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# NOVEL FARM-MADE SPRAY OUTFIT

By L. G. HAYWARD, Horticultural Instructor

**W**HEN it became apparent that their power spray unit was unable to spray all the trees in their area in accordance with the pre-arranged baiting schedule, the committee of the Eastern Hills Fruit Fly Baiting Scheme called a meeting to discuss ways and means of augmenting the service. Following upon the discussion, three of the committeemen evolved the cheap and effective spray plant described below.

A complete duplication of the power spray unit and staff was obviously not warranted and thoughts were directed towards the provision of some form of auxiliary outfit. It was recalled that at a conference of Fruit Fly Baiting Committees, Mr. R. Grist of Donny-

brook, had suggested that some method of using compressed air sprays might be evolved.

Three Parkerville orchardists who are members of the Eastern Hills Committee—Messrs. C. Cappelletti, G. H. Tour-

nay and E. Brindle—volunteered to carry out some investigations into the possibilities of a compressed air unit and as a result of their joint efforts they designed and constructed a spraying plant which has now been in use for several months and given every satisfaction.

The committee feels that a plant of this description should fulfil most of the initial requirements of future baiting schemes and points out that the principle could be adapted to operate other types of sprays, including booms for the low-pressure application of weedicides and insecticides.

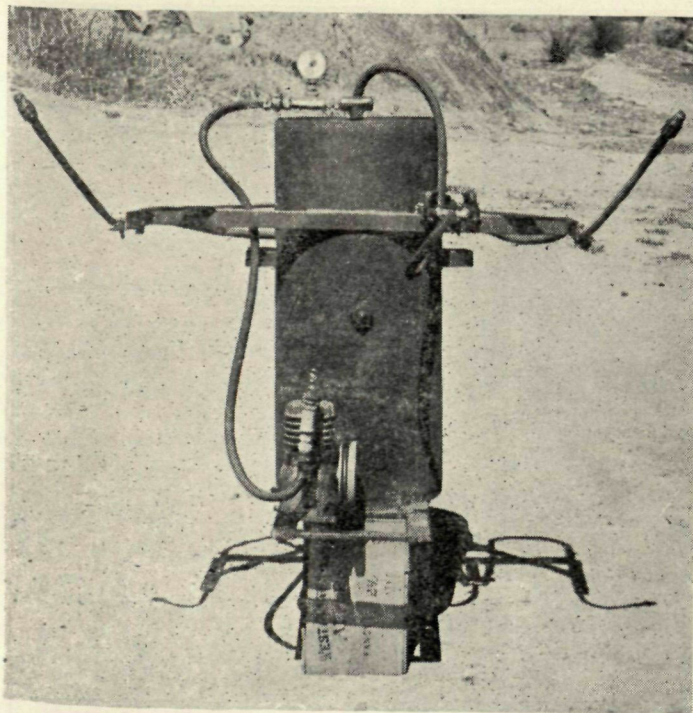


Fig. 1.—Showing the general layout of the outfit when removed from the tractor.



## ADVANTAGES

This home-made plant cost approximately £100 less than the standard power spray and could be constructed by any handyman possessing a welding outfit. It weighs less than 100 lb. and may be attached to, or detached from, a tractor in one minute by one man.

When mounted on the tractor much of the weight of the spraying plant is below the axle of the machine, enabling it to be operated safely on grades which are too steep for the original power spray unit to operate on without risk.

Working at only 40 lb. pressure, the machine will throw two jets of spray a distance of 35 feet each and even with the tractor running at little more than idling speed this pressure is maintained without difficulty.

The only wearing parts in the outfit are those in the small compressor and as this is only working at 400 r.p.m. with the tractor engine running at normal speed, it should have a long life, as it is designed to work at up to 800 r.p.m.

The pressure unit is adequately safeguarded by a safety-valve, set to release if pressure goes above 40 lb. The whole of the spraying outfit is embodied in one unit so that no fittings are permanently attached to the tractor. The unit is held in position on the drawbar by two bolts and by the trunnions on the hydraulic lift arms which fit snugly into two channel sections welded to the sides of the tank. This tank holds 20 gallons of spray liquid which is adequate for the purpose for which the outfit was designed. A larger tank could be fitted if required.

