



ROOTS of PEACE

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The Gardener



USAID | AFGHANISTAN
FROM THE AMERICAN PEOPLE

Commercial Horticulture and Agriculture Marketing Program (CHAMP)

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"T" Trellising

Trellises can be installed at any time during the year, but there are definitely times which are better. The ideal times are after harvest and before the major spring growth. Later in the spring and early summer, the ground begins to harden, making the work more difficult. For new vineyards, installation should be done when the rooted cuttings are planted, but farmers can plant with grape stakes only, and follow up within a year with the trellis posts. Cement posts cannot be made during the coldest times of the year, so planning is required to manufacture trellis posts prior to the onset of winter so they are ready for installation after the spring thaw.

Design Options

There are two basic Trellis designs, and "Design

Options Cost" is the key difference between these two designs:

Simple Two-Wire: Least expensive method, 110% yield increase after 2 seasons.

"T" Trellis: California Cascade arrangement. Best for vigorous vines like Shindur Khani and Taifi.

Yields will be higher using "T" Trellis designs when used for vigorous vines. A third trellis design option, the *Overhead Canopy* design, results in the highest yield potential, but is by far the most costly option.

Anchoring Options

Firm anchors are required to apply enough tension to the wire to avoid sagging. Minimal anchoring will not work. Below are common anchor type:

- "Dead Man" Anchor: Strongest installation, long rows possible.
- Sunken Post Anchor: Simplicity of parts, most common method used outside of Afghanistan.
- Base of Post: Short rows, limited clearance at end of rows, least cost.

Installation Tools

Hand augers are the preferred methods of digging the holes. Using an auger, the holes are smaller, and as a result, the finished post is more firmly placed in the ground—holes can be dug with shovels, but the post will not be as firm. The Gripple wire tensioning tool is required to install the Gripple fasteners. Wire cutters are also necessary when installing the wire.



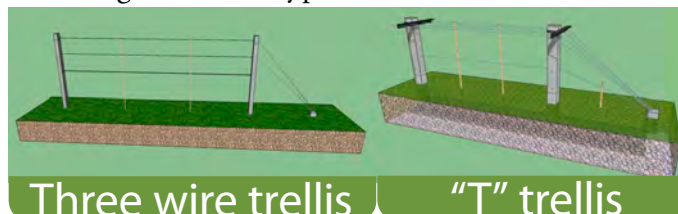
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A monthly newsletter for the agricultural community

