ABSTRACT

Agriculture and Farmers Welfare – Tamil Nadu Agricultural University – Announcement made by the Hon'ble Minister for Agriculture and Farmers Welfare during Agriculture and Farmers Welfare Department Budget 2021-2022 – **"Establishment of new Research Centre for Turmeric at Bhavanisagar"** – Administrative approval and financial sanction for a sum of Rs.2.00 crore - Accorded - Orders - Issued.

AGRICULTURE AND FARMERS WELFARE (AU) DEPARTMENT

G.O.(Ms).No.236 **Dated: 09.12.2021**
திருவள்ளுவர் ஆண்டு 2052
பிலவ வருடம்
கார்த்திகை திங்கள் 23–ஆம் நாள்

Read:

From the Registrar, Tamil Nadu Agricultural University, letter No.TNAU-Agriculture Budget Speech Announcements-2021- Sl.No.67-Proposal, dated: 8.09.2021.

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ORDER:

During the Agriculture and Farmers Welfare Department Budget 2021-2022, the Hon'ble Minister for Agriculture and Farmers Welfare has made the following announcement on the Floor of the Assembly :-

"**67. <u>Turmeric Research Centre in Erode District</u>**

In Tamil Nadu, turmeric is cultivated in an area of 20,000 hectares with a production of around 96,000 metric ton and Tamil Nadu stands fifth at the National level. Considering the significance of turmeric, it is planned to establish a new Research Centre for Turmeric in Bhavanisagar of Erode District in an area of about 100 acre. An amount of Rs.2 Crore will be provided by the State Government."

2. The Registrar, Tamil Nadu Agricultural University in his letter read above has stated that turmeric, one of the important spice crops of India is cultivated in an area of 2.53 lakh hectares, with Telangana leading in area and production followed by Maharashtra and Tamil Nadu. India is the largest producer of turmeric in the world. But still India imports turmeric from other countries for want of varieties with high curcumin content. In turmeric, the colouring pigment is of utmost

importance and is used in diversified forms starting from antiquity as dye, condiment, as a principal ingredient in Indian culinary as curry powder, as flavouring agent and as colouring agent. Turmeric is also used as a dye in textile industry, in cosmetics, preparation of medicinal oils, ointments and poultice. Extensive researchers have proven that most of the research activities on turmeric are due to curcumin. The major antioxidative components found in turmeric are Curcumin, demethoxycurcumin and bis-demetoxycurcumin. The initial quality of the turmeric rhizomes and various post harvesting processes affect the end quality of turmeric products. Physical properties of the turmeric rhizomes are important to design and fabricate processing equipment.

3. The Registrar, Tamil Nadu Agricultural University has also stated that the emphasis is to improve the quantity and as well as quality in our own varieties and local varieties which are well suited to Erode eco-climatic conditions. By improving and upgrading characteristic features of our own varieties we can reduce the middleman cost and finally farmers end up with profit. If this scenario continues for long periods, farmers won't shift their cultivation to another crop.

4. The following are the objectives of Establishment of new Research Centre for Turmeric at Bhavanisagar:-

(i) Collection and maintenance of turmeric germplasm and development of improved varieties of turmeric for industrial purpose;

(ii) To strengthen research on crop improvement, crop management, crop protection, post-harvest and value addition in turmeric;

(iii) Supply of quality planting materials of turmeric varieties;

(iv) To conduct demonstration plots and adaptive research trials in the farmer's field; and

(v) To conduct farmer's training programme and impart hands on training to the farmers on improved technologies in turmeric;

5. The staff strength required for this project is:-

Professor (Horticulture)	1 No.
Assistant Professor (Horticulture)	2 Nos.
Assistant Professor (Agricultural Entomology)	1 No.
Assistant Professor (Plant Pathology)	1 No.

The Staff component proposed above will be deployed from existing Tamil Nadu Agricultural University position and Grant-in-aid fund.

6. The activities involved in this project are as follows:-

The Turmeric Research Station will work on the strategies to increase the production and productivity of turmeric. The major thrust areas on research are-

Evolving high yielding varieties with high curcumin content

- Survey and collection of turmeric genotypes from different parts of the turmeric growing regions of the country
- Continuous evaluation, selection and characterization
- Molecular characterization and DNA profiling of elite, trait specific genotypes
- Application of advanced breeding tools.
- Conduct of Multi location Trials and Adaptive Research Trials.

Evolving varieties resistant to rhizome rot and foliar diseases

- Continuous screening of germplasm for resistance to rhizome rot and foliar diseases
- Conduct of Multi location trials (MLT) and On Farm Trials (OFT).
- Addressing the field level problems through field visits.

