

## Effect of Type of Cuttings and Methods of Planting on Rooting in Cassava

T. MOHARANA, S. MOHANTY and P. C. LENKA

Terminal, middle and basal cassava cuttings were planted vertically, inclined ( $60^\circ$ ), inclined ( $30^\circ$ ) and horizontally to study their effect on rooting and early growth. Vertical method of planting of basal cuttings was found superior to inclined and horizontal planting.

Cassava plays an important role as food and fuel in the tropics and subtropics. Development of suitable agronomic practices for profitable cassava cultivation is of importance at this juncture. The present study was on the effect of cuttings at different stages of maturity as well as different planting systems on cassava growth.

Brandao (1959) reported that cassava cuttings of 40 cm long planted vertically by thrusting 10 cm of their basal portion into the soil resulted in the roots penetrating about 5 cm deeper into the soil and increased root yield by 30 per cent in comparison to the cuttings of 20 cm long, planted horizontally at a depth of 10 cm and covered with earth. The findings of Rodriguez and Bustamante (1963) revealed that planting cassava cutting of 25-30 cm long at an angle and covering  $\frac{2}{3}$ rd of its length by earth produced 24.8 t of roots/ha compared to planting cuttings of 25 to 30 cm long in a horizontal position and completely covering with earth, which gave a

root yield of 23.6 t/ha and planting cuttings of 8—10 cm long in a horizontal position and completely covering with earth giving a root yield of 16.7 t/ha.

### MATERIAL AND METHODS

Twelve treatments were taken with three types of cutting and four methods of planting. Basal middle and terminal cuttings of H-97 were taken with equal girth and number of nodes. The four methods of planting were (1) vertical, (2) inclined ( $60^\circ$ ), (3) inclined ( $30^\circ$ ) and (4) horizontal 2.5 cm below the sand in horizontal method and in other cases 7.5 cm of the base of the cuttings was placed inside the sand. In each treatment 15 cuttings were taken, out of which five random samples were taken for observation. Complete randomised design was followed.

### RESULTS AND DISCUSSION

Significant variation in the sprouting of bud was observed in different

TABLE Effect of types of cutting and methods of planting on cassava

Treatments	Days taken for sprouting of first bud.	Shoot height (cm)	No. of leaves	No. of branches	No. of roots	Length of roots (cm)	Average % of sprouting	% of dry matter in shoots	% of dry matter in roots
Vertical									
Basal	21.2	12.7	18.0	3.0	26.4	26.2	60.0	21.0	20.5
Middle	19.6	9.5	12.6	2.2	20.3	21.8	44.0	23.25	19.0
Terminal	16.2	3.0	12.0	3.0	17.2	16.6	30.3	25.33	17.77
Inclined									
Basal	17.4	12.6	14.4	2.6	18.2	22.0	52.0	18.75	18.5
Middle	17.4	9.4	11.0	2.4	16.0	21.0	46.0	20.0	16.66
Terminal	15.0	6.0	9.0	2.2	12.2	14.5	36.6	24.44	17.0
Inclined									
Basal	17.6	11.6	15.0	2.4	15.2	21.1	68.0	20.7	20.0
Middle	21.5	6.4	12.0	2.2	12.6	19.8	48.0	19.0	17.0
Terminal	15.0	7.2	10.2	2.0	11.6	14.4	30.0	25.3	16.66
Horizontal									
Basal	17.4	12.1	12.2	2.6	14.3	22.2	52.0	21.42	19.5
Middle	13.0	9.8	11.0	1.6	9.0	21.4	30.0	23.14	17.14
Terminal	13.4	9.0	7.6	1.2	6.0	14.3	16.6	23.42	16.66
S. E. (m) $\pm$	1.22	0.59	0.59	0.25	0.71	0.94			
C. D. (0.05)	3.47	1.67	1.68	0.72	2.03	2.97			

types of cuttings planted under different methods of planting (Table). In all the cases terminal cuttings sprouted earlier than the matured cuttings. Basal cuttings took comparatively more days under vertical planting whereas cuttings taken from the middle portion in inclined ( $30^\circ$ ) planting took more days for sprouting. Terminal cuttings planted horizontally sprouted earlier among all the treatments. The earliness in sprouting under horizontal planting was mainly due to greater availability of moisture and comparatively less desiccation. The high temperature inside the sand might have also favoured the sprouting of buds.

Significant variations in shoot height, leaf number and branch number were observed in different methods of planting and types of cutting. All these characters were favourably influenced with increased maturity of the cutting. The terminal and middle cuttings under horizontal planting gave taller shoots in comparison to other types of cuttings and other methods of planting. Greater availability of moisture and earlier sprouting of buds under horizontal planting may be attributed production of taller shoots. Basal cutting under vertical planting gave greater number of roots and length of roots since the shoot height was increased in this treatment inspite of delayed sprouting. Number of leaves and branches was

higher in all types of cuttings under vertical method of planting.

The root production was lower in horizontal planting as compared to the other three methods of planting in similar types of cuttings. Production of roots from the lower part of cut end, planted horizontally, is the reason for smaller number of roots. The root distribution was found uniform in the cut surface under vertical planting whereas abnormality in distribution was observed in both the inclined methods. The percentage of sprouting was decreased under horizontal because of decay of buds which could not sprout in the first instance and remained under prolonged darkness and excess moisture. The percentage of sprout was increased in basal cuttings under vertical method of planting because of healthier buds that remained viable for a long period and later produced more sprouts.

Dry matter in roots was low under horizontal method due to production of less roots but shoot dry matter was higher in this treatment due to quick sprouting.

#### REFERENCES

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