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Three wire trellis

"T" trellis

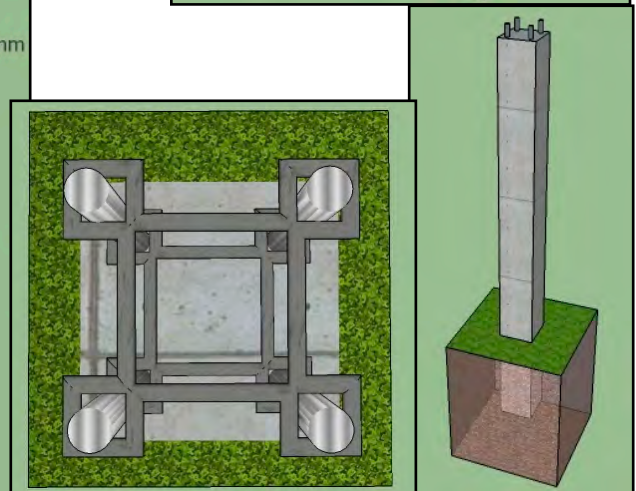
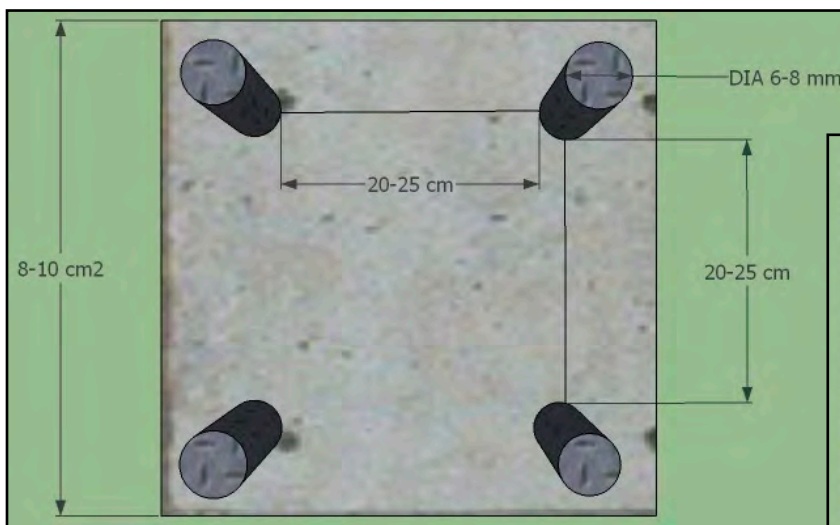
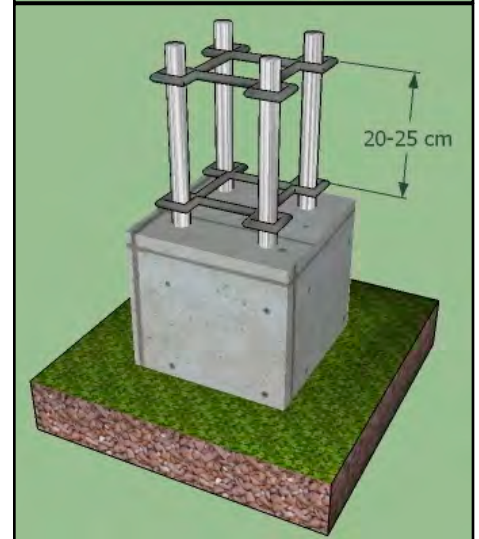
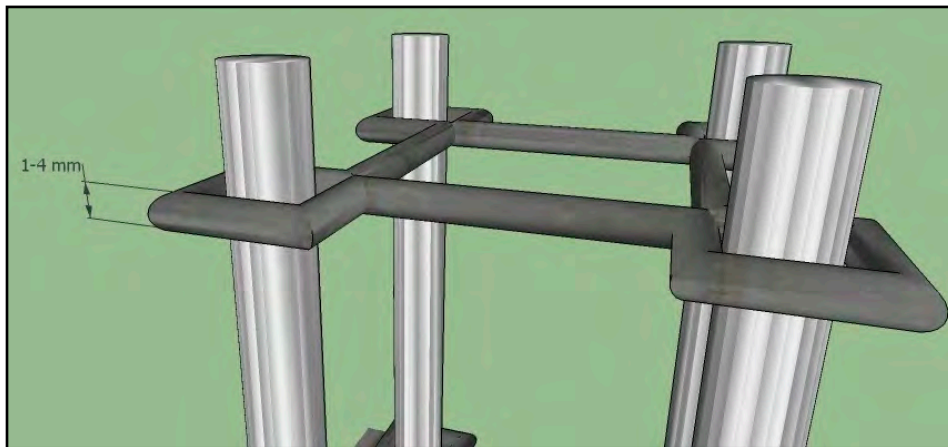
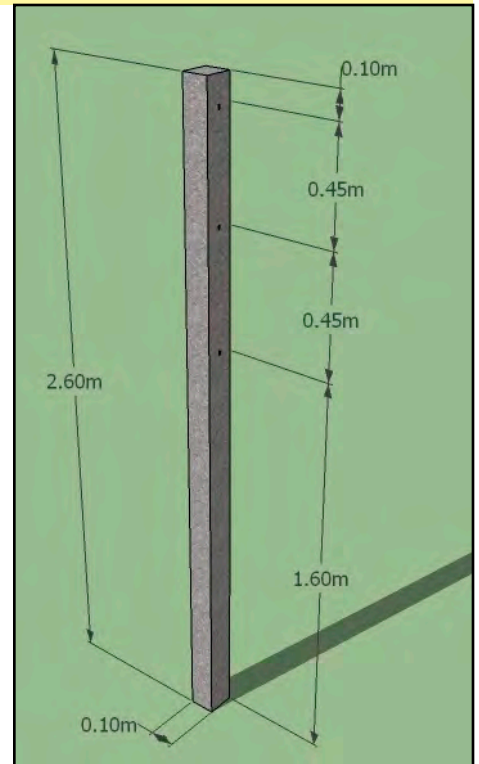
Trellis Post

