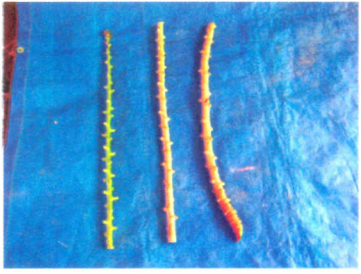
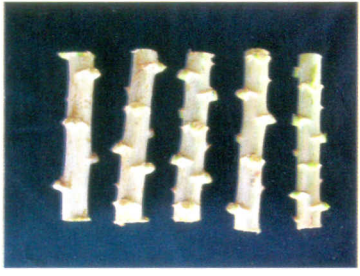
Traditional Multiplication Technique

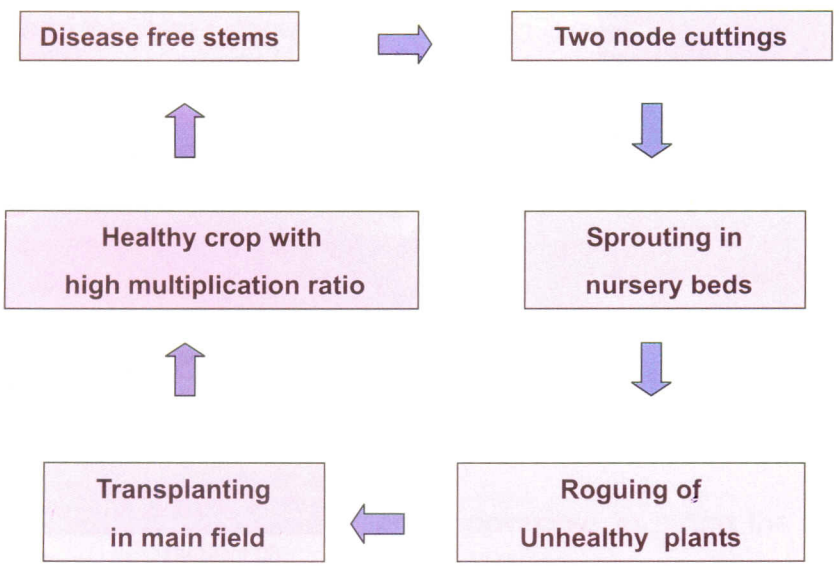
In the traditional system, mature stems are selected from which stakes of 20 cm length with 10 to 12 nodes are prepared after discarding the top one third and bottom woody portion of the stem. They are planted on mounds at a spacing of 90 x 90 cm.





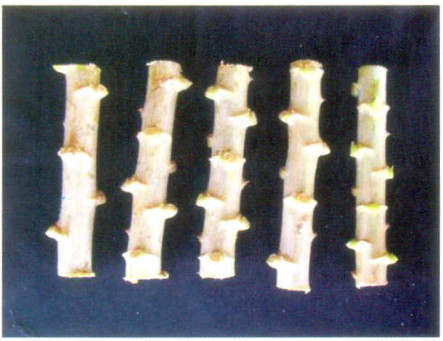
Minisett technique

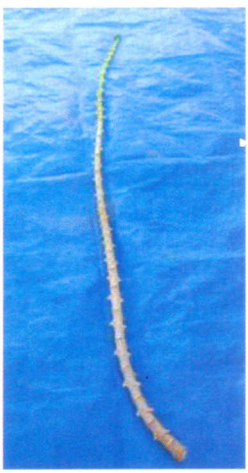
In traditional system, stakes of 20 cm length with 10 to 12 nodes (buds) are used as planting material. However, only two buds are normally allowed to sprout and then retained, while the rest are discarded and hence wasted. By minisett technique it is possible to utilize the potential of every bud to sprout and grow as a new plant and thus enhance the multiplication ratio. This technique has been developed on the concept that once the bud sprouts, the roots would start drawing nutrients from the soil and no more from the mother planting material. Therefore, the size of planting material actually may not matter, as far as sprouting is concerned. The sett size could hence be reduced to two nodes instead of the traditional 20 cm long setts with 10 to 12 nodes.



