TURMERIC PROTRAY NURSERY

A TECHNOLOGY BOON TO FARMERS

Dept. of Spices and Plantation Crops
Tamil Nadu Agricultural University
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Why protray technology ?

Turmeric is vegetatively propagated by means of underground rhizomes. Due to unavailability of better quality and high yielding seed rhizomes to cater current requirements of the growers, the production of turmeric transplants through rapid multiplication technique is the only way to meet out the demand of seed rhizomes.

RAPID MULTIPLICATION OF TURMERIC USING SINGLE BUD RHIZOME

(Stepwise procedure)

Drying of seed rhizomes
(1- 1½ months after harvest)

Description of the technology

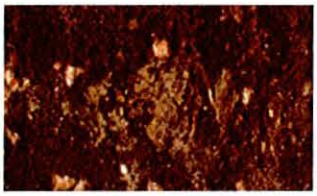
- **Planting material : Finger rhizome with single bud**
- **Seed rhizome rate : 600 – 750 kg / ha**
- **Media : Cocopeat + *Pseudomonas fluorescens***
- **Growing condition : 50% Shade net with micro irrigation**
- **Nursery : 30 days in protrays**

Advantages

- **Less requirement of planting material (750 Kg/ha)**
- **Reduced cost of production (less quantity of seed rhizome)**
- **Good crop establishment (98-100 percent)**
- **Early rhizome development (starts from three months after planting)**
- **Suitable for planting in the raised beds as well as ridges and furrows**
- **Extended period of planting is possible**
- **25% yield increase over direct rhizome planting**
- **Production of quality planting material**

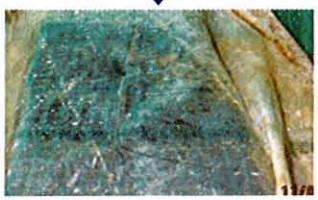
Seed rhizome treatment (Carbendazim @ 2 g/l + Monocrotophos @ 1.5 ml/l)

Rhizomes are cut into small pieces with single bud (5 to 7 grams)

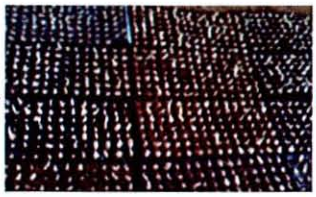


Covering the single bud rhizome with cocopeat (0.5% humic acid treated)

Sowing of sprouted single bud rhizome in protray (Cocopeat (100 g) + *Pseudomonas fluorescens* (1 g)



Covering the protrays with polythene sheet (seven days)



Removal of polythene sheets after sprouting. Regular watering of protrays kept under 50% shade

Spraying of humic acid (0.5%) after emergence of leaf

Rhizome sprouts are ready for transplanting (30-35 days)

Vigorous shoot & root growth during transplanting (30-35 days)

Transplanting of turmeric rhizome sprouts

Comparison of growth on Direct planting Vs Transplanting of turmeric

Growing Phase	Direct planting method	Transplanting method (Single bud rhizome)
1. Sprouting phase	20 DAP 	Plants have 3-4 leaves (1 month old) 
2. Vegetative phase (i) One month after planting	2-3 leaves/plant 	6-7 leaves/plant 
(ii) Tillering stage	3 MAP 	1½ – 2 MAP 
3. Rhizome development phase	Starts from 5 MAP 	Starts from 3 MAP 
4. Rhizome maturation phase	7 – 9 MAP 	6 – 7 MAP 

Production cost of single bud rhizome transplants

A) Transplants production cost (875 protrays/ha)	Cost (Rs.)
1. Protray (Rs.6/No.)	5,250
2. Cost of growing media	2,500
3. Cost of rhizome (750 kg @ Rs. 10/kg)	7,500
4. Labour charge	3,750
Total	19,000
B) Cost saving	**Cost (Rs.)**
(i) Requirement of seed rhizome (2500 kg/ha @ Rs.10/kg) for conventional method	25,000
(ii) Requirement of transplants (80,000 transplants/ha @ Rs.0.24/ transplant) for protray technique	19,000
Reduced cost	6,000
C) Benefits due to reduction in the cost	1.32

COMPARATIVE COSTING: Turmeric transplants Vs. Direct planting

Cost/acre	Turmeric transplants		Conventional	
Items of expenditure	Quantity/unit	Cost (Rs.)	Quantity/unit	Cost (Rs.)
Planting material	80,000 nos. (Rs.0.24/transplant)	19000	2500 Kg (Rs.12/kg)	25000
Irrigation costs	35 (drip irrigation)	10500	40	12000
Intercultural operations (hoeing, weeding)	40	6000	48	7200
Total		35,500		44,200
Saving by transplant method	Rs. 8700			

ECONOMIC EVALUATION

Particulars	Turmeric transplants	Conventional
Revenue @ Rs. 12/kg	Rs. 4,56,000 (38 tons/ha)	Rs. 3,84,000 (32 tons/ha)
Cost of cultivation / ha	Rs. 35,500	Rs. 44,200
Net income / ha	Rs.4,20,500	Rs. 3,39,800
Additional income from transplant method	Rs. 80,700	

Save time **Gain more** **Save money**

CONTACT

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