Dimensions

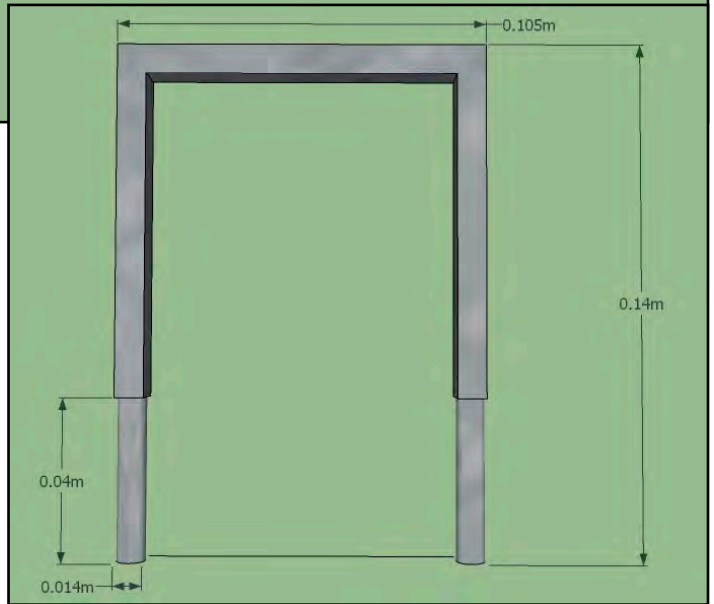
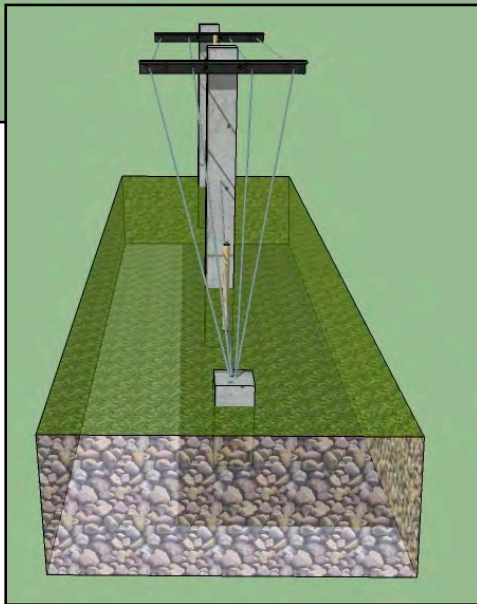
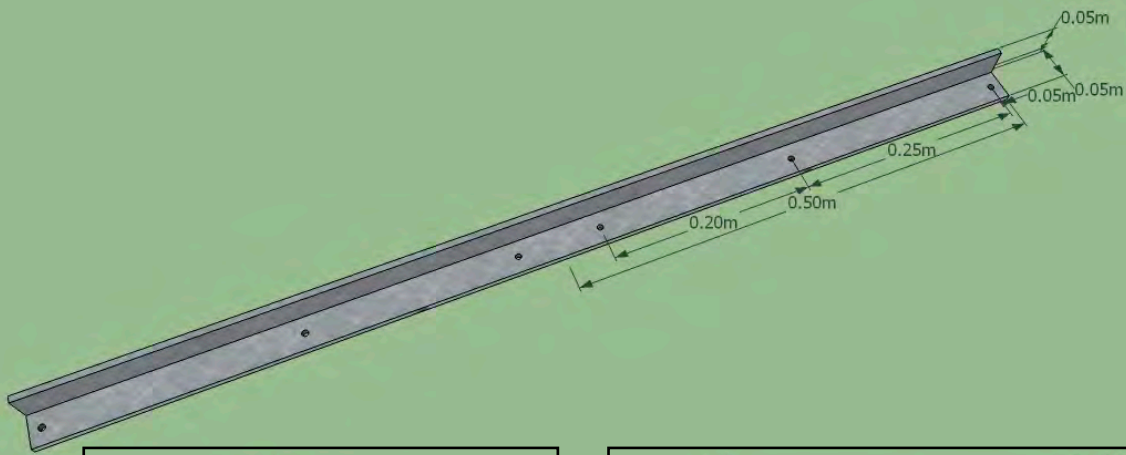
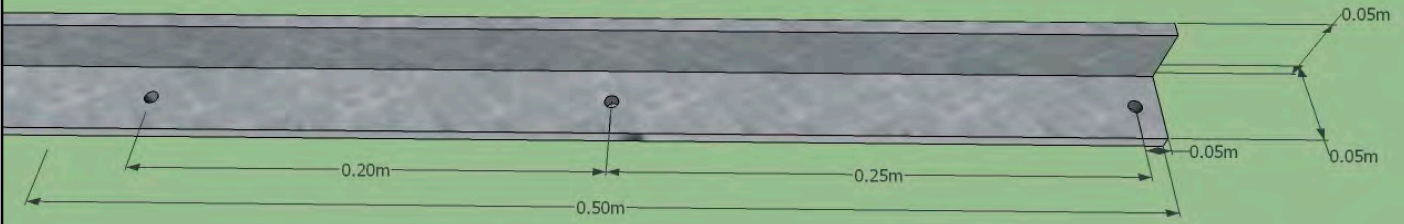
- 260 cm x 10 cm x 10 cm.
- 6–8 mm 4 steel rebar reinforcement cage inside—as per illustrations.
- 1–4 mm reinforcement wire 20 cm to 25 cm spacing along the post.
- Two holes (1 cm) for the passage of trellising wire to be formed in the posts (not drilled afterwards) 15 cm and 100 cm from the top of the post.

