Heat shock to soil fauna and flora

Article
By Richard Crowhurst

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The Cultivit heats soil to 800 degrees at a depth of 35cm.

A new soil treatment could combat soil pests and increase yields, according to its Dutch manufacturers. The Cultivit is a self-propelled, GPS-guided machine that cultivates and heat-treats the soil in a single operation.

Head of marketing and sales at VDL Cultivit, Oscar Mensen, explains that the machine came about in response to "ever tighter restrictions on the application of pesticides". The VDL-Group (one of the largest independent industrial manufacturers in the Netherlands) took their experience in building heat exchangers for industry to create a chemical-free soil treatment.

The machine works friable soil to a depth of 35cm heating it to 800 degrees C as it passes through the machine. Oscar explains that the "the basic principle is a serious heat shock to the soil fauna and flora combined with intensive rotovation." The machine works as a soil treatment, rather than a full-blown sterilisation technique, and work rates up to 700 sq. m. per hour make it ideal for smaller plots of specialist crops; it's mode of operation also makes it ideal for organic production. Its small size and remote control means that it can be used in glasshouses and polytunnels.

The machine has been extensively tested at the Dutch Agricultural University, Wageningen during its development, and has performed well. "In tests so far we have seen that organic matter is left unaffected by the heat treatment," says Oscar Mensen. "While the soil is not free from nematodes after the treatment, it's been proven that crops, including vegetables, fruits and flowers, develop very well on nematode infested soil. Yields are comparable or better than those achieved after chemical soil treatments such as methyl-bromide or metam-sodium."

The company points out that the "detailed relationships between pathogens, soil, climate and timing of application are subject to further research. However, validated tests on dry, sandy soils and moisture-rich loams have shown that Cultivit treatments repeatedly outperform chemical treatments in terms of crop yield. In addition, weed germination is retarded and roots develop properly despite heavy nematode infestation. Finally, the soil is ready for planting or sowing immediately and does not need to be left after treatment; there is no need for the interval often required after alternative soil treatments."

As chemical application to food crops becomes ever more restricted, there is a clear need for non-chemical alternatives. The VDL Group clearly feel that Cultivit is one such treatment that is already available.

Initial prices for the machine are 300,000 Euros but cost savings over other techniques are said to include lower labour costs and an energy requirement some 90% below that needed for steam sterilization. VDL Cultivit is also keen to hear from potential distributors for the machine, as well as growers. Oscar can be contacted on +31 40 292 5580, via the website at www.vdl-cultivit.com, or via e-mail to info@vdlcultivit.com.