

4 pallet hotbed structure



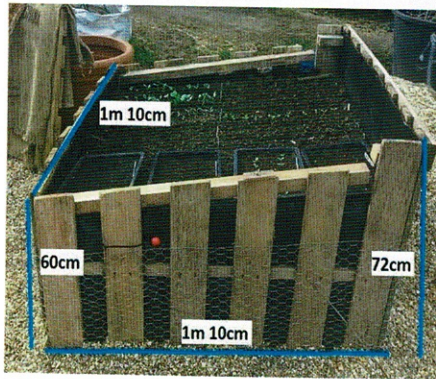
Side pallets cut down



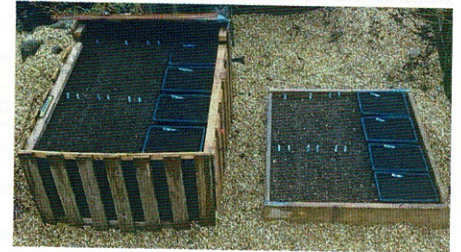
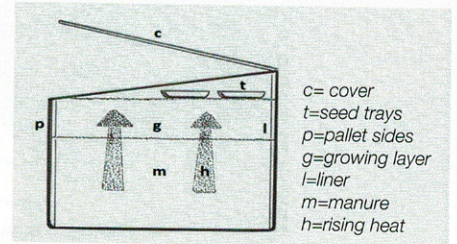
Hotbed lined with fabric

straw bedding, which was important as it provided a suitable ratio of carbon and nitrogen content, aiding fungal / bacterial decomposition while importantly providing bottom heat for the seeds above. Growing media for the hotbed consisted of top soil with a pH of 7.4 from the immediate site, being placed on top of the heating material at a depth of 20cm, thus enabling crops to be grown within it and on top, in seed trays.

The trial hotbed measured 1 metre 10cm wide by 1 metre 10cm deep, with a height at its rear elevation of 72cm and 60cm at the front. The hotbed sloped down from the back elevation to enable the most efficient solar capture and to prevent the crops being enveloped in shadow. The side pallets were cut at an angle with a wood saw, which also made access to the unit easier for the grower, being at a height to be both standing or wheelchair-user accessible.



Author's hotbed, with dimensions operation



Author's hotbed next to open-ground plot, same seeds sown in each

Testing the Hotbed

I decided to test the hotbed and set up a trial with the unit compared alongside an open-ground bed, with vegetable seeds sown in both plots under exactly the same conditions. The experiment ran from late February until late April 2018 with the results of each bed recorded and compared during and on completion of the trial.

The seeds sown were as follows:

Block	Vegetable	Vegetable variety	Method of sowing	Number of rows	Seeds per row	Seed spacing
A	Parsnip	F1 'Pinnacle'	Direct	1	8	6cm
B	Lettuce	'Winter Density'	Direct	1	12	4cm
C	Carrots	'Sweet Candle'	Direct	2	8	6cm
D	Radish	'French Breakfast 4'	Direct	2	10	4cm
E	Beetroot	'Boltardy'	Direct	2	12	4cm
F	Leeks	'Musselburgh'	Direct	2	8	6cm
G	Beetroot	'Boltardy'	Seed tray	2	8	4cm
H	Lettuce	'Winter Density'	Seed tray	2	8	4cm
I	Dwarf French Beans	'Sprite'	Seed tray	2	5	6cm
J	Tomato	'San Marzano 2'	Seed tray	2	8	4cm

I recorded all the variables involving the performance of the seeds over the course of the trial. The two comparative tables below clearly show the difference between germination times and success / time to first 'true leaves' of vegetables in the hotbed and open-ground plot, with the hotbed performing markedly better.

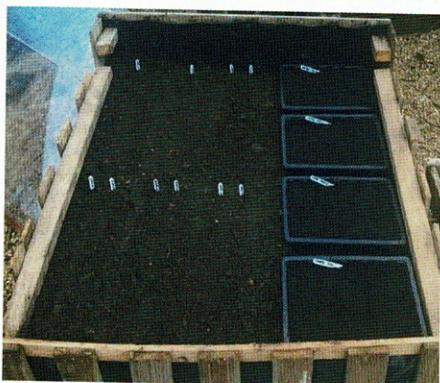
I harvested all the crops from both the hotbed and open-ground bed on the 30th April. It would have been good to let them

grow to full maturity but time was running short for my study. Crop yield per plot was assessed in terms of number and percentage of seeds which germinated and grew to vegetables deemed to be of

'harvestable quality' either at a point during or at the end of the trial. Harvestable quality was defined as either being suitable for consumption or potentially suitable if left to grow to maturity, or of a size and quality to be 'transplanted' if applicable to another growing station. The pictures below of selected vegetables and the final harvests should really tell their own story, with the crops in the hotbed performing significantly better in the vast majority of cases.



Straw-based fresh manure layer



Seeds in growing media and trays