Comparison of multiplication ratio

Five stakes



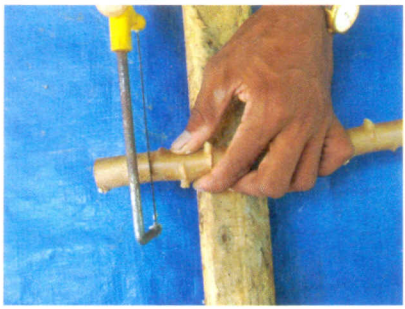


Traditional technique

Minisett technique

60 minisetts

For producing minisetts, first step is selection of mature, disease free stems (preferably those obtained from meristem culture).

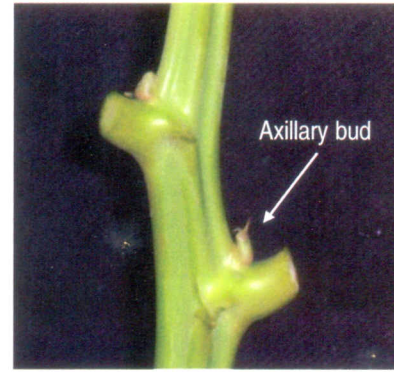


Two node cuttings are taken from these stems using a sharp hack saw. Top one-third portion is usually discarded in the traditional system, however in minisett technique it is also utilised.

Tip of the stem (about 5 to 6 cm long) is carefully cut without causing damage.

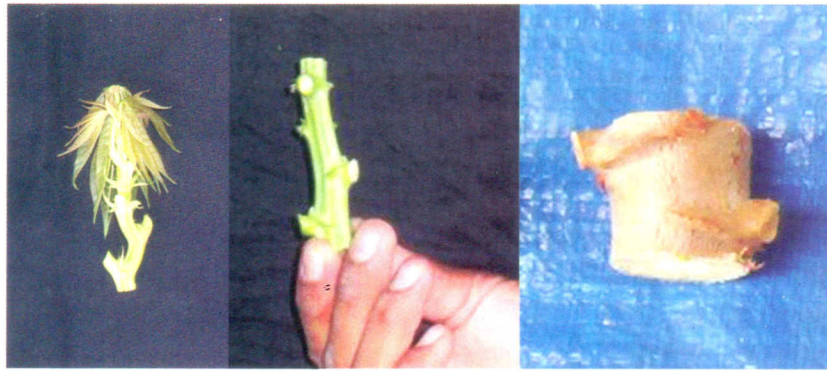
For preventing dehydration, it is advisable to place the tip cuttings in water.

The stem just below the growing tip is very tender with prominent axillary buds. Hence from this portion, cuttings with four nodes are taken instead of two as the latter may easily get dried up.



Take care not to damage the axillary buds.

The following are different types of minisetts produced from a cassava plant.



Tip cutting 4 node cutting 2 node cutting

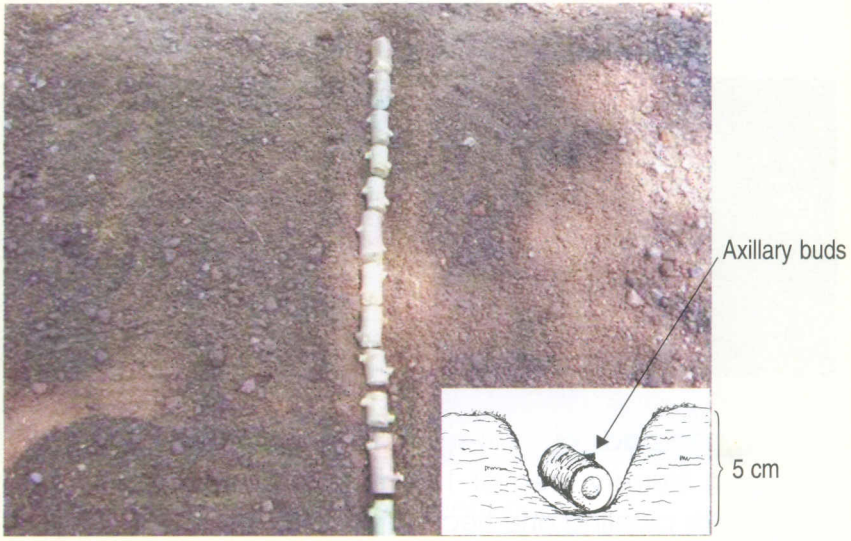
The next step is preparation of nursery. Select a well drained flat site, preferably near a water source for the nursery. Shade net house of 35 per cent shade is ideal for the germination and growth of minisetts.