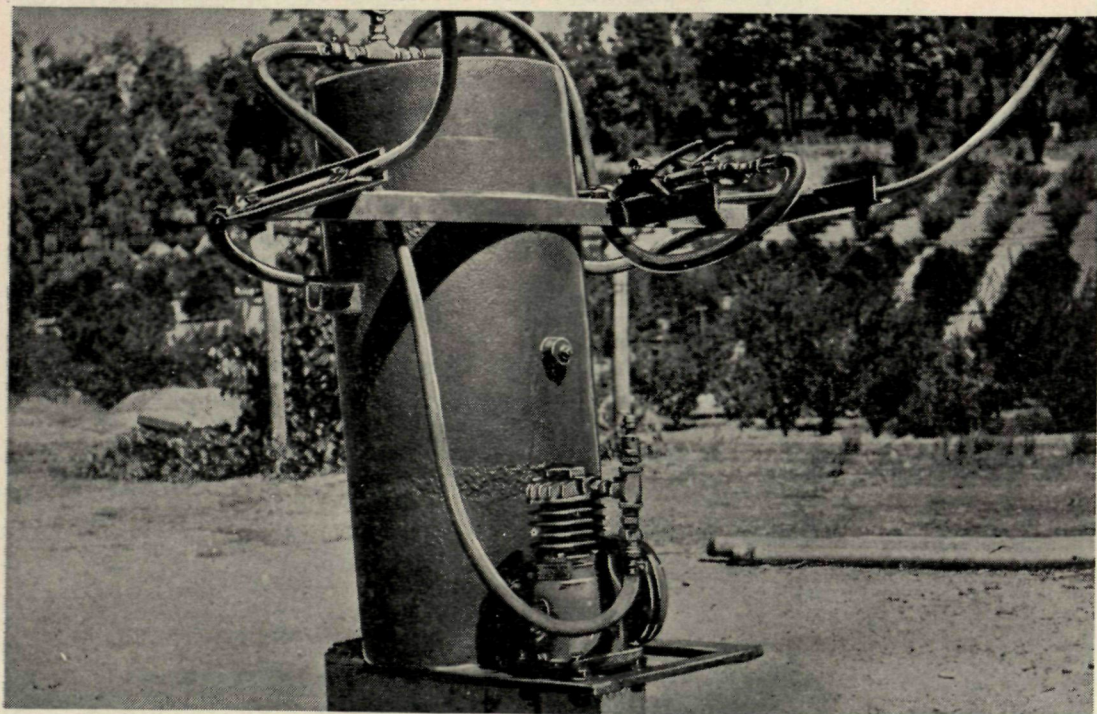


Fig. 2.—Side view showing position of compressor, pistols and nozzles. Note safety-valve on compressor T-joint.



## CONSTRUCTION

The general layout of the plant is shown in Fig. 1. The spray tank and pressure tank combined is an old vacuum cylinder from a railway coach, a steel cylinder capable of withstanding a much higher pressure than the outfit exerts.

Welded to the base of the tank is a rectangular framework of 3 in. x  $\frac{1}{2}$  in. iron with crossbars where needed. Four holes are drilled in the frame to carry a Clisby compressor. Washers and nuts placed between the base of the compressor and the frame may be removed when necessary in order to increase the tension on the V-belt which drives the compressor. The compressor is operated by means of a  $2\frac{1}{2}$  in. grooved aluminium pulley fitted to the belt-pulley shaft on Mr. Cappelletti's Farmall Super A tractor. A similar grooved pulley on the compressor is 6 in. in diameter.

From the compressor, to the outlet portion of which is fitted the safety valve, a length of ordinary  $\frac{1}{2}$  in. hose runs to an elbow fitting into a screwed plug in the centre of the top of the tank. A pressure gauge is fitted to this elbow so that the pressure may be read by the tractor operator. The screwed plug together with a similar one at the bottom of the tank (which serves as a drain plug) were fitted to the vacuum cylinder when it was constructed.

