

of the prepared female individual with the inner surface of the anthers; if the stigma is receptive—and this can generally be determined by its appearance—the pollen adheres and fertilization takes place. For genetical investigation it is advisable to cover the effected cross with a waterproof paper cover, but for commercial purposes this is not necessary.

If a number of different crosses are being made consecutively, it is essential to wash the hands and any instruments with alcohol after each separate cross; this renders ineffective any adhering pollen.

SAVING SEED.

The fruit should be picked when ripe and placed on one side till it is slightly over-ripe. It should then be pulped in a jar and allowed to ferment for about five days to liberate the seed from its surrounding tissues. When fermented a large quantity of water is added, and, after being well stirred, the pulp and flesh is skimmed off the top. If fermentation has been thorough the seed sinks to the bottom, and, by repeatedly adding water and decanting it, clean seed is obtained. The seed should be spread out to dry on some absorbent material. The seed should be dried thoroughly before it is stored away. The seed remains viable for several years, and hybrid seed need not be produced more frequently than every other year.

In determining the number of crosses to make it may be assumed that an average tomato gives two hundred seeds. To check this seventeen medium to small fruits were pulped. These yielded 3,300, or 194 seeds per fruit. Germination of good tomato-seed is generally about 99 per cent.

VALUE OF STRAINS OF RYE-GRASS IN CANTERBURY.

J. W. CALDER, Canterbury Agricultural College, Lincoln.

CANTERBURY is recognized as one of the main cropping-areas in the Dominion, and the climate and soil conditions are particularly suited for this type of farming. Nevertheless, the greater part of the land is in pasture. Of the 2,750,000 acres of cultivated land, 1,750,000 acres are in grass over two years old, and about 250,000 acres are sown down in new grass each year. Cereals and pulse crops occupy about 500,000 acres and fodder crops about 250,000 acres. The 750,000 acres of crops are sown in rotation with pastures which remain down from two to ten years or so, and the young grass is sown at the end of a cropping programme. Owing to climatic conditions, these pastures fail to provide the necessary feed at two periods—namely, in winter and early spring as a result of low temperatures, and in summer and early autumn as a result of drought. It is necessary, then, to provide the supplementary feeds for these two periods. Turnips, hay, chaff, green-feed oats, and Italian rye-grass for the winter and early spring, and green-feed rape, soft turnips, &c., for summer and autumn periods. These supplementary feeds are essential, but they are costly to grow, so that any feed which can be secured from pastures at these times will