

Flash Flame Soil Pasteurizer

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Considerable interest has been aroused the past three months in an oil burning flash type soil pastuerizer (made by the Tarrant Manufacturing Company, of Saratoga Springs, New York) which has been undergoing tests by plant pathologists, A. G. Newhall and W. T. Schroeder at Cornell and Geneva, respectively. Those who saw it in operation at Cornell August 9 or 12 at either the Nursery-men's or Vegetable Growers' Field Days will recall that soil is shovelled into one end of a revolving heated cylinder 8 feet long by 20 inches in diameter and which is sloping just enough so the soil dribbles out of the lower end, about 10 seconds later all hot and steaming. Heat is supplied by one or two blow torches mounted so the flame is directed up into the lower end of the cylinder. The final soil temperature is governed by soil moisture, slope of the cylinder, speed of shovel operator, and size of flame which can nearly all be altered more or less to suit conditions.

Fear was expressed at first that the organic matter of soil would be burned out by such intense heat but numerous tests have shown this not to be so for as long as there is any moisture in the soil its temperature cannot go above 212°F.

The results on control of damping-off and weed seeds have been very satisfactory and economical of fuel. The following table indicates the results from one test where soil was heated to 170°F and placed in the flat on the left, untreated soil on the right being sown with the same number of seeds.

PLANTS PRODUCED IN TREATED & UNTREATED SOIL

	Cen- Snaps	tauria Beets	Sweet Pea	Melon	Weed Survival	
Treated	175	70	81	49	28	32
Check	122	11	2	18	15	68

The weeds in the treated soil were nearly all clover, which is rather slow growing and, in general, not very troublesome. In some tests where clover was apparently not present no weeds at all survived the treatment.

Tests have pretty well shown that a sandy soil is the easiest to treat and that a clay soil or compost pile that has lumps, clods or tufts of sod in it will first have to be put through a shredder or be screened. Lumps above half an inch are apt to come through insufficiently heated. Also a clay soil may tend to ball up into little pellets which some think undesirable.

A quick reading thermometer, such as a floating, dairy, mercury type, is a must in determining whether a good job is being done. Soil which reaches only 160°F is not always adequately treated; 180° is much preferable, especially if soil is to be used right away. Hot soil may be kept in a box or in flats piled up or in barrels, bins, or benches until it cools and a continuous beneficial fireless cooker effect thus obtained; but if it has been brought to 170° or better, it may be cooled by watering and sown within the hour after treatment.

With a 4 or 5 gallon an hour burner the outfit has taken care of one to almost two bushels of soil a minute at a cost for fuel of about 1 cent a bushel. Already men are planning to use conveyor belts and to treat plant house bench, and ground bed soil, as well as compost piles.

It is probably rather important that old benches, flats, or other empty containers be treated with a good disinfectant before pastuerized soil is put back in them for damping-off can sometimes be worse than before if it is promptly re-introduced into treated soil.

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