Another screwed plug socket was welded in position in the top of the cylinder about half way between the

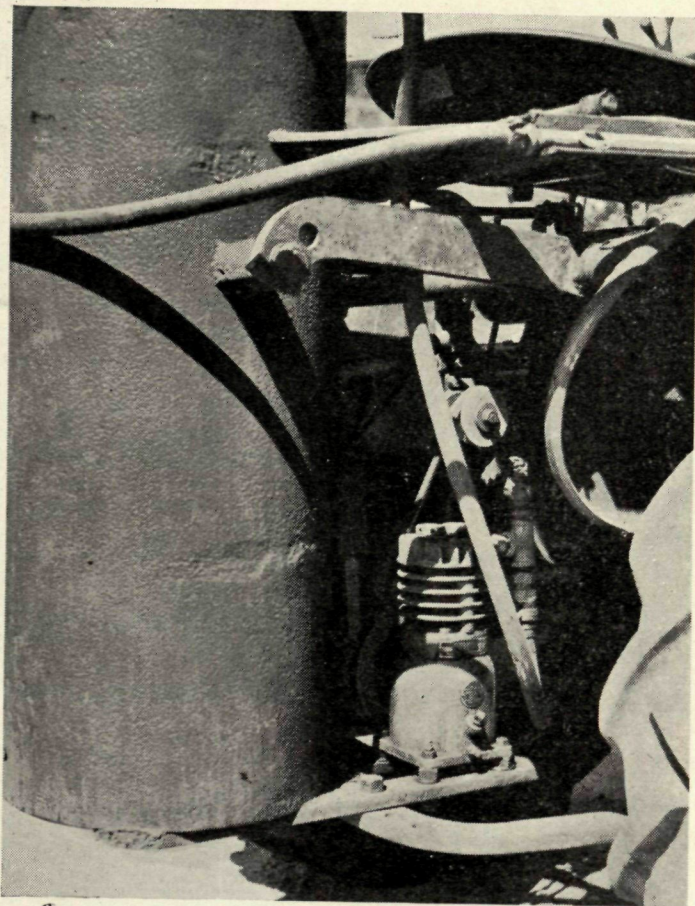


Fig. 3.—Close-up, showing method of attachment to tractor. Note nuts and washers under compressor for taking up any slack which may develop in belt.

centre and the rim and a hole was drilled in the plug to carry a threaded reduction nozzle to take a  $\frac{3}{4}$  in. pipe on the inside of the plug and  $\frac{1}{2}$  in. hose on the outside. A length of  $\frac{3}{4}$  in. piping reaching to within an inch of the bottom of the cylinder was screwed to the inside of this plug and fitted with a filter made by rolling up some flywire into the shape of a cone and stuffing this into the lower end of the pipe.

About a quarter of the distance from the top to the bottom of the cylinder an angle-iron framework is welded into position to carry two Edgell spraying pistols and two spraying nozzles. The



