

A Short Note on Soil Temperature and Cane Germination.

K. KRISHNAMURTHI RAO.

One of the chief factors to be considered in cane germination is the temperature at the planting season of the soil at about 2 inches below the surface, i. e. the depth at which the cane sets are usually planted. The soil temperature naturally varies in different localities according to the geographical position of a place and with the time of the day and at different depths of the soil. It is highest between 12 and 4 p. m. At 2 inches depth, the soil temperature will approximate that of the outside atmospheric temperature. Hence it was thought that by keeping cane sets for about 4 hours in the thermostat I was subjecting it for a period of high temperature usually detained in a day.

Cane sets were subjected to the following temperatures.

Experiment.

- a. 2 sets or 6 buds from the middle portion of M 37797 (B 3412 X Co. 205) were kept for about 4 hours at a temperature of 55°C on 11-9-23 and planted the same day
- | | | | |
|----|-----|--------------------|-----|
| b. | do. | at 50°C on 12-9-23 | do. |
| c. | do. | „ 48°C „ 13-9-23 | do. |
| d. | do. | „ 46°C „ 15-9-23 | do. |
| e. | do. | „ 44°C „ 17-9-23 | do. |
| f. | do. | „ 42°C „ 18-9-23 | do. |
| g. | do. | „ 40°C „ 19-9-23 | do. |
| h. | do. | „ 38°C „ 20-9-23 | do. |
- i. 6 sets, 3 bottom ones and 3 top ones at 42°C on 21-9-23

Results and observations.

The sets (a) and (b) kept at about 55°C and 50°C for 4 hours did not germinate at all. The buds were all dead.

The sets in (c) did germinate but growth was unsatisfactory.

The sets in (e), (f) and (g) were about the best. Of these, those in (f) i. e. kept at 42°C were the best and the growth most satisfactory.

Root development was the best in the sets kept at 42°C and 40°C.

In the thinner cane sets of the same variety, roots appeared to have a tendency to go more downwards.

The 3 bottom sets in (i) the set roots were more developed than in the 3 top sets in (i).

The buds, whose position when planting was below, developed shoot roots sooner and in more abundance.

Remarks:—In a very rough way it may be stated that for cane planting, localities which have a temperature at the planting time above 44°C (111 F) are not quite suitable.