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shaped tree with nearly all the main branches starting from the same point. It is undoubtedly true that many such trees are greatly weakened at the point of union by wood-rotting fungi which gain a foothold at the time the grafts are put in. In top-working, all cuts should be sloped enough to drain well, and the stubs of the old limbs covered with grafting wax or waterproof paint until entirely healed. The grafts should also be so distributed as to avoid a vase-shaped tree, as in such a tree all the stress and strain of a storm is concentrated at one point, often with disastrous results to the tree.

Most of these injured trees will suffer still more from the attacks of insects and wood-rotting fungi unless their wounds are treated properly and the orchards cleaned of all dead and dying branches. If these weakened and dead branches are left in the orchard until next year, shot-hole borers and flat-headed apple tree borers may multiply to such an extent as to kill some injured trees that would otherwise recover.

In removing broken limbs no stubs should be left. Figure 6 shows how fungi enter a tree through broken stubs. In the course of time, rot may penetrate the entire heart of this tree, greatly weakening it and reducing its power to withstand storms and the attacks of insects. Cuts should be made flush with the body of the tree, using a sharp saw and leaving no hole or pocket where water can collect. Smooth, well-drained cuts heal quickly and are least exposed to infection from wood-rotting fungi. The surface of the cut should be covered with some protective material. A mixture of one-third cresote and two-thirds coal tar is very desirable for this purpose. Grafting wax or a good lead paint may also be used. Figure 7 shows how rapidly a cut heals that has been properly made and treated.

Effect of Mosaic on Sweet Potato Yields

By

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It is generally known that mosaic diseases have a marked effect upon the productiveness of the infected

plants. Losses ranging from 10 to 90% have been reported from these diseases on such crops as Irish potato, sugar cane, beans, tomatoes, tobacco, etc. Although a marked reduction in the yield of sweet potatoes infected with mosaic has been noted from time to time by pathologists, apparently no carefully conducted experiments have been reported to show the relative loss to be expected from plants infected with this disease. With these facts in view, a preliminary experiment was conducted during the summer of 1926 at the Mississippi Agricultural Experiment Station to compare the yields of mosaic-diseased plants with that of apparently healthy plants.

Vine cuttings were made the first of August from diseased and from apparently healthy plants selected in a field of Nancy Hall sweet potatoes. The cuttings from each plant which varied from 10 to 15, were planted together in "vine hill units" on a portion of the row. The diseased and the healthy cuttings were planted on alternate rows. One hundred per cent of the cuttings grew and produced small roots by the first of November. Only a few of the tubers, however, were of marketable size and therefore, the weights of all roots, one-half inch in diameter or larger, were taken as a measure of the yielding capacity.

The lowest yielding "vine hill units" of the diseased and of the healthy selections averaged 23.33 and 75.80 grams per hill, respectively, and the highest yielding units averaged 71.43 and 134.17 grams per hill, respectively, for the diseased and the apparently healthy selections. The average relative yields of each kind of plants are given in Table 1.

Table I.

Type of Plants.	Relative Yield of Roots
Apparently Healthy	100.0
Mosaic Diseased	38.9

Soak Seed Cane for Borers

Sugar cane in sections of Jackson, Harrison, Hancock, Pearl River, Amite, Adams, and Wilkinson counties often suffers some injury from the sugar cane moth borer, *Diatraea saccharalis crambidoides*. This pest is widely dis-