

SHADE HOUSES

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We designed the standard shade-house to minimise waste. Ours is 6.05 m long, 4m wide and 2.4 m high at the centre. The length depends on the length of the battens (6.05m). The width depends on the width of the shade-cloth. Two widths of 3.6 m shade-cloth cover it.

The shade-cloth gives 30% shade. Heavier shade 'stretches' the plants and causes weak stems. One 50 m roll, bought via the internet, covers one shade house with 21m left which we used for the covers over the wicking boxes. Or two rolls cover three houses.

THE STANDARD SHADE HOUSE



Photo 1, standard shade house, ready for planting. Photos 2, about five weeks later.

The shade-house is partly built first. The wicking beds can be made before closing the ends.

MATERIALS



Photo3, materials. Top: ceiling battens. L to R: poly-pipe arch; star picket; tie-wires on shade-cloth; upright. Not on photo: door; hinges; latch; metal strapping.

The cost for materials, bought in bulk, is about \$620, labour is about 20 hours. We use:

2 m ³ <u>bedding sand</u>	60 <u>cable ties</u> of 300mm, (packet of 100)
8 <u>star-pickets</u> of 1.68m length	32m <u>chicken wire</u> (600mm) vermin proof
4 lengths of 5 cm diameter <u>poly-pipe</u> , 7.15m long	1 <u>screen door</u> (recycled), hinges and latch
10.2 lengths of 6.05 m ceiling <u>battens</u> : top-hat	3 <u>lengths of timber</u> of 2.4m
1.2 packet of 100 16 mm <u>button-heads screws</u>	a <u>thresh-hold</u> and <u>timber</u> for above the door
29m <u>shade-cloth</u> of 30% shade	4 <u>brackets</u> and 1.5m <u>metal strapping</u>
1 packet of <u>staples</u> for staple gun (1000)	

BUILDING THE SHADE-HOUSE



Photo 4, levelled area.



Photo 5, arches placed.



Photo 6, shade cloth placed.

Level a large enough area free of nut-grass or blady-grass that can spear through plastic. (These need to be killed first, or use an underlay of lino.) Grind the edges of the star pickets and drive the pickets into the ground, leaving 1m out. Make sure they are vertical.

Cut the poly-pipe to the right length, 7.15 m for our design. Mark the arches in their exact centre so the central batten is put in the right place. Then push the poly-pipe arches down over the star pickets, which may need some force. (The right hand photo is our first model, which was too wide. It needed extra support and extra shade-cloth.) Our soil is full of sharp stones so we cover it with sand to protect the plastic before building the beds.



Photo 7, connect battens to arch



Photo 8, upright connected



Photo 9, Shade cloth fastened.

Pre-drill the battens to ensure the arches will be straight. Screw the centre batten into place at the marked centres of the arches, making sure the arches are not twisted. Place one batten on each side of the centre one at 87.5 cm distance. This allows for a 5 cm overlap of the two lengths of shade-cloth. The next battens are at 90 cm distance, three on either side. Then dig the door-threshold to the right depth, and place the uprights at the front and rear end with the metal strapping. Use a bracket to secure the front upright to the door-threshold. Cut 4m of the last length of batten and place at the rear at ground level. Place the remaining 2m length and a 1.2m length at the front end at each side of the door.

Cut two lengths of shade-cloth to 6.25m (10 cm to wrap around each poly-pipe). Use a few cable ties to temporarily attach one to the centre batten and a few staples to secure it to the end arches. Then 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. Then secure both with cable ties, about 30 cm apart, to the centre batten and the bottom ones. Staple the ends to the poly-pipe making sure the shade-cloth is tight. Snip off excess cable ties.

Next build the wicking beds. Then place the second upright at the front end at the right distance for the door, secure with the metal strapping to the arch and with brackets to the

threshold. Place the timber above the door with the brackets. Attach the door to the first upright, place door and install the door handle/bolt and catch.

Cut shade-cloth to the right lengths to close the ends of the shade-house. Staple the cloth to the pipes and attach with cable ties to the bottom battens. The front and rear ends need two layers: one on the outside and one inside. Make sure both are tight and form a gap. Otherwise insects lay their eggs through the shade-cloth onto any leaves that touch it.

Cut 6.1m chicken-wire and staple or wire it on the inside to the poly-pipes along the two lengths of the shade-house. This is also to stop leaves touching the shade-cloth.

INTRUDERS



Photo 10 Damage by rats.



Photo 11 Intruding roots

If you live in an area with rats, it pays to also run chicken wire along the whole of the outside. And to NOT store stuff against the shade cloth, giving the rats a safe entrance.

Other intruders are tree roots. In photo 11 the tree is 12 meters away from this bed. (This was our initial experimental bed made from logs.) The roots grew underneath the plastic, then grew upwards between the plastic and log, and spread throughout the bed.

BUILDING SEQUENCE IN DETAIL

1. Clear a level area of at least 6.5 m x 4.5 m; make sure it is free of nutgrass (or other penetrating grasses) and any sharp points, rocks etc.
2. Grind the edge off the corners of the star-pickets, so they don't cut into the poly-pipe.
3. Drive 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); make sure diagonals are of equal length (7.25 m) so you know it is square.
4. Leave 1m of the pickets 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 poly-pipe over the star-pickets.
7. Pre-drill the battens making sure the holes are at the exact same distance as the pickets.
8. Place one batten over the marked centres of the arches and secure with screws. Do the end ones first and make sure the middle arches are not twisted.
9. Place two battens – one on each side at 87.5 cm distance – and secure with screws.
10. Place the next battens at 90 cm distance, three on either side.
11. Place wooden uprights under the centre of the front and back arches using the metal strapping.

12. Cut two lengths of 6.25 m shade cloth. (10 cm to wrap around the poly-pipe).
13. Use a few cable ties to temporarily attach the first one to the centre batten and a few staples secure it 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 with cable ties to the centre batten, about 30 cm apart.
16. Similarly secure each cloth to the bottom batten.
17. Cut off the excess of the cable ties to make it look neater. (Not yet done in photo 9.)
18. Staple the ends to the poly-pipe making sure the cloth is tight.
19. Cut a length of 4.2 m shade cloth, staple it to the back end as tight as possible and cut the excess.
20. Cut and staple a similar piece of shade cloth to the inside of the back-end to make a gap between the two layers; this stops insects laying eggs directly through the cloth.

This can be a good point to build and fill the beds, apart from the small one at the front-end, as access is still easy.

21. Cut and fit shade cloth into the doorframe.
22. Place another upright as second doorframe so that the door closes to its centre.
23. Attach the door to the upright at the front end and put the latch in place.
24. Place a piece of timber across the top to finish the door frame.
25. Cut a length of shade cloth to fit half of the front-end, staple to the outside and cut to shape.
26. Do the same to the inside to form a double layer.
27. Measure the width for the remaining part of the front, then cut an appropriate length of shade cloth, staple and cut to shape.
28. Again do this on the inside to form a double layer.
29. Close the gap above the door with a single layer of shade-cloth.
30. Place chicken wire inside along the two lengths of the shade house to create a gap between it and the shade-cloth to stop leaves touching the shade cloth. This also prevents insects laying their eggs directly onto the plants through the shade cloth.
31. If there are rats around, run wire netting on the outside, as rats found our Capsicums and tomatoes irresistible.
32. Shovel loose soil to fill any gaps between the bottom of the shade cloth and the ground.