

Table 3. Construction costs for high-tensile non-electric wire fence (Based on a 1,320 ft. fence)

Item	Amount	Cost per unit	Total cost
Wood posts (8-in diameter)	6	\$ 22.00	\$ 132.00
Wood posts (4-in diameter)	65	9.30	604.50
Staples	10 lb	1.80	18.00
Springs	8	4.50	36.00
Strainers	8	2.50	20.00
High-tensile wire	10,560 ft	0.0225	237.60
Labor (estimated)	32 hr	13.60	435.20
Total			\$1,483.75
Total per foot			1.12

Table 4. Construction costs for high-tensile electrified wire fence (Based on a 1,320 ft. fence)

Item	Amount	Cost per unit	Total cost
Wood posts (8-in diameter)	6	\$ 22.00	\$ 132.00
Wood posts (4-in diameter)	4	9.30	37.20
Steel posts (6.5 ft)	52	3.69	191.88
Insulators	285	.15	42.75
Springs	5	4.50	22.50
Strainers	5	2.50	12.50
High-tensile wire	6,600 ft	.0225	148.50
Energizer (priced over 4 yr)	^{1/4}	200.00	50.00
Cut-out switch	1	9.00	9.00
Ground/lightning rods	4	9.00	36.00
Labor (estimated)	18 hr	13.60	244.80
Total			\$ 927.13
Total per foot			0.70

Table 5. Construction costs for electrified polywire fence for interior use (Based on a 1,320 ft. fence)

Item	Amount	Cost per unit	Total cost
Wood posts (4-in diameter)	2	\$9.30	\$ 18.60
Fiberglass posts (3/8-in x 4 ft)	33	1.59	52.47
Insulators	2	.80	1.60
Post clips	42	.25	10.50
Polywire	1,320 ft	.026	34.32
Energizer (priced over 4 yr)	^{1/4}	200.00	50.00
Cut-out switch	1	9.00	9.00
Ground/lightening rods	4	9.00	36.00
Labor (estimated)	2 hr	13.60	27.20
Total			\$239.69
Total per foot			\$0.18
Cost of adding 1 strand of polywire (wire, clips, insulators)		35.00	35.00 or .03 per ft

Barbed wire fence

Materials for the barbed wire fence (see Table 2) are similar to the woven wire fence except that five strands of barbed wire are substituted for the woven wire and single strand of barbed wire.

High-tensile non-electric wire fence

The high tensile non-electric fence (see Table 3) uses 8 strands of 12.5-gauge high-tensile wire on 4-inch diameter pressure-treated wood posts. Posts are 20 feet apart. Bracing utilizes three 8 inch diameter posts and two 4 inch diameter cross braces on each end. Wire tension on this fence is maintained with springs and ratchet-type tensioning devices.

An alternative would be to set posts 30 feet apart and place two stay rods in the wire between each set of posts. Cost would be reduced about \$65 for every 1,320 feet of fence, or \$0.05 per foot.

High-tensile electrified wire fence

The high tensile electrified fence (see Table 4) uses five strands of 12.5 gauge high tensile wire with three charged and two grounded wires. Bracing utilizes three 8 inch diameter posts and two 4 inch diameter cross braces on each end. With the exception of brace posts, steel "T" posts spaced 25 feet apart are used. One quarter of the cost of an electric energizer is included in the cost of the 1,320 foot

Table 6. Annual average ownership cost by fence type (Based on a 1,320 ft. fence)

Item	Woven wire	Barbed wire	High-tensile non-electric (8-strand)	High-tensile electric (5-strand)
Estimated useful life (yr)	20	20	25	25
Average annual maintenance (% of initial cost)	8%	8%	5%	5%
Depreciation	\$99	\$ 81	\$ 59	\$ 37
Interest on investment	79	65	59	37
Maintenance	159	129	74	46
Total cost/year	\$ 338	\$ 274	\$ 193	\$ 121
Total cost/foot/year	\$ 0.26	\$ 0.21	\$ 0.15	\$ 0.09

fence on the basis that such a unit would be used to energize at least a mile of fence. Wire tension on this fence is maintained with springs and ratchet type tensioning devices.

Electrified polywire fence (for interior use)

The polywire fence (see Table 5) uses one strand of polywire. With the exception of the end posts, fiberglass rod posts are used and spaced 40 feet apart. One-fourth of the cost of an electric energizer is included in the cost of 1,320 feet of fence on the basis that such a unit would be used to energize at least a mile of fence.

If substituting polytape for polywire, the total will increase by about \$30–\$35 because polytape costs about twice as much as polywire. If substituting high-tensile wire for polywire, the cost will increase by about \$75 (change includes switching to 5/8-inch diameter fiberglass posts).

Estimating ownership costs

Ownership costs for each type of fence also vary (see Table 6). In addition to the initial material, labor, and construction costs, owners need to determine depreciation and maintenance costs required over the useful life of the fencing. An average annual ownership cost is estimated for each type of fencing.

The ownership cost of polywire and polytape is more difficult to estimate than for other types of fencing. The non-wire/tape components have an estimated life of 25 years; the polywire and polytape will likely last about 4 to 5 years. Based on these estimates, the annual ownership cost for a polywire or polytape fence is approximately \$0.03–\$0.04 per foot.

A lawful fence. Chapter 359A.18 of the Iowa Code states: A lawful fence in Iowa shall consist of:

1. Three rails of good substantial material fastened in or to good substantial posts not more than ten feet apart.
2. Three boards not less than six inches wide and three-quarters of an inch thick, fastened in or to good substantial posts not more than eight feet apart.
3. Three wires, barbed with not less than thirty-six iron barbs of two points each, or twenty-six iron barbs of four points each, on each rod of wire, or of four wires, two thus barbed and two smooth, the wires to be firmly fastened to posts not more than two rods apart with not less than two stays between posts, or with posts more than one rod apart without such stays, the top wire to be not more than fifty-four nor less than forty-eight inches in height.

4. Wire either wholly or in part, substantially built and kept in good repair, the lowest or bottom rail, wire, or board not more than twenty nor less than sixteen inches from the ground, the top rail, wire, or board to be between forty-eight and fifty-four inches in height and the middle rail, wire, or board not less than twelve nor more than eighteen inches above the bottom rail, wire, or board.

5. A fence consisting of four parallel, coated steel, smooth high-tensile wire which meets requirements adopted by the American society of testing and materials, including but not limited to requirements relating to the grade, tensile strength, elongation, dimensions, and tolerances of the wire. The wire must be firmly fastened to plastic, metal, or wooden posts securely planted in the earth. The posts shall not be more than two rods apart. The top wire shall be at least forty inches in height.

6. Any other kind of fence which the fence viewers consider to be equivalent to a lawful fence or which meets the standards established by the department of agriculture and land stewardship by rule as equivalent to a lawful fence.

References

- Gerrish, J., *Fence Systems for Grazing Management*, University of Missouri, Forage Research Center, Linneus, MO
- Morriscal, D., Wells, G., & Shouse, S., *Fencing Systems for CRP Land*, Iowa State University Extension, Ames, IA, 1994 (CRP-8)
- Norton, N., Clarke, R., Baker, M., & Malm, L., *Livestock Fencing Costs and Information*, University of Nebraska Cooperative Extension, 1996, (EC96-820-B)
- Pfeiffer, G., *Fencing Costs for Nebraska*, University of Nebraska, Lincoln, NE, 1990