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Specifications for Production Facilities for NC Bioprospecting hub project (Eiland)

Contents

Condition to the project:

- Successful contractor must adhere to all OHS regulations
- Payment will be processed once the project is signed -off by ARC
- No partial payment is applicable.
- Clear all rubbles from site

1 Scope of work

To erect a flat roof shade net structure, Mini tunnels, with automated irrigation systems, to be used as a medicinal plant cultivation at Die Eiland experimental farm (Upington)

2 Location of site where the structure will be erected

Die Eiland Experimental farm, Upington, Northern Cape

3 Specification of shade net structure

4. Dimensions of structure

- To erect a flat roof shade net structure of 90 x 50m
- The minimum cover area of the structure must be 4050 m^2
- Sides must be at an angle of 45 degrees
- The sides of the structure must be covered with the same net as the roof
- A 40% shade effect, grey net should be used

5. Poles

- Gum or Saligna poles (green tanalith treated)
- Poles: 3 m x 100 mm
- Plant at a depth of 500 mm
- Configurations (distances between the poles = 5m x 3m) are as shown in Figure 1&2
- The soil arround the poles must be properly compacted
- The poles must be covered on top with rubber to protecting the net from tearing

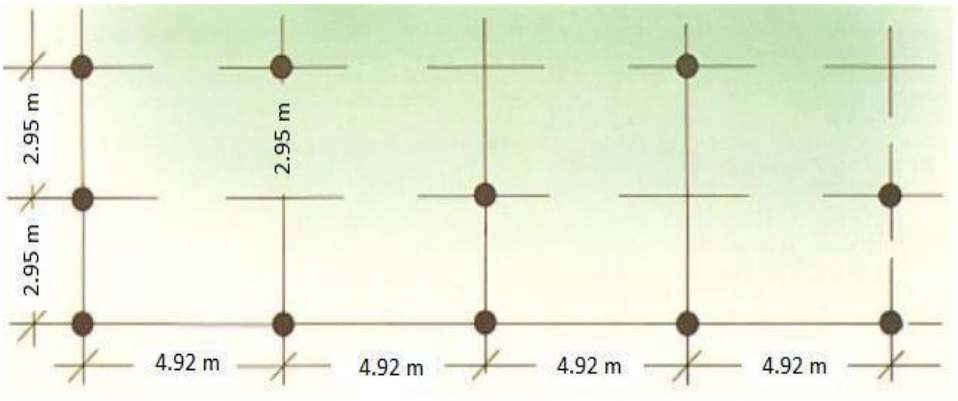

Fig 1: Orientation of poles

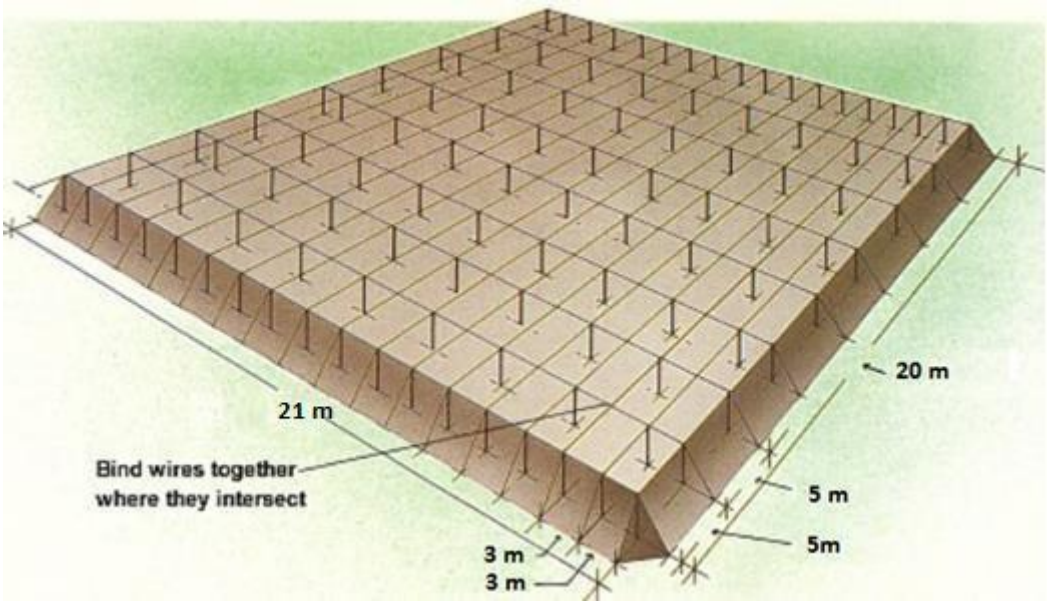

Fig 2: Overall dimentions of structure (should be adapted to the requested size)

