# BUILDING A SHADE HOUSE

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We designed our standard shade-house to minimise waste. It is 6.05 m long, 4m wide and 2.4 m high at the centre. The length is determined by the length of the battens (6.05m). The width is determined by the width of the shade-cloth: two lengths of 3.6 m wide.

**NB. Use only shade-cloth that gives 30% shade.** Heavier shade 'stretches' the plants and causes poor growth. I have seen many replacements of 50% by 30% shade, as 50% shade gives only survival rations of light, not growing rations. You want your plants to grow, not just survive.

## THE STANDARD SHADE HOUSE

Photo 1, standard shade house, ready for planting.

Photo 2, about six weeks later.

If you want to build wicking beds within the shade- house, as per photo 1, the beds are best made before closing in the ends of the shade house. Wicking beds are described in another hand-out.

## MATERIALS

Photo 3, materials. Top: ceiling batten. L to R: poly-pipe arch; star picket; tie-wires on shade-cloth; timber upright. Not on photo: door; hinges; latch; metal strapping; weed mat.

You need:

8 star-pickets of 1.68m length
4 lengths of 5 cm diameter poly-pipe, 7.15m long
1 screen door (recycled), hinges and latch
1 piece of timber for above the door
1.5m metal strapping and about 50 tacks
1 packet of cable ties of 300mm,
5 brackets.
9 lengths of 6.05 m ceiling battens: top-hat
22 m shade-cloth of 30% shade, 3.6m wide
3 lengths of timber of 2.4m
1 threshold for under the door
1 packet of 100 16 mm button-heads screws
1 packet of staples for staple gun (1000)
13 m x 2m weed matting (optional)

You may need 1 or 2 $m^3$ sand to cover stony soil and so prevent holes in plastic or weed matting.

A 50 m roll of shade cloth of 3.6 m wide covers two shade houses with some left. The left-over is handy for smaller and portable shade structures. Buying a whole roll via the internet can be cheaper than buying the exact length in a local shop; not all shops sell 30% shade cloth.

## BUILDING SEQUENCE

1. Level an area of at least 6.5 m x 4.5 m; kill any nutgrass or other penetrating grasses and clear the area of sharp points, rocks or sticks; use a cover of sand if need be.
2. Grind the edges off the corners of the star-pickets so they don't cut into the poly-pipe.
3. Drive the star-pickets in at 2.01 m intervals in an exact 6.05m x 4m rectangle, four on either side (use a batten as measure); check that both diagonals are 7.25 m, photo 4.
4. Leave exactly 1m of each picket above ground and make sure they are vertical.
5. Cut four lengths of poly-pipe to 7.15 m; mark the centres at the middle (3.575 m).
6. Place the poly-pipes over the star-pickets to form four arches, photo 5.
7. Pre-drill the battens making sure the holes line up exactly with the star pickets.
8. Place one batten over the marked centres of the arches and secure with screws, photo 7. Use several lengths of stretch cord to hold the batten in place. Do the end arches first.
9. Place two battens – one on each side at 87.5 cm distance – and secure with screws; again using the stretch cords to hold them in place.
10. Place the next battens at 90 cm distance, three on either side, the last at the bottom of the arch
11. Cut two lengths of 6.4 m shade cloth, (about 17 cm to wrap around each poly-pipe).
12. Cut several (6 or 8) 3-5 cm lengths of poly-pipe and cut them lengthwise once to use as clamps to hold the cloth onto the pipe, or use other clamps that fit around a 5 cm poly-pipe.
13. Use the clamps to hold the first length of cloth onto the end arches; then attach the cloth temporarily with some tie wires to the centre batten and with a few staples to the end arches.
14. Similarly place the second length. Each should cover one half of the shade house from the centre to the ground. Make sure there is a 5 cm overlap in the centre.
15. Secure both lengths of cloth with cable ties to the centre batten, about 30 cm apart; work from the centre outwards, photo 9. Each tie goes up through both cloths and down through both.
16. Similarly secure each length of cloth with cable ties to the bottom batten.
17. Staple the ends of the lengths of cloth to the poly-pipe making sure the cloth is tight, photo 6.
18. Cut off the excess of the cable ties to make it look neat - not yet done in photo 9.
19. Place a piece of timber as the thresh-hold under the door opening.
20. In soft soils you may also need a piece of timber under the up-right at the back.
21. Place wooden uprights under the centre of the front and back arches; use the metal strapping to fasten them to the poly pipe, photo 8, and use brackets to attach to the threshold or timber.
22. Place another upright as the second doorframe; the distance depends on the width of the door.
23. Cut and place a piece of timber across the top to finish the door frame, using two brackets.
24. Cut a length of 4.3 m shade cloth; allow 10-15 cm excess at the bottom to cover with soil; staple it to the back arch, starting in the middle and keeping it tight, and cut the excess.
25. Cut a length of shade cloth to fit the half of the front-end that does not include the door, about 2.3 m; allow 10-15 cm bottom excess; staple it to the arch and the upright, and cut to shape.
26. Measure the width for the remaining part of the front, then cut that width plus15 cm of shade cloth; allow 10-15 cm excess; staple it to the poly-pipe and the door frame, and cut to shape.
27. Cut and fit shade cloth into the door if that has no mosquito gauze.
28. Attach the door to the centre upright at the front; make sure it closes; put the latch in place.
29. Close the gap above the door with shade-cloth.
30. Shovel loose soil onto the excesses at the front and back bottoms; unwanted excess can be rolled up and stapled to the arch. Fill any gaps between the bottom battens and the ground.

## SOME PHOTOS

Photo 4, levelled area.

Photo 5, arches placed.

Photo 6, some shade cloth.

(NB. The two uprights in the centre of photo 6 are not needed in the 6m x 4m wide shade house described in this hand-out. The one in photo 6 is 6m x 4.6m, which is just a bit too wide as the arches started to sag in the middle and the shade cloth did not reach the ground.)

Photo 7, connect battens to arch

Photo 8, upright connected

Photo 9, Shade cloth fastened.

Photo 10 Damage by rats; wire placed after the event.

It is worth it to place 30 or 60 cm chicken wire along the whole of the outside by stapling it to the poly-pipe to protect against whipper-snippers and stop animals biting holes into the cloth. And to NOT store stuff against the shade cloth; it gave rats a safe entrance in photo 10.

## TOOLS NEEDED

| | | |
|---|---|---|
| Shovel | Crow bar | Star picket driver |
| Grinder | Tape | Hacksaw |
| Drill | Saw | Hammer |
| Chalk and/or marking pen | Large scissors or clot | Staple gun - heavy duty |
| Wire clippers to cut tie wires | Long piece of straight material to use a ruler | |
| 4 lengths of 35 cm stretch cord | 6 or 8 clamps; can be made from poly-pipe | |