

RE-USE OF POLYTHENE IN MECHANISED STERILISATION OF SOIL¹

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In the present uncertain financial situation the emphasis is on economy in the nursery. If thought and time are given, machines can be adapted and produced not only to ease the job in hand but also to enable the product to be re-used. This is relevant with soil sterilisation as polythene used in sealing the soil can be re-rolled and re-used, so reducing the cost per acre quite substantially.

For the sterilisation of the soil Basamid is used. This product is supplied in prill form and I have used two methods of application:

(1) A Sisis Lospred fertilizer spreader fitted on the rear of the tractor which applies the material at the correct rate.

(2) Horstine Farmery applicator fitted to the front of the tractor. This can be hydraulically controlled if required, but in our case it is in a fixed position.

The advantage of the second system is that only one tractor is required, as a rotovator may be fitted to the rear of the tractor enabling the chemical to be incorporated into the soil.

A disadvantage at the present time is that as the material is dropped on the soil and as the tractor passes over it the draught from the tractor fan tends to draw the material into the tractor cab. This can be a problem. One idea which I have tried, and which is partially successful, is to stretch a piece of hessian or polythene under the tractor. The ideal would be a means of incorporating the material before the tractor passes over it. I am at present looking into the possibility.

Once the tractor has applied and incorporated the material a seedbed former and roller makes the seedbed. This operation is followed by a polythene laying machine, designed and produced at our nursery which can be operated by one man. This machine functions in the following manner:

Two small reversed mouldboards pull soil away from the edge of the bed; the polythene is laid and held in contact with the sides of the bed by two rubber rollers tensioned by shock absorbers, followed by two small mouldboards which throw the soil on to the edge of the polythene. In four minutes 190 yards of seedbeds can be covered.

¹ Editor's Note: Slides were shown in conjunction with this paper and only visual appreciation will give an indication of the author's ability and ingenuity.

Now that polythene is becoming more difficult to obtain and also with the increasing cost I decided that it was essential to develop a machine which would re-roll and re-use it. I had previously produced a machine which would roll the polythene but in such a way that it was not re-usable and so had to be destroyed. Using a scrap hay crimping machine I now have a unit which will transmit power in two directions. Operation of this machine is as follows:

A cardboard core is placed on a quick release roller; at the ends of the roller there is a cone, one cone being adjustable, the other fixed. The sliding cone forces the cardboard core on to the fixed cone by tightening a wing nut. This means that the cone is gripped on the inside thus enabling the polythene to be rolled. The machine is carried on the three-point linkage of the tractor. The polythene is then stapled to the cardboard core, the tractor is reversed down the bed with the power take-off in operation and, as the polythene is rolled, a rotating brush removes surplus soil from the polythene so that it is ready for re-use.