Sandy soils need water more often than do heavier soils. To ensure good bushes and crops the grower should see that berry fruits have sufficient moisture to keep them growing well throughout the entire summer. It is also most important to water them well again at the end of the fruiting season and immediately after pruning and burning. The amount given and the application of water around bushes are important. If the plants are 4ft. high, the roots will probably be 6 to 8ft. long, so if the water is applied to the area around the base of the plant, most of the roots are still dry. An area several feet on each side of the plants should receive a thorough soaking.

Cultivation

Crops growing in open ground must be kept free of weeds if best results are to be obtained from the soil. If the season is wet, more cultivation will be necessary than during a dry season favourable for weed destruction. Generally, however, three main cultivations are necessary. The first is carried out as soon as the crop has been picked and the bushes have been pruned, the second in early spring, and the third some time just before the flowers set or the area is mulched down. Other cultivation may be necessary also to keep weeds in check.

The method of cultivation is most important. All berry plants produce fairly large numbers of surface roots, so it is essential that only shallow cultivation be carried out; otherwise roots may be damaged.

Fertilising the Crop

On all soils it is wise to fertilise berry fruits. Cow manure and haystack bottoms spread to a depth of 3 to 4in. over the surface of the soil and lightly hoed in during late autumn or immediately after the final clean up are excellent. For heavy soils stable manure supplemented with artificial fertiliser has given good results and usually increases the size of the fruit considerably. Fowl manure and litter at the rate of 2lb. to the square yard is also a good manure when applied just before winter.

If organic manures cannot be obtained, a general mixture of 4 parts of phosphate, 2 parts of sulphate of potash, 2 parts of blood and bone, and 1 part of sulphate of ammonia applied at the rate of 3oz. to the square yard will help to maintain soil fertility and the production of good crops. These fertilisers are best applied in two dressings—a third in autumn and the other two-thirds in spring before growth starts—and should be lightly hoed in and watered.

Mulching

The benefit mulching has on improving a berry fruit crop cannot be overemphasised, particularly on sandy soils. It helps to prevent the soil from cracking and packing, checks weed growth, helps to conserve moisture, and promotes a cool root run, which aids good fruiting during the hot days of summer. A mulch around strawberry plants prevents fruit from being splashed with mud and reduces the amount of fruit damaged by contact with the soil. Clean straw is generally preferred to hay because of the seeds and weeds which hay often carries.

[*Douglas Elliott*

Auchincruive Climax strawberry fruit. This is possibly the most promising strawberry variety available at present.

Diseases and Pests

Many crops of berry fruits are reduced considerably each year by diseases and pests, and the work of growing the bush should not be wasted through the risk of plant injury from diseases and pests.

Diseases affecting raspberries, strawberries, and gooseberries are dealt with in Department of Agriculture Bulletins Nos. 258, 321, and 297 respectively, all available free from offices of the Department, and no mention of these three crops will be made here. Only the principal pests likely to trouble growers are mentioned.

Leaf Roller Caterpillar (*Tortrix* spp.)

The leaf roller caterpillar is light green and protects itself from its natural enemies by sheltering between two leaves or by rolling a leaf around itself. It moves quickly when disturbed and will sometimes drop to the ground.

Control consists of spraying the foliage with a solution of 1½lb. of arsenate of lead, 3lb. of hydrated lime, and 100 gallons of water. A small quantity can be made with 1oz. of arsenate of lead, 2oz. of hydrated lime, and 4 gallons of water.

Raspberry Bud Moth (*Carposina adreptella*)

The larvae of the raspberry bud moth do considerable damage not only to raspberry plantations but to other bramble fruits. The moth lays its eggs in crevices of the leaves and in buds on the bushes during summer and autumn. The eggs hatch in from 7 to 20 days, depending on weather conditions. The larvae tunnel into the young, dormant buds to enter the cane, causing considerable damage and reduction of crop the following year.

The raspberry bud moth can be controlled by spraying the plants with a solution of 2lb. of arsenate of lead, 4lb. of hydrated lime, and 100 gallons of water. A small quantity can be made by mixing 1¼oz. of arsenate of lead, 2½oz. of hydrated lime, and 4 gallons of water.

Red Spider (*Tetranychus* sp.)

When plants are affected with red spider the leaves take on a red, rusty appearance, and during hot, dry seasons the pest can do enormous damage if left unchecked.

Red spider can be controlled by spraying the under sides of the leaves thoroughly with a solution of 1 part of summer oil to 100 parts of water. Eggs usually take 10 to 14 days to hatch, so a further spraying is necessary. A small quantity can be made by mixing 6¼ fl. oz. of summer oil with 4 gallons of water.

White Rose Scale (*Aulacaspis rosae*) and **Lecanium Scale** (*Eulecanium corni*)

White rose scale and lecanium scale suck the sap from the plants and thus weaken them considerably. They can be controlled by spraying the plants in the dormant season with 5 per cent. winter oil in the ratio of 1 part of winter oil to 17 parts of water or with 1 part of lime sulphur to 15 parts of water. Four gallons of oil spray can be made by mixing 1 pint 18 fl. oz. of oil with 4 gallons of water. If hard water is used, the addition of soap powder will assist in emulsifying the mixture. Four gallons of lime sulphur can be made by mixing 2 pints 4 fl. oz. of lime sulphur with 4 gallons of water.