I N T R O D U C T I O N.

In Trinidad, it is the practice on some Estates to plant canes during the dry season, with the object of shortening the period necessary for the canes to arrive at maturity. Other Estate managers hold that labour is so scarce in the dry season that it does not pay them to devote time to dry season planting. When this practice is carried out, it is necessary to make a deep hole with a crow bar and insert the cane. It then derives the moisture necessary for sprouting from the water remaining from the wet season in the lower level of the soil. Growth is slow and any treatment that would accelerate germination and growth would be of advantage.

Denny (7) gives a resumé of work done on the effect of chemicals on plant growth, with bibliography. Widely diverse substances have been tried, such as mineral acids, salts, Aliphatic compounds and even smoke from burning sawdust. He tried the effect of 250 different substances on the sprouting of potatoes. He found that potatoes soaked in a 1 % solution of Sodium thiocyanate showed a marked precocity over untreated sets. Thiourea had the same effect and in addition caused multiple bud formation. Ethylene chlorhydrin was found to induce early flowering of shrubs. Gains were obtained of from two weeks to two months in the time required to produce sprouts or blooms.

In another paper (8) Denny describes his methods in more detail. With Sodium thiocyanate the margin between stimulation and toxicity was not great; with one variety of potato a 4 % solution caused inhibition of growth. With ethylene chlorhydrin the material could either be

soaked as above, or else dipped in the solution and stored in closed containers of twice the volume of the sample. Storage after treatment tended to prevent toxicity. Concentrations which benefited new tubers were sometimes injurious to old ones.

It was decided to try the effects of the three chemicals mentioned by Denny on the sprouting and growth of cane cuttings.

Material Used. The variety B.H. 10-12 was selected; single nodes were used, and one inch of internode left on each side. To ensure uniformity each cutting was taken from the same part of the stem as buds from near the top are more ready to sprout than those lower down (6). It was therefore desirable to take the samples from the standing cane. Canes were selected for uniform thickness, length of internode and size of bud. Any dead leaves were stripped off and the eighth and ninth nodes down from the highest visible node were cut out. The samples were taken near reaping operations so that the discarded sections of the cane were simply loaded on the carts with the rest. The samples were obtained by the courtesy of the Cotton Corporation and the Department of Agriculture.

Preliminary experiments were carried out to see if any benefit at all was likely to be obtained, and if so, to get a general idea of the concentration necessary.