Make raised beds of convenient length and mix the soil with fine sand. Nursery area of 145 m^2 is required for producing minisetts for planting one hectare of land.

The width of the nursery bed should be selected in such a way that the middle portion of the bed could be easily reached from either side by one's hand.

Raised beds of 1 metre width, convenient length and 20 cm height will be ideal .

Two node cuttings are planted end to end horizontally, about 5 cm deep, with the buds facing either sides.

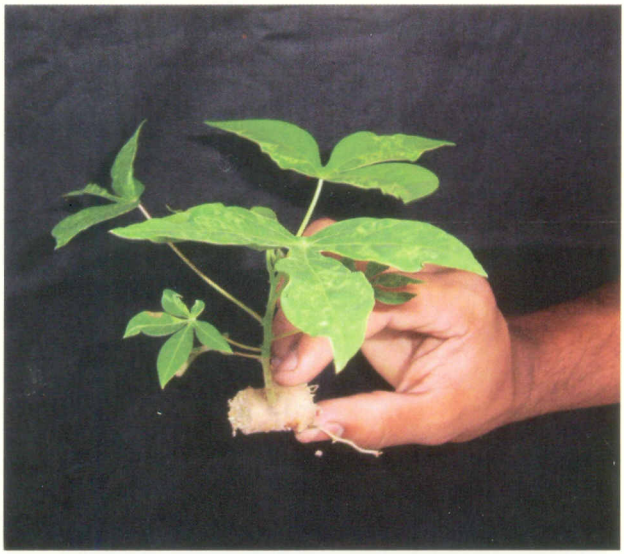


A spacing of 5 cm is provided between two rows.

Growing tips and four node top setts should be planted erect at 5 x 5 cm spacing to prevent decay due to excess moisture content in these tender parts.

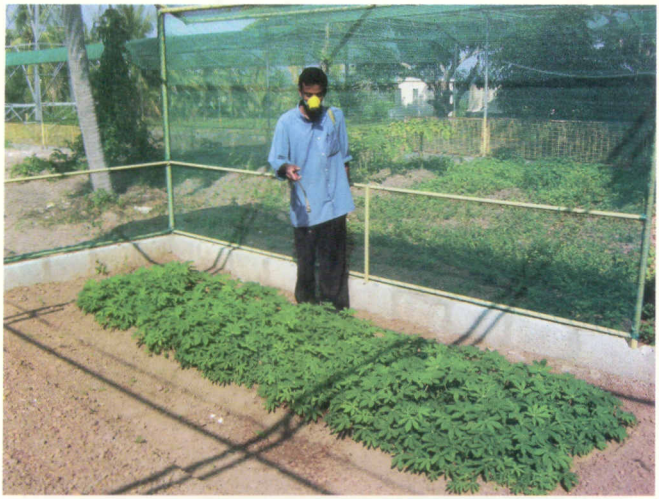
Irrigating frequently, preferably with micro sprinklers help in early sprouting and proper establishment of the minisetts.

Minisetts would sprout in a week's time.



Roguing of cassava mosaic virus infected plants should be done as soon as such symptoms are expressed, to keep the nursery disease free.

Weekly spray of systemic insecticide like Dimethoate @ 0.05% to control white flies that transmit cassava mosaic virus is advisable.



The minisetts will be ready for transplanting in about three to four weeks time.

The main field should be thoroughly ploughed and brought to a fine tilth. About 12.5 t ha^{-1} of FYM is spread in the field. Ridges of 30 cm height are taken at a spacing of 45cm between the ridges.

Minisetts are carefully uprooted from the nursery causing least injury to the root and plant.

A minisett ready to plant (30 days old).

Uprooted minisetts are then carefully planted on ridges at a spacing of 45 cm. Make sure that there is sufficient moisture in the soil.

The plants establish in a week's time.

NPK@50:50:50 kg ha^{-1} is applied one month after establishment along with intercultural operations. Second dose of fertilizers, 50:50 kg N and K ha^{-1} must be applied one month later along with the second weeding.

A view of two month old cassava crop raised from minisetts.

The plants mature in about 7 – 9 months time depending upon the variety.

On harvest from a hectare of land, about 60,000 cassava stems and 75 to 80 tons of tuber could be obtained. If minisett technique is adopted for further multiplication, about 70 ha could be planted in the next generation.

Multiplication ratio in cassava planting material by this process is enhanced to 1:60 from the traditional 1:10.