

THE WHEAT CROP . . .

duced in yield and harvesting may be made more difficult.

Of the more common varieties of wheat grown, Tuscan appears the least susceptible to attack by hessian fly; Hunters, Dreadnought, and Cross 7 seem to suffer most. In Tuscan it is unusual to find more than one "flax seed" on each stem, but the "flax seeds" frequently occur in twos and threes on Hunters, Dreadnought, and Cross 7.

As the hessian fly overwinters in the "flax seed" stage in wheat straw and wheat stubble, destruction of the straw by burning seems the best means of control. Deep ploughing of wheat stubble would also reduce the number of pupae which may develop into the mature insect in the spring. The general practice throughout Canterbury of sowing down to grass in the wheat crop undoubtedly assists in perpetuating this menace.

Wheat Bug.—In certain localities in New Zealand the developing wheat grain is sometimes attacked by bugs which suck the sap from the grain and at the same time inject into the grain something which apparently causes the gluten to change so that satisfactory bread cannot be made. The condition is known as "sticky dough" or "slimy gluten."

In New Zealand there are three species of insects which attack the wheat grain and produce this "slimy gluten" condition. However, the fact that two of the insects are natives to be found in most pastures and that the damage annually is considered of minor importance suggests that it is only under exceptional circumstances that the bugs attack wheat.

There is no known means of control.

Stem Weevil.—Introduced from the Argentine, stem weevil was first recorded as being present in New Zealand in 1927, but it was not until about 1933 that it was associated with damage to wheat.

During the winter the insect remains in the soil in the adult stage. In October it lays its eggs on the wheat plant and the small white grubs which develop begin to bore into the stem of the plant. If the plants attacked are very young—this applies particularly to spring-sown wheat—the grub usually bores down the centre of the succulent stem and the destruction of plants or tillers it causes in this way may be sufficient to result in a thin crop. When the wheat is attacked at a later stage of growth the grubs usually concentrate on one of the lower nodes of the stem and create a weakness in the straw at this point. Toward harvest the weakened straw

readily succumbs to high winds. A great deal of straw break in crops in midsummer which is regarded as wind damage is primarily due to earlier infestation of the crop by this weevil. The weevil also attacks barley and ryegrass.

There are no methods of control of this insect.

Grass-grub.—The grass-grub, which is a native of New Zealand, is responsible for damage to wheat crops every year, and sometimes the damage has been sufficient to necessitate re-sowing. Usually, however, it is confined to patches in crops or it may cause some thinning out of the whole crop. Evidence of grub attack is first noticed about May, and damage may continue until early in October. Crops which show grub damage are usually rolled to pack the soil around the roots of the wheat and encourage the development of new roots.

Slugs.—Occasionally wheat crops are attacked by slugs, usually where the wheat follows a pea crop. The slugs feed on the leaves, usually when the wheat is 3 or 4 in. high. If the attack is a severe one and the leaves are badly damaged, it may be advisable to plough up the crop.

Harvesting

Perhaps no phase of wheat production in New Zealand has undergone such a revolutionary change as the methods of harvesting. Before 1930 all the wheat grown was cut with the binder and stooked. It was then either threshed from the stook, or, if a mill was not available, it was stacked and later threshed from the stack. In 1930 two header harvesters were tried out on wheat. Eight seasons later the number had increased to 300, and these threshed about 35 per cent. of the total wheat grown. Today probably 90 per cent. of wheat grown in Canterbury is threshed with header harvesters either by direct heading or by the windrow method. Varieties such as Tuscan, Fife Tuscan, and Cross 7 are generally direct headed, while varieties which tend to shake readily, such as Jumbuck, Dreadnought, and Marquis, may be windrowed and threshed from the windrow, or they may be stooked and threshed. Because of its valuable straw, Hunters is usually cut with the binder and threshed from the stook.

In some wheat-growing areas where the climate seems unsuitable for header harvesters to operate satisfactorily it is still a common practice to thresh from the stack.

When crops are threshed with header harvesters the sacks of wheat are usually left in the paddock until they are collected by motor lorry and

transported either to flour mills or grain stores. Should rain intervene before the wheat is collected, it may be necessary to turn the sacks at intervals to prevent undue sprouting.

Conclusion

In many of the larger wheat-producing countries of the world, such as Canada, India, and Australia, the wheat crop is grown on the poorer and drier soil types and yields generally vary between 10 and 20 bushels per acre. In New Zealand it is the heavier, more fertile soils in the wheat-growing areas which are looked upon as ideal for wheat, although a proportion of the wheat crop is also grown on the poorer soil types or on what is commonly referred to as marginal wheat land. On the good wheat land yields of 60 bushels per acre are not uncommon, and few farmers would sow wheat on land where the yield would be likely to fall below 20 bushels per acre.

Preparations for Wintering Stock

At this time of the year the aim should be to reduce the stock on the farm to the number which can be wintered in reasonable condition. An attempt should be made to finish off stock which are culled from the breeding flock or herd before winter begins, and sufficient selected breeding stock should be kept to maintain or if possible increase production next season.

Dairy herd.—By now milk production will be declining and dairy cows for culling should be dried off and disposed of. Calves should continue to graze around the farm ahead of the milking cows.

Pigs.—An attempt should be made to finish off all pigs, except breeding stock and those which it is estimated can be wintered reasonably well, by feeding such crops as green maize, carrots, and marrows to supplement dwindling supplies of separated milk.

Sheep flock.—Cull ewes should be finally disposed of, as well as all cull lambs and other dry stock which cannot be wintered. Replacements of breeding ewes should be made. On most farms the aim will be to enter the winter with breeding stock only. Ewes should be finished two weeks before tupping, using any second-growth rape, greenfeed, or young growth of grain for the purpose. Dipping should take place at least two weeks before tupping and both ewes and rams should be dagged before the rams go out. During tupping "box" the breeding flock frequently.