

combs of honey had been given to each hive as supplementary stores. An inspection of the particular apiary in April showed that wasps were flying round in large numbers and 4 hives were almost robbed out. These were not weak hives, as they still had as much as 6 combs of brood. The bees in all the other hives were on the alert; bees were right across entrances and at this particular time any invading wasp was dealt with strenuously. Besides the wasps concentrating on the weakened hives others could be seen investigating every crack in hives and lids. It was recognised that the increased activity of the bees in defending their hives would mean a serious depletion of winter stores. In this apiary wet supers had been placed out and these may have been responsible for attracting such a large force of wasps. The apiary was on the edge of a large gully in which it would be impossible to locate and destroy wasp nests.

Suggested Methods of Control

It is unfortunate for beekeepers that it is not possible by using screens to prevent wasps from invading honey houses and beehives; wasps will crawl through a smaller opening than a bee so that a wire excluder is impracticable. Until research workers, who are now making investigations, are able to find more effective control methods the following appear to be the best precautions that can be taken:—

1. The beekeeper should encourage all occupiers of property close to the apiary to locate and destroy as many wasp nests as possible.
2. When necessary the beekeeper should destroy nests himself when they are reported.
3. Hive equipment should be kept thoroughly sound; badly-fitting lids and warped supers should be discarded.
4. A high standard of cleanliness around the apiary should be maintained; honey or odd pieces of comb should not be left about.
5. Entrance guards should be placed on hives as soon as wasps appear to be troublesome. In warm districts it may be necessary to allow further ventilation by placing an empty super on top of the hive.
6. Extracted combs should not be put out in the apiary for the bees to clean out.
7. Nuclei established in the autumn should be placed out in apiaries where wasps are not likely to be troublesome.
8. In wintering down colonies allowances should be made for additional supplies of feed honey—it is not only the amount of honey robbed by the wasps which has to be taken into account; bees themselves consume a considerable amount while continually on the alert to defend their hives.

The evidence this season has indicated that where wasps have become well established beekeepers face a definite problem. The menace can be combated only by co-operating with the public in a campaign of destruction, including a diligent search for hibernating queens and established nests.

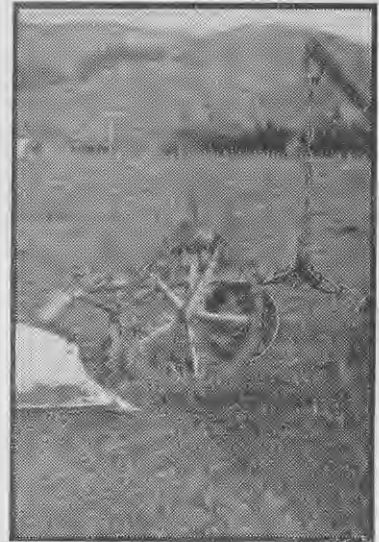
CONVERSION OF HAND PLOUGH TO TRACTOR LIFT

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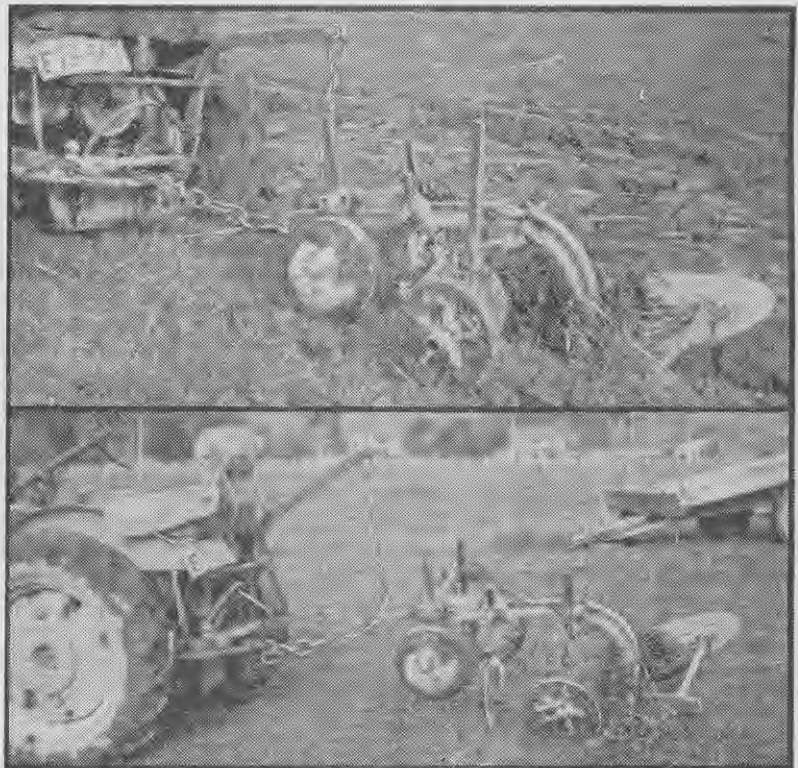
THE illustrations show a single-furrow digger hand plough coupled to the hydraulic lift of a tractor mower attachment and functioning as a hydraulic-lift plough. Alterations to the hand plough, apart from removal of the handles, consist of fitting a rear land wheel which for ploughing is adjusted to the same position as the front land wheel. The function of this extra wheel is merely to prevent the plough from overturning when lifted out and for towing free.

On the tractor a lift bar is coupled direct to the hydraulic piston and on the other end of the bar a chain from the towing bracket on the plough is attached by a U bolt. It is essential for the point of lift to be adjusted correctly on the towing bracket, as, if the line of draught is interfered with, the plough will not turn a full furrow when re-entered. On the plough shown the lift was taken about 9in. out from the beam.

The conversion outfit is the property of Mr. Y. O. Sutton of Richmond, Nelson.



This shows how the fitting of the extra land wheel prevents the plough from overturning when it is lifted out.



Upper—The working position of the plough with the tractor lift-bar attached to the hydraulic cylinder on the tractor and pivoted on the mower-bar attachment. The lift to the plough at the other end is taken through the U bolt and chain. Lower—The plough lifted from the furrow and trailing on the extra land wheel.