

A Short Note on the Bud Sprouts of Tapioca Setts

By

P. UTTAMAN, B. sc. (Ag.), M. sc. (Mad.), M. sc. (Cornell);
Assistant Paddy Specialist, Agricultural Research Station, Pattambi

In a newly planted tapioca field it is commonly observed that the young plants that have just sprung up seldom present a uniform stand for vigour and growth. Also it is seen that the young plants coming out of the top setts of a whole stem have an unhealthy look. It was felt that the differences in the vigour and stand of these young plants arising from the different zones of the entire stem might be due to differences in the potentiality of the buds for producing vigorous shoots. A preliminary trial by planting setts cut from the different zones of a whole stem was conducted to test this point. The variety used was "Valença". Setts were cut from each of three equally divided parts of a whole stem, and those from different stems but belonging to the same zone were planted in one group. They were planted upright, at equal distances, on ridges, in conformity with the local practice. The sprouting of the buds was noted to commence on the third day after planting and occurred simultaneously in all the buds irrespective of their location above or below ground. But all the buds in a single sett did not grow up into normal branches. Only the top bud or the one below it, as a rule, grew up; although shoots from both the buds and even from a third bud in rare cases, were not quite uncommon. The first set of growth measurements was recorded 50 days after planting and a second set 45 days later. Forty plants were measured for each zone and the same plants were measured each time. The data are presented below.

Date of measurement.	Zone.	Average height in cm.
27-9-1951.	Basal.	21.1
	Middle.	20.5
	Top.	14.6
13-11-1951.	Basal.	77.6
	Middle.	63.1
	Top.	52.1

It will be noted from the data that the growth behaviour is different for the shoots from the different regions of the stem. However, it was noticed that among setts of varying lengths, a single shoot from a

longer sett was more robust and faster growing than the one coming out of a smaller sett. To verify this, setts of varying lengths but of uniform thickness and maturity were cut from the same regional zone and planted in pots. No replications were given. The details of setts and of growth measurement recorded 75 days after planting are given below.

	Length of sett. (cm.)	Number of buds	Length of main shoot (cm)	Basal thickness of stem (cm)
1.	13.5	10	30	0.45
2.	10.5	9	28	0.40
3.	9.0	8	24	0.34
4.	7.5	6	22	0.25
5.	6.5	5	18	0.18

The results tend, in a large measure, to support the observations made in the field. Considering the heterogeneity of conditions arising from soil disposition, moisture content of the soil, size of setts employed for planting etc., that ultimately influence the bud sprouts and their subsequent development, a more accurate method to assess correctly the growth potentiality of buds from the different zones of the stem, had to be found. With this end in view, a whole tapioca stem was cut into several bits of equal lengths retaining only one bud in each bit. The bits were planted in a box containing fine sand, the planting being done in the same natural order as they occurred on the stem. They were planted end to end with buds above and daily watered. The dates of sprouting of the individual buds were noted. The first sprouting was noticed seven days after planting and after another six days the sprouting was complete. Three buds at the top end of the stem, out of 35 buds in the entire stem, did not sprout. From the very beginning it was observed that the whole of shoots belonging to the basal and the lower half of the middle zones were relatively more vigorous and healthier than the others from the remaining regions of the stem. Growth measurement for height of plants, thickness of stem and size of leaf was recorded 50 days after planting. The data are furnished in the table below.

It will be seen from the table that the time taken for sprouting is more or less the same for all the buds irrespective of their zonal distribution. This agrees well with the observations made in the field trials. However, the vigour of growth as noticed in the earlier stages of plant growth in this experiment is distinctly more in respect of buds confined to the lower half of the whole stem or roughly two-thirds of the stem, after rejecting the tender top portion as is generally practised by the ryots before the stem is cut into setts for planting.

Serial No.	Basal Zone.				Middle Zone.				Top Zone.			
	Height of plants in cm. & date of sprouting.	Maximum thickness of stem (in mm.)	Maximum length of middle leaf lobe (in mm.)	Maximum petiole length (in mm.)	Height of plant in cm. & date of sprouting.	Maximum thickness of stem (in mm.)	Maximum length of middle leaf lobe (in mm.)	Maximum petiole length (in mm.)	Height of plant in cm. & date of sprouting.	Maximum thickness of stem (in mm.)	Maximum length of middle leaf lobe (in mm.)	Maximum petiole length (in mm.)
1.	11-10-51 13.5	3.0	14	17	5-10-51 10.0	2.5	12	31	4-10-51 8.0	2.0	10	15
2.	8-10-51 11.5	2.5	9	10	11-10-51 7.5	2.5	14	20	4-10-51 10.0	2.0	7	14
3.	7-10-51 10.5	3.0	14	25	15-10-51 13.0	2.5	9	20	9-10-51 9.5	2.0	9	10
4.	2-10-51 12.5	3.0	8	25	10-10-51 13.0	3.0	8	20	8-10-51 14.0	1.5	7	9
5.	3-10-51 6.0	3.0	12	39	3-10-51 10.0	3.0	11	32	7-10-51 9.0	2.0	4	10
6.	7-10-51 12.5	3.0	12	24	7-10-51 10.0	3.0	11	27	4-10-51 7.0	2.0	8	14
7.	7-10-51 12.0	3.0	14	34	5-10-51 10.0	3.0	11	19	8-10-51 5.5	1.5	6	10
8.	5-10-51 11.0	3.5	15	35	3-10-51 5.0	2.0	5	16	7-10-51 3.5	1.5	3	5
9.	5-10-51 15.0	3.0	14	26	7-10-51 10.0	2.0	9	10	7-10-51 1.5	2.0	6	8
10.	7-10-51 15.5	2.5	9	18	7-10-51 9.0	2.0	6	19	7-10-51 1.5	2.0	4	6
11.	7-10-51 *	*	*	*	4-10-51 9.0	2.5	9	18	*	*	*	*
12.	5-10-51 *	*	*	*	5-10-51 8.0	2.0	6	5	*	*	*	*
13.	7-10-51 12.00	*	*	*	4-10-51 9.54	*	*	*	*	*	*	*
Mean	0.79	2.95	12.10	25.30	0.60	2.5	9.2	19.60	6.95	1.85	6.40	10.30
S. E.		0.08	0.77	2.67	0.60	0.11	0.74	2.15	1.20	0.07	0.68	1.02

* Failed to sprout or died after sprouting