2-inch steel pipe with appropriate bracing or set in concrete of sufficient depth also may be used. Reinforced concrete or metal posts of equivalent strength may be substituted if they have suitable means of attaching wires and braces.

F. Line Posts

The maximum spacing of line posts shall be one rod (16 1/2 feet). Wood line posts shall have a minimum 3 inch top diameter. Wood line posts shall have a minimum length of 6 1/2 feet and shall be set or driven to a minimum depth of 24 inches where conditions permit. When posts are set, earth backfill shall be thoroughly tamped. Steel line posts shall not weigh less than 1 1/3 pounds per foot and shall have a steel anchor plate securely fastened to the plate. The posts shall be "T", "U", or "Y" shaped and have corrugations, knobs, studs, or grooves suitable for fastening fencing to the posts. Steel posts shall be rolled from high carbon steel and shall have a protective coating; either galvanized by the hot dip process, or painted with one or more coats of high grade weather resistant paint for steel, or enameled and baked. Steel line posts shall be at least 6 feet in length and shall be set in the ground a minimum of 20 inches. Steel posts shall be used as line posts at least once every 6 rods (99 feet) to act as a ground for lightning protection.

G. Bracing

End bracing will be installed at locations where the fence ends and on both sides of gate openings. Corner bracing should be installed where fence alignment changes 15 degrees or more. Bracing is required at all corner, gate, pull and end assemblies in a fence. The brace member shall be the equivalent of a wood post with a 3 1/2 inch diameter at

the top or a standard weight 2-inch diameter galvanized steel pipe. The brace shall be at least 3 feet above the ground and at least 8 inches below the top of the post. The brace member shall be 6 to 8 feet in length. A brace wire consisting of 2 complete loops of 9 gauge smooth wire, 2 loops of barbed wire or a single loop of 12 1/2 gauge high tensile strength wire shall be installed. "H" braces or angle braces will be used in standard fences.

Pull post assemblies consisting of three posts with braces shall be installed in straight reaches of fence at intervals of 660 feet (40 rods), at any point where the vertical angle described by two adjacent reaches of wire is upward and exceeds 10 percent and at the beginning and end of each curve.

H. Crossings

For a narrow ditch or draw crossing with slopes steeper than 8 feet horizontal to 1 foot vertical, the fence shall be anchored with a concrete anchor weighing at least 150 pounds and buried with at least 18 inches of cover or a commercial screw-in type metal anchor 5 inches in diameter and not less than 48" long to position the fence to the contour of the ditch or draw.

I. Gates

Gates weighing less than 100 lbs. may be hung from single end posts properly installed. Heavy metal or wood gates more than 6 ft. wide shall best be attached to the pull post of an H-brace or diagonal floating brace.

All gates must be substantial enough to withstand expected pressures from livestock, predators, and/or wildlife.

Wire gates shall be made of the same materials as used for the fence. Panel or tube type gates shall be equivalent in quality to the fencing material and fitted with at least two hinges and a latch or chain for fastening.

Electrified perimeter fence gates may consist of a pair of 12 1/2 gauge straight or coiled wires installed to be non-electrified when opened. A 12 1/2 gauge overhead or insulated underground transmission line will be used to carry electricity across all gate openings (including electrified gates to charge the remainder of the fence).

Operation and Maintenance

Regular inspection of fences should be part of an on-going management program. Inspection of fences at regular intervals and after storm events is needed to facilitate the function of the intended use of the fence. Maintenance and repairs will be performed as needed to facilitate the operation of the fence.

Specifications

Site-specific requirements are listed on the specifications sheet. Additional provisions are entered on the job sketch. Specifications are prepared in accordance with the NRCS Field Office Technical Guide. See Conservation Practice Standard – Fence (382).

Client:		Farm #:	
Field(s):		Tract #:	
Planned By:		Location:	
Date:		Length of Fence (ft):	
Landowner Objectives:			
Purpose: (check all that apply)			
☐ Reduce erosion and improve water quality by controlling livestock access to streams, springs, wetlands, and ponds.		☐ Protect sensitive environmental areas and flora from vehicular, pedestrian, or animal traffic use.	
☐ Protect newly planted areas from disturbances until established.		☐ Protect the safety of people, livestock, and wildlife by limiting or denying access to hazardous areas.	
☐ Facilitate handling, movement, and feeding of livestock in the pasture environment.		☐ Improve distribution and timing of livestock grazing	
☐ Other (specify)			
Type of Fence – Barbed (check all that apply)			
☐ 3-strand barbed wire		☐ 4-strand barbed wire	
☐ 6-strand barbed wire		☐ 5-strand barbed wire	
		☐ 8-strand barbed wire	
		☐ Other: _____	
Wire Gauge and Barbs			
☐ 12 ½ gauge wire		☐ 2-point barbs on 4" or 5" centers	
☐ 15 ½ gauge wire		☐ 4-point barbs on 5" centers	
Type of Fence – Woven Wire			
Woven Wire Ht (ft): _____	# of Wire(s): _____	Top/Bottom Wire Gauge: _____	Wire Spacing (in): _____
		Intermediate Wire Gauge: _____	
Woven Wire Type: _____		Top Deterrent Type: _____	
Attachment to Posts			
Staple Gauge: _____	Staple length (in): _____	☐ Manufacturer clips	☐ 14 gauge wire
Line Posts (check all that apply)			
Type: ☐ Red Cedar or Osage Orange or Black Locust or pressure treated or other preservative wood or ☐ Standard steel line posts (1 ⅓ lb/ft posts)		Size: ☐ Line posts are wood 6 ½ feet or longer 3" minimum top diameter or ☐ 6' Standard steel line post with anchor plate	
Spacing: ☐ Wood line posts spaced a maximum of 16 ½ feet apart set 2 ft deep minimum with a steel post every 99 ft for lightning protection or ☐ Steel line posts spaced a maximum of 16 ½ ft apart set to top of anchor plate or 20"			
Braces, Corners, Ends, & Gates (check all that apply)			
Corners, Ends, & Gates: (6 - 8 ft minimum length) ☐ 5" top diameter wood post or ☐ 2 ½" galvanized steel pipe.		Brace Wire ☐ 2 complete loops of 9 gauge smooth wire or ☐ 2 loops of barbed wire or ☐ Single loop of 12 ½ gauge high tensile, galvanized steel	
Braces ☐ 3 ½ top diameter wood post or ☐ 2" galvanized steel pipe and ☐ Horizontal brace rails between 3' above ground and 8" below top of posts			

Iowa One Call

The contractor is required to follow Iowa One Call law.

IowaOneCall.com or Call 811

Ticket # _____

Layout Sketch and Drawing

(Provide sketch, drawings, maps, and/or aerial photos)

Scale 1" = _____ ft. (NA indicates sketch not to scale: grid size = ½" by ½")

This image shows a full page of blank graph paper. It features a uniform grid of small squares formed by thin black lines. The grid covers the entire area of the page, leaving no margins or additional markings. There are 20 columns and 20 rows of squares.

Attach IA-92 Fence Specifications and relevant fence drawings as needed.

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