

# Crop Spraying by Air

By John W. R. Taylor

EVER since Man first learned to cultivate the soil he has had to fight a continuous war against pests, not the small two-legged variety which are so numerous near orchards in the Autumn but the very much smaller insects and diseases which can kill a whole crop long before it is ready for harvest.

For centuries the locusts, flies and beetles had their way, their ravages combining with drought and flood to destroy by famine hundreds of thousands of people all over the world. Not until the closing years of last century, in fact, did science bring much aid to the farmer, placing at his disposal efficient new insecticides and weed killers to protect his crops. Even then it was a slow business to spray or dust the whole of a large field by hand, and impossible to ensure satisfactory, even coverage.

The advent of horse-drawn and then tractor-drawn spraying equipment helped enormously, but often at the cost of a reduced harvest, for the wheels of the vehicles inevitably crushed a proportion of any interwoven or wind-laid crop. What was needed was a spraying machine which made no tracks, and the answer was obviously an aircraft.

As a result, several attempts were made before the last war to develop an effective method of aerial crop dusting, often with the help of military air forces, for it was obvious that an aeroplane which could spread a layer of weed killer over a field of wheat could easily do the same thing with poison gas over an enemy army! Many difficulties were experienced. It was often impossible to find a landing ground near the field to be sprayed; the aeroplane's comparatively high speed resulted in a lot of wasted time and petrol while it turned after each run over a field, and such turns were dangerous in hilly or wooded country; even worse, propeller slipstream often dispersed the insecticide

dust cloud. Despite all the drawbacks, however, aerial crop dusting proved of undoubted value where speed and absence of tracks were of primary importance, especially as relatively cheap light 'planes could be adapted easily for treating anything up to 500 acres a day.

Then, in 1940, Igor Sikorsky flew his first helicopter, and the whole picture was suddenly changed, for here was an aircraft which could turn in its own length and operate from almost any small space in town or country. Britain's



The "Spraycopter" Mark I, in which the spray-bays extend 17 ft. on each side of the fuselage nose. The illustrations to this article are by courtesy of Pest Control Ltd.

leading commercial crop spraying experts—Pest Control Ltd., of Bourn, in Cambridgeshire—were quick to recognise this fact, and with the help of British aircraft designers set to work to produce a form of spraying equipment which could be fitted to a helicopter. Incidentally, this distinction between spraying and dusting is important. Most of the work with light 'planes had been done with insecticide dusts, spilled from hoppers in the aircraft, and this dust was very much at the mercy of wind and slipstream. Pest Control planned to use a fine liquid spray of dissolved insecticide, which could be spread more evenly and would tend to "stick" better to the crops.

This development work took time, and it was not until 1946 that Pest Control were able to show the world what a spraying helicopter could do. All the usual disadvantages of aerial spraying