SOIL PASTEURISATION IN THE UK – A NEW JOB FOR SOLAR COOKERS.

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Abstract: *Growing plants can suffer from soil-borne pests and diseases, and competition from weeds. Conventional solutions involve the use of selective herbicides, fungicides, insecticides, mechanical weeding, and mulching. Since the 1970s, growers have experimented with heat-treatment of soil using solarisation, pasteurisation, and sterilisation. When soil is heated, many pests (e.g. nematodes), fungi (e.g. phytophthora), bacteria (e.g. agrobacterium) and weed seeds (e.g. rumex obstusifolius) are destroyed, and this is advantageous to food growers. There are disadvantages associated with each of the conventional soil heating methods: On a large scale, solarisation, which involves overlaying soil with clear polyethylene sheeting and allowing sunshine to heat the soil, requires the right climatic conditions, and these usually coincide with the growing season. On a medium scale, purpose built ovens, used to sterilise soil, are expensive to buy and operate. On a small scale, domestic gas/electric ovens or microwave ovens are quick and convenient, but the smells produced by the process are unacceptable. For the past two years, the senior author has been experimenting with various equipment combinations to see if it is possible to use a simple solar cooker to pasteurise small quantities of compost in the UK climate. The results show that a simple panel cooker loaded with 2 kg of compost will easily reach the temperatures required to destroy most of the pests, disease vectors, and weed seeds present in untreated compost. Moreover, this can be achieved before the planting season begins, in February. Further tests showed that no weeds germinate in the heat-treated compost, leaving the desired plants to grow, free of competition. This series of experiments demonstrates that these results can easily be achieved on a domestic scale at negligible cost, and without using any energy other than sunlight.*

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