Concrete

- The proper concrete mix ratio (cement, sand, gravel) must be used to meet strength test below.
- Trellis post must be fabricated with a “First Crack” lateral fracture load capability of no less than 450 kg. Cement/aggregate rations in addition to rebar size must be calculated to determine relative post strength.
- Concrete must be vibrated once in the mold.
- Cement must be properly cured for at least 28 days.



"T" Bar



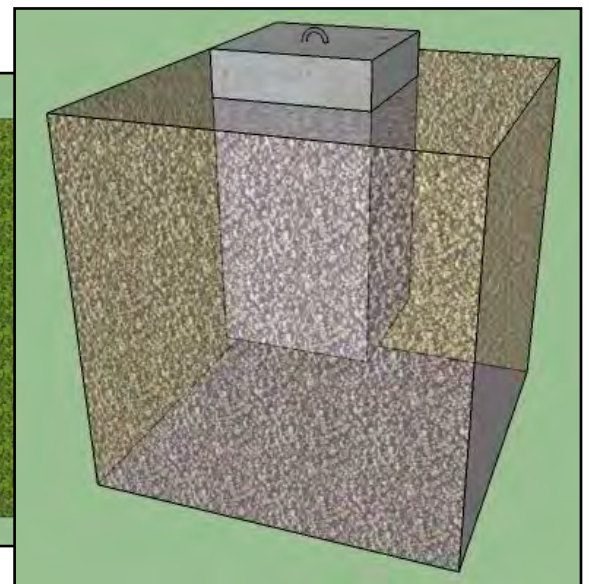
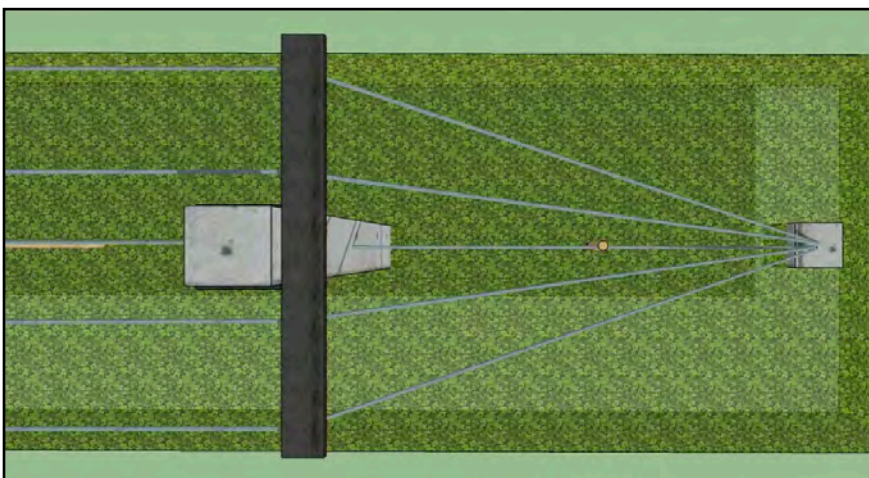
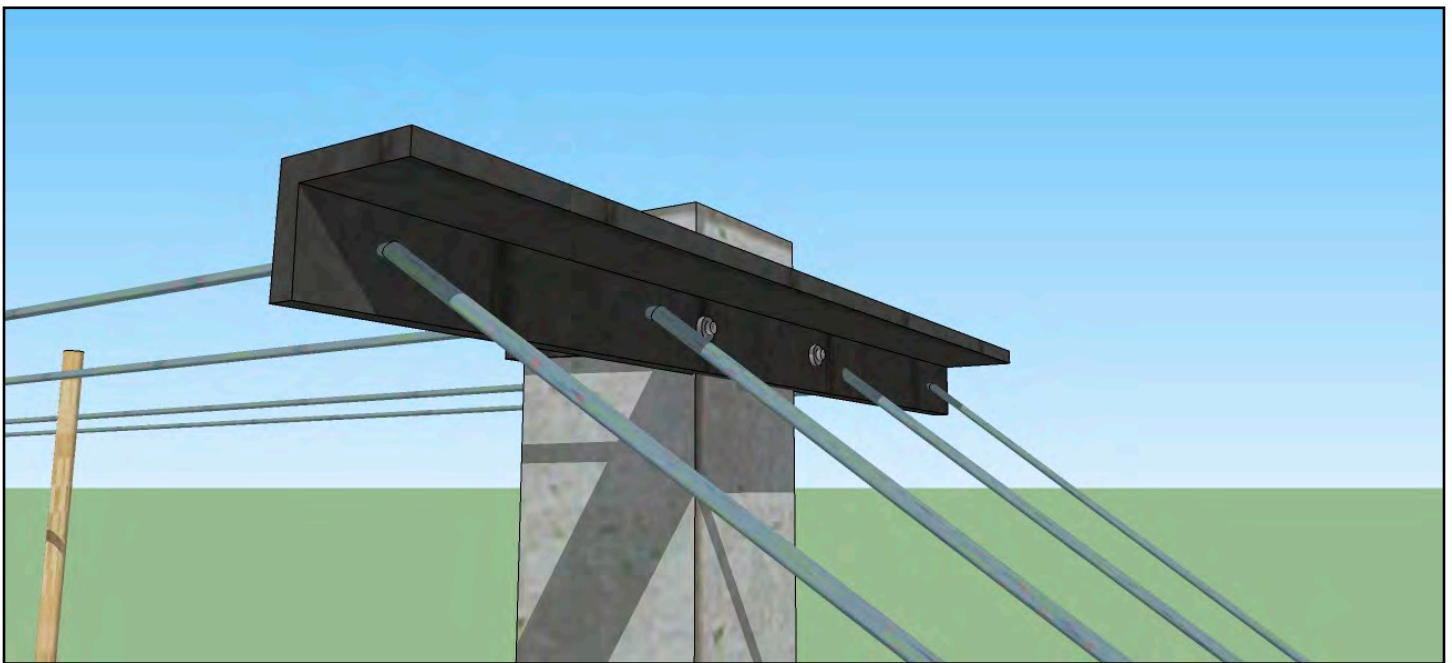
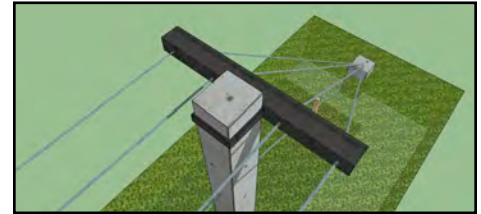
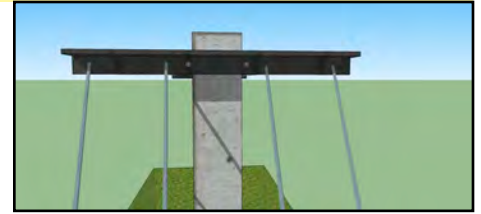
Installation

Trellis holes should be dug with a hand auger to minimize soil disruption, and to provide a tighter fit. The post should be 60 cm in the ground. The last post in the row before the anchor can be offset at a 15° angle to reduce pressure.

Grape stakes can be wood, metal, or bamboo. They only need to survive until the grape vine is trained on the top wire—a taller than necessary stake pole works well. When the bottom rots out, simply pound it down.

The dead man anchor should be almost buried, but the top should be above the soil level. The dirt around the anchor should be firmly packed after placement.

Wire needs to be tightened to 270 pounds of pressure to avoid excessive sag when the grape vine is near harvest. Gripple fasteners work best for this.





The last post in the row before the anchor can be offset at a 15° angle to reduce pressure. Vines are spaced as 2.5 meters apart, and rows are spaced 2.5 meters apart. Trellis posts are spaced approximately 5 meters apart, or one for every two vines.

