

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

FENCE

(Ft.)

CODE 382

DEFINITION

A constructed barrier to animals or people.

PURPOSE

This practice facilitates the accomplishment of conservation objectives by providing a means to control movement of animals and people, including vehicles.

CONDITIONS WHERE PRACTICE APPLIES

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

CRITERIA

General Criteria Applicable to All Purposes

Fencing materials, type and design of fence installed shall be of a high quality and durability. The type and design of fence installed will meet the management objectives and site challenges. Life expectancy of the fence other than temporary fence is 20 or more years.

Used post should show no cracks or signs of deterioration (e.g. railroad ties and telephone poles) and must be preapproved by the Technician/Conservationist. Based on need, fences may be permanent, portable, or temporary. According to the National Organic Program organic and transitioning organic producers are not allowed to use treated wood.

Fences shall be positioned to facilitate management requirements. Ingress/egress features such as gates and cattle guards shall be planned. The fence design and installation should have the life expectancy appropriate for management objectives and shall follow all federal, state and local laws and regulations.

Height, size, spacing and type of materials used

will provide the desired control, life expectancy, and management of animals and people of concern.

Determine paddock size needed before cross fencing is installed. See the Prescribed Grazing Technical Note or Graze Tools/Cowboy Math for sizing paddocks.

Cultural resources will be considered when planning this practice. This practice has the potential for adversely affecting cultural resources and compliance with General Manual 420, Part 401, during the planning process.

Where appropriate, local cultural values will be incorporated into practice design in a technically sound manner.

Fences across gullies or streams require special braces and designs. Breakaway fences or swinging water gaps allow debris and water to flow past the fence line without destroying the fence adjacent to the stream or gully. Swinging or floating water gaps should span running streams.

Place wood line posts in dips and on rises, then follow recommended spacing for different fence types.

Post spacing in shallow soils may vary with additional stays installed to maintain post spacing. Use a probe to locate desirable post sites.

Electric fences must have access to a dependable power supply, main line, solar power panel, or easily exchanged and properly sized deep cycle batteries.

Electric fences must have adequate shocking power for the animal type being controlled at all points along the fence.

Electric fences will use overhead or underground transmission lines to carry

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#) or visit the [Field Office Technical Guide](#).

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electricity past the gate to the remainder of the fence.

Other fence materials such as chain link, vinyl, plank or rail fence will be installed according to manufacture recommendations and approved prior to installation.

GENERAL CRITERIA FOR FLOODPRONE AREAS

When constructing fences in flood prone areas, use high tensile electric fence with the fewest posts and wires needed to control the animals of concern. Place the bottom wire as high as practical. This type of fencing is acceptable boundary when the property line is in a flood prone area.

CONSIDERATIONS

The fence design and location should consider: topography, soil properties, livestock management and safety, livestock trailing, wildlife class and movement, location and adequacy of water facilities, development of potential grazing systems, human access and safety, landscape aesthetics, erosion problems, moisture conditions, flooding potential, stream crossings, and durability of materials. When appropriate, natural barriers should be utilized instead of fencing.

Where applicable, cleared rights-of-way may be established which would facilitate fence construction and maintenance. Avoid clearing of vegetation during the nesting season for migratory birds.

Fences across gullies, canyons or streams may require special bracing, designs or approaches.

Fence design and location should consider ease of access for construction, repair and maintenance.

Fence construction requiring the removal of existing unusable fence should provide for the proper disposal of scrap materials to prevent harm to animals, people, and equipment.

Place permanent fences approximately 435 feet apart. Cross fencing can easily be installed with temporary fencing if additional paddocks are desired.

Consider placing fences with the landscape, so little interference occurs if land use changes or land is in a rotation.

When planning and constructing a fence on steep slopes, consider soil erosion potential from livestock trailing. When possible, use natural terrain to reduce concentrated flow in potential trailing areas.

Driven post are typically 70% tighter than post set in an augured hole and tamped in.

When a tree is used as a live post, placing washers on the nails in the board between the tree and wire will help prevent the nail from sinking into the board.

A double-brace assembly may be required at ends and corners for fences in poorly drained soils.

All electric fences must be grounded to ensure proper flow of electricity. Lightning arrestors or spark gaps shall be installed to limit damage to charger, fence, and nearby objects and injury or death to animals and people.

Install an induction loop (lightning choke) for added lightning protection.

A ground rod should be installed at electric company's transformer pole (primary ground) and another ground rod installed at the electrical circuit breaker box (secondary ground), if they do not exist. Contact the electric company for service.

Although the minimal voltage for control of different species is listed in specifications, the recommended voltage for best control of all animals is 4,000 or more volts.

Consider wildlife movement needs when locating fences. Woven wire and chain link fence are the least wildlife friendly fence types. Shorter fences are more wildlife friendly.

Install switches on different electric fence lines or paddocks to manage voltage and repair. Another option for electric fence is to use a remote with a remote ready charger.

Wire may need to be adjusted according to the season. Wire tightens in winter and loosens in summer.

PLANS AND SPECIFICATIONS

Plans and specifications are to be prepared for all fence types, installations and specific sites. Requirements for applying the practice to achieve all of its intended purposes shall be described.

OPERATION AND MAINTENANCE

Regular inspection of fences should be part of an ongoing maintenance program. Inspection of fences after storms and other disturbance events is necessary to insure the continued proper function of the fence. This is particularly important in the flood plain. Maintenance and repairs will be performed in a timely manner as needed, including tree/limb removal and water gap replacement.

Remove and properly discard all broken fencing material and hardware. All necessary precautions should be taken to ensure the safety of construction and maintenance crews.