6. Anchoring - DB88

- Tie your support-wire (**Double 2,5 mm galvanized wire**) around a Y standard – 1m long, then hammer the peg at an angle of 45 degrees until it is below ground level.
- Grips must be galvanized 4.8mm VTG, VDWG, VBT

7. Steel wire

- High-tensile, minimum 2,25mm cross wire through the pre-drilled holes, 100mm from the top of the pole, at tops of each row of poles as illustrated in Fig 3.
- All wires must be heavy galvinized
- Bind all edge wires and cross wires together wherever they intersect.

- Stay cables or wires must be stronger than the horizontal wires or cables used in the structure; 4.8mm Glavanized
- The load-bearing surface of the anchor must be at 90 degrees to the stay;
- The stay must not be more than 45 degrees to the horizontal;

- Metal connections in contact with the ground must be at least 12mm in diameter and galvanized or well-treated for rust prevention;
- If eyebolts are used, they must be twice the diameter of the cable and the eyes must be welded;
- When twisting up 4mm diameter wire for stays, the final twist must be permanently locked in order to retain tension.

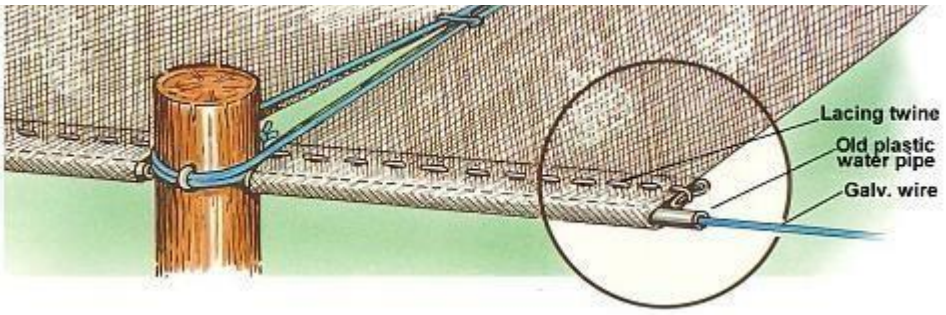

Fig 3: Anchoring the wire

8. Wrap netting

Fig 4: Wrapping of net arround the poles

- Where a pole come in contact with the tight horizontal shade net, an extra piece of shade net must be wrapped at a minimum of 2 layers around the pole. (Fig. 4)
- The wrap Net around the pole must be minimum 200mm high with the horizontal tight net in the middle.
- The wrap Net around the pole must be staple to the pole.

9. Shade Net

- Colour: Grey
- Percentage shade: 40%
- Lacing twine: Alnet's monofilament binding twine to stitch pieces of shade cloth together.
- All sides at ground level must be burried at a minimum depth 150 mm

10. Nursery Entrance/Gate

- Two gate for entrance are needed, minimum width of 1.5 m and height of 2m.
- Gate pole hole and pole minimum depth 1 m. Pole diameter minimum 25mm square steel.
- Steel gate frame (Galvanised), wrap with shade cloth and stitch with Alnet's monofilament twine (or equivalent quality).
- Gate must have proper lock mechanism.
- Must slide on rail to open and close

11. Mini tunnels Specification

- Erect 3 Mini tunnels as shown in figure (5)

Fig 6: Picture of Mini tunnels as an example.

Mini tunnel specs:

- 12 (L) X 5 (W) X 2.5 (H)
- Grey 40% shade net to cover the structure
- Supported with 72 mm HDPE pipes spaced 3 m apart and with a 20mm round tube inside
- Install 500 mm Y standards to support the pipes
- Y standards should be firmly compacted to support the structure
- The net is to be buried, at least 150mm, into the ground in all sides except for the entrance side
- The net should have a zipper on the entrance side for closing
- Supply and install supporting wires (Double 2,5 mm galvanized wire)