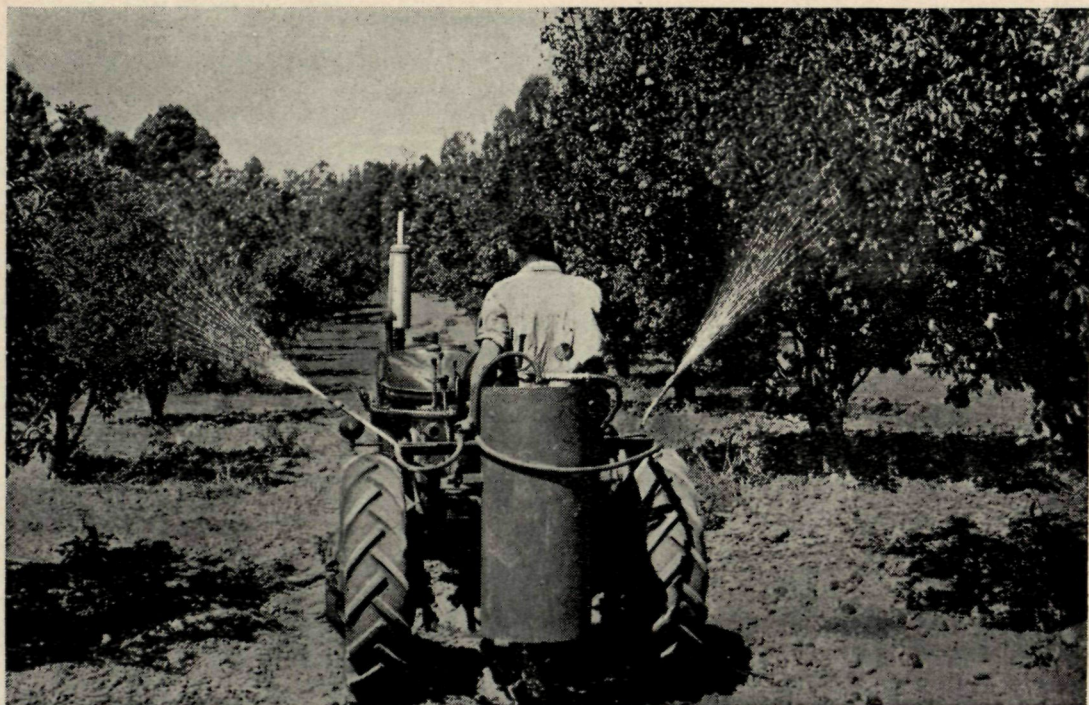
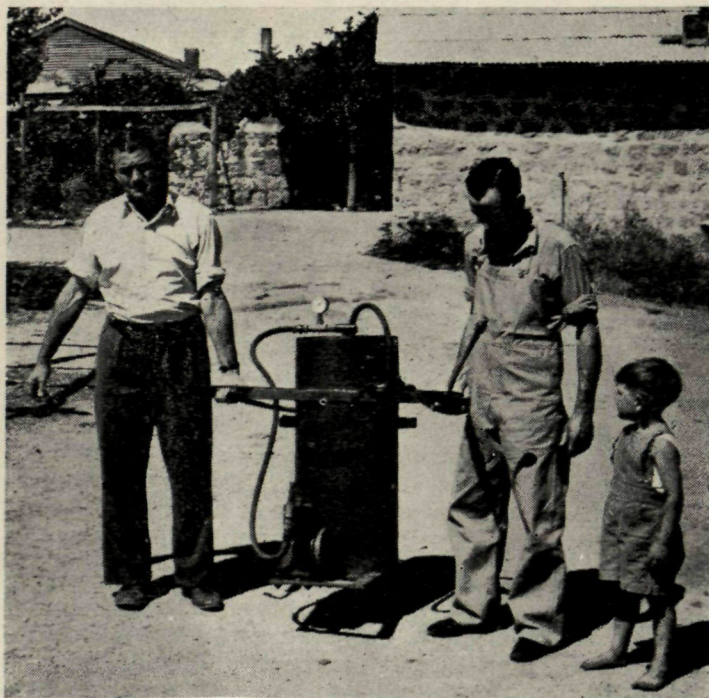


Fig. 4.—Outfit in operation in an orchard.



hose running from the screw plug runs to a forked attachment taken from a knapsack sprayer and the Edgell pistols are fitted to the two branches of the fork. Separate hoses run from the pistols to the adjustable spraying nozzles fitted on each side of the angle-iron framework.

About a third of the distance from the top of the cylinder two short lengths of channel-iron are welded to stand out horizontally from the cylinder to form sockets for the trunnions on the hydraulic lift

Fig. 5—Two men can lift the complete outfit easily.



arms. The trunnions on these arms fit down snugly into the sockets, holding the outfit firmly in position when it is secured by two bolts passing through holes in the rectangular base framework and through corresponding holes in the drawbar of the tractor.

The vacuum cylinder which forms the tank cost nothing in this case as it was obtained from a scrapheap but a suitable cylinder could be constructed from a section of steel pipe or from rolled steel plate welded into shape. The costs of other materials used are given hereunder:—

	£	s.	d.
1 Clisby Compressor .....	12	10	0
1 Release Valve .....	1	12	6
1 Pressure Gauge .....	1	15	0
2 Edgell Pistols .....	9	0	0
1 2½ in. V-Pulley .....	1	0	0
1 V-Belt .....	10	0	
Hose and Fittings .....	1	10	0
Angle-iron, etc. ....	15	0	
Incidentals .....	7	6	
	<u>£29</u>	<u>0</u>	<u>0</u>

The present layout is ideal for the Farmall tractor for which it was designed, but it could be adapted quite easily to other makes of machine. The 40 lb. pressure mentioned is adequate for delivering a suitable spray for fruit fly baiting, but by using high pressure hose and other fittings, it would be a simple matter to increase the pressure for more exacting spraying work.

The committee would be pleased to arrange for demonstrations of the plant or to supply any further details needed by people interested in constructing similar outfits. Inquiries should be addressed to Mr. L. G. Hayward, Chairman, Eastern Hills Fruit Fly Baiting Scheme, c/o P.O., Mundaring. W.A.

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