REFERENCES

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TABLE 1: TYPICAL CROSS FENCING

TYPE FENCE	TYPICAL WIRE SPACING (48" ht or higher may be needed)	TYPICAL TYPE OF WIRE	MAXIMUM DISTANCE BETWEEN PULL ASSEMBLIES	MAXIMUM LINE POST SPACING (closer spacing in rough irregular terrain) (4" dia. Line post)	TYPICAL LINE POST LENGTH (L) AND DEPTH (D)
Barbed Wire	>=38" High Minimum 4 or More Wires, 42" High (12, 22, 32, 42)	15.5 Gauge Type III Galvanized	<= 1,320' Apart 4" Horizontal Brace 8' long 6" Brace and Corner Posts 7.5' L	14' Apart 18' with Stays Between	Wood 6' L, 24" D Steel 5.5' L, 12" D to top of flange
Board Fence	>=42" High Minimum 3 boards 12 to 14" apart	Barbed wire or H. T. electric wire on side opposite boards if it has livestock pressure	No pull assembly required 6' Corner post and gate post 7.5' L	8' Apart with face board	Wood 6' L, 24" D
Woven Wire	>=32" High Woven + 1 or 2 Barbed Wires or HT Elect	12.5 Top and Bottom with 14.5 Gauge for other wires	<= 660' Apart 4" Horizontal Brace 8' long 6" Brace and Corner Posts 7.5' L	14' Apart	Wood 6' L, 24" D Steel 5.5', 12" D to top of flange
High Tensile Woven Wire	>=32" High Woven + 1 or 2 Barbed Wires or HT Elect	12.5 Top and Bottom with 14.5 Gauge for other wires	<= 1320' Apart 4" Horizontal Brace 8' long 6" Brace and Corner Posts 7.5' L	25' Apart	Wood 6' L, 24" D Steel 5.5', 12" D to top of flange
High Tensile Electric & HT elect. woven	1 or More Wires 2/3 Hip Height (26"-32")	12.5 Gauge 170,000 psi	<= 2,000' Apart for 3 or more wires 4" Horizontal Brace 8' long 6" Brace and Corner Posts 7.5' L	Maximum 75' Apart, Typically 40' to 50' apart	Wood 6' L, 24" D Steel, High Density wood, Wood plastic composite, Fiberglass
High Tensile Non-electric	6 or more wires, 42" high (12, 18, 24, 30, 36, 42)	12.5 Gauge 170,000 psi	<= 2,000' Apart 4" Horizontal Brace 8' long 6" Brace and Corner Posts 7.5' L	12' Apart or 15' with Stays between post	Wood 6' L, 24" D Steel, High Density wood, Wood plastic composite, Fiberglass

Corner, end and brace posts shall be 6" minimum, driven or set 36" in the ground and tamped or 30" deep set in concrete. **DO NOT USE LANDSCAPE TIMBERS.**

TABLE 2: TYPICAL PROPERTY LINE OR BOUNDARY FENCE

TYPE FENCE	TYPICAL WIRE SPACING (42" minimum ht, 48" ht or higher may be needed)	TYPICAL TYPE OF WIRE	MAXIMUM DISTANCE BETWEEN PULL ASSEMBLIES	MAXIMUM LINE POST SPACING (closer spacing in rough irregular terrain)	TYPICAL LINE POST LENGTH (L) AND DEPTH (D)
Barbed Wire	4 or More Wires, 42" high (12, 22, 32, 42)	15.5 Gauge Type III Galvanized	<= 1,320' Apart 4" Horizontal Brace 8' long 6" Brace and Corner Posts 7.5' L	14' Apart 18' with Stays on 9' Spacing	Wood 6' L, 24" D Steel 5.5' L, 12" D to top of flange
Board Fence	>=42" High Minimum 3 boards 12 to 14" apart	Barbed wire or H. T. electric wire on side opposite boards if it has livestock pressure	No pull assembly required 6' Corner post and gate post 7.5' L	8' Apart with face board	Wood 6' L, 24" D
Woven Wire	>=32" High Woven + 1 or 2 Barbed Wires 42" High	12.5 Top and Bottom with 14.5 Gauge for Other wire or H.T. Woven	<= 660' Apart 4" Horizontal Brace 8' long 6" Brace and Corner Posts 7.5' L	14' Apart Conventional w.w. 25' Apart High Tensile w. w.	Wood 6' L, 24" D Steel 5.5' L, 12" D to top of flange
High Tensile Woven Wire	>=32" High Woven + 1 or 2 Barbed Wires or HT Elect	12.5 Top and Bottom with 14.5 Gauge for other wires	<= 1320' Apart 4" Horizontal Brace 8' long 6" Brace and Corner Posts 7.5' L	25' Apart	Wood 6' L, 24" D Steel 5.5', 12" D to top of flange
High Tensile Electric & HT elect. woven	4 or More Wires, 42" High (12, 22, 32, 42)	12.5 Gauge 170,000 psi	<= 2,000' Apart for 3 or more wires 4" Horizontal Brace 8' long 6" Brace and Corner Posts 7.5' L	Maximum 75' Apart, Typically 40' to 50' apart	Wood 6' L, 24" D Steel, High Density wood, Fiberglass 5.5' L, 12" D
High Tensile Non-electric	7 or More Wires, 42" High (6, 12, 18, 24, 30, 36, 42)	12.5 Gauge 170,000 psi	<= 2,000' Apart 4" Horizontal Brace 8' long 6" Brace and Corner Posts 7.5' L	12' Apart or 15' with light post or Stays Between	Wood 6' L, 24" D Steel, High Density wood, Fiberglass 5.5' L, 12" D

Corner, end and brace posts shall be 6" minimum, driven or set 36" in the ground and tamped or 30" deep set in concrete. **DO NOT USE LANDSCAPE TIMBERS.**