

Long-awaited sprayer breakthrough

Over the last two seasons a Rotorua orchardist, Mr Bob Gee, has been successfully spraying his 20 hectare orchard with a self-propelled sprayer which he built, together with his engineer partner, Mr Ross Baker.

Bob Gee has for many years considered developing a self-contained sprayer which would allow him to spray in comfort and safety as well as cover the area in as quick a time as possible. This he achieved with remarkable success to the extent that the machine is now commercially available.

After a meeting on Bob's property with key Federation field staff Bob's sprayer was redesigned to suit orchards throughout the country, from kiwifruit to centre leader apples, and a prototype was built and is currently undergoing a very rigorous testing programme.

A solid zinc-coated steel chassis supports the fibreglass tank, cab and panels which give rust resistance and smooth lines to eliminate fruit and plant damage. Having a 3000 litre double baffled tank reduces filling time by 50 percent over conventional 2000 litre sprayers.

The unique pear-shaped profile was evolved to minimise fruit and tree/vine damage and still allow passage through the orchard. The width at the top of the tank is 1.118m (3'8"), and the width at the bottom is 1.777m (5'10"). The height at which the tank narrows from 1.7m to 1.2m is 0.863m (2'10"). Because the total machine profile narrows to 1.2m at 0.86m height, even the bottom tier of branches and fruit in centre leader trees will escape damage. However should any branches be lower than 0.86m the smooth configuration of the tank will allow them to slide over the tank without bruising.

Vision is unimpaired through automotive safety glass, and internally operated retractable mirrors permit easy backing. Windscreens washers and wipers are fitted to clean the screen of any spray drift.

The cab is completely air conditioned and the air is filtered through an approved large-capacity agricultural filter which is designed for use in tractor cabs, etc.

All spray controls and gauges are operated remotely from within the cab and this ensures total operator safety in case of burst pipes or hoses as no spray liquid enters the cab.

The Holder TU71 Fan has infinite rev options from 1800 — 2600 rpm giving total operator control over air output and speed. Should the grower wish to reduce air output this can be done without altering ground speed.

The fan is belt driven via a clutch which ensures shock-free engaging as well as a free-wheeling function that protects the engine and drive from any potential damage in the event of an engine cut out.



The Spraymaster Mark I.

An option of a larger fan unit will be available where growers consider this necessary but because of the availability of increased fan revs the standard TU71 should suit the majority of orchard situations. Also a double spray ring configuration is available which facilitates multiple nozzle and output options without having to continually change discs and whirlplates.

A well proven A & R range of diaphragm pumps was chosen to give pressures up to 700 psi and a choice of 140 l/m or 190 l/m outputs are available.

Both pumps have sufficient capacity to allow maximum agitation through two specially designed venturi jets. By using the venturi agitation drive, gearing and leaking gland problems were eliminated whilst ensuring proper agitation at all speeds.

The Spraymaster is powered by a 250 x D Flacon engine and the automatic transmission is also from the Ford stables. The automatic three-speed transmission has a high and low ratio giving a total option of six gears.

Spraying speeds have a 1.5 mph variation to suit each property but the standard variation is 2 — 3½ mph. However, should faster speeds be required these can be easily adjusted and still allow the 1½ mph variation 'Road' speed is approximately 20 mph. This speed has been chosen because only the front wheels are sprung and regulations do not allow greater speed.

Undoubtedly the major innovation is the unique four-wheel drive axles plus four-wheel steering, which has been patented.

Four-wheel drive allows maximum traction via 8 ply Terragrip tyres, even in ground conditions which would stop any conventional tractor. Due to the design of the tank which distributes the weight of water over the wheels (4.5T full and 1.5T empty) a full load increases traction.

The historical problem of four-wheel drive vehicles requiring a very large turning circle has been overcome with four-wheel steering.

The 24' turning circle (that is to the

outside of the wheel tracks) enables growers to turn from one row into the next in one movement. Furthermore, due to the unique steering mechanism the rear wheels track identically behind the front ones, and so there is no corner cutting as happens with trailer-type equipment.

In many cases when equipment becomes sophisticated, servicing can be a problem. This has been overcome by using conventional readily obtainable components such as Ford engines and transmission, Landrover axles and differentials, Holder fan unit and A & R pump, all of which can easily be serviced by the Federation Branch or local garage.

The overall dimensions of the sprayer are:

Height 1.397m (4'7"), width at bottom 1.777m (5'10"), width at top 1.118m (3'8"), length 5.335m (17'6").

The Spraymaster has been developed over a two-year period, firstly with Bob Gee's sprayer and now as the Mark I version, and offers growers with large orchards the possibility of covering the ground efficiently, more quickly and with greater safety and comfort.

With the price tag of \$32,900 it is a very sound investment when considering the cost of a tractor plus conventional P.T.O. sprayer which gives a 2000L capacity spraying availability. Often growers have to cut tractors down, which increases the cost, whereas the Spraymaster will handle virtually any orchard conditions.

Bob Gee, being so very keen on the Mark I, now wishes to purchase a unit for himself and accordingly is prepared to sell his original machine for \$15,500.

This would make an ideal inexpensive 3000L sprayer for a grower on conventional plantings and anybody interested should contact Bob Gee at Fairbank Orchards, Te Ngae Road, Rotorua, (opposite Airport) or phone Rotorua 59-836.

Further details on the Spraymaster are available from your nearest Federation Branch or representative.