Research on improved scientific management practices

- Production and supply of disease free quality planting materials
- Strengthen the research on Plant Growth Promoting Rhizobacteria (PGPR) studies, Integrated Nutrient Management (INM), Integrated Pests and Disease Management (IPDM), drought management, mechanization, etc.

Post harvest management and value addition

- Cost effective processing technologies for different products
- Value addition in the primary and secondary products of turmeric suitable for pharmaceutical, cosmetic and curcumin industries
- Establishment of a small processing unit with mini steam boiler, grinding machine, weighing machine, etc.

Quality testing laboratory

- Establishment of laboratory for analysis of moisture, starch, crude fibre, curcumin, essential oil, oleoresin content, lead and chromium traces in the samples (Related equipments *viz*. UV-VIS Spectrophotometer, Clevenger apparatus, etc. will be procured)

Turmeric Value chain

Enhancement of quality of the produce through adoption of improved production technologies and post-harvest technology in cluster approach.

7. The Beneficiaries are as follows:-

With a view to address key challenges in production and value addition of turmeric in the State, establishment of Turmeric Research Station at Bhavanisagar, Erode will be beneficial to the turmeric growing farmers of Erode and adjoining districts *viz.*, Salem, Tirupur, Coimbatore, Karur and other parts of the Tamil Nadu. Not only the farmers, input suppliers, small village level traders, local aggregators, Farmers Producer companies, processors, industrialists, exporters will all be benefited with a marginal difference.

8. The Budget requirement for the project is as follows:-

S. No.	Particulars			Amount (Rupees in lakh)
1.	a. Renovation of the existing building at T block of Agricultural Research Station, Bhavanisagar with staff room and office rooms			18.00
	b. Establishment of laboratories with accessories			12.00
	(i)	Construction of laboratory cum genetic resources storage room	10.50	
	(ii)	Work Table	0.70	
	(iii)	Multiple racks	0.50	
	(iv)	Office table, chairs, etc.	0.30	
		Total	12.00	
	Grand Total			**30.00**
2.	Research Component Fund			
	1	**Evolving high yielding varieties with high curcumin content**		
		a. Survey and collection of turmeric genotypes from different parts of the turmeric growing regions of the country b. Continuous evaluation, selection and characterization	5.00	

	c. Molecular characterization and DNA profiling of elite, trait specific genotypes	10.00		
	d. Application of advanced breeding tools.			
	e. Conduct of Multi location Trials and Adaptive Research Trials.	5.00	**20.00**	
2.	**Evolving varieties resistant to rhizome rot and foliar diseases**			
	• Continuous screening of germplasm for resistance to rhizome rot and foliar diseases • Conduct of Multi Location Trials (MLT) and On Farm Trials (OFT). • Addressing the field level problems through field visits.	5.00	**5.00**	
3.	**Research on improved scientific management practices**			
	• Production and supply of disease free quality planting materials • Strengthen the research on Plant Growth Promoting Rhizobacteria (PGPR) studies, Integrated Nutrient Management (INM), Integrated Pests and Disease Management (IPDM), drought management, mechanization, etc.	10.00	**10.00**	
4.	**Post-harvest management and value addition**			
	• Cost effective processing technologies for different products • Value addition in the primary and secondary products of turmeric suitable for pharmaceutical, cosmetic and curcumin industries	15.00	**15.00**	

		• Establishment of a small processing unit with mini steam boiler, grinding machine, weighing machine etc. • Turmeric value chain - A detailed value chain map of the value addition of turmeric including cost of production and distribution of margin along the chain will be prepared.				
	Grand Total					50.00
3.	Strengthening of the fencing system					30.00
4.	Land development and soil reclamation					20.00
	I	**Land Development**				
	1.	Clearing and levelling		5.00		
	2.	Bund formation		2.50		
	II	**Soil reclamation**				
	1.	Soil breeding		7.50		
	2.	Enriching the organic status of the soil		5.00		
		Total		**20.00**		
5.	Creation and strengthening of road facilities					15.00
6.	Operational expenses *viz.*, clearing of bushes, development of site for field experiments					20.00
7	Improving the irrigation facilities cum 3 phase electricity system					15.00
8	Farm implements, processing equipments and instruments related to quality testing					20.00
	I	**Farm Implements**				
	1.	Tractor with accessories (disc plough, five tyne cultivator, raised bed former)	1 each	8.00		
	2.	Turmeric boiler (TNAU model) 250 kg capacity		1.00		
	3.	Turmeric polishing drum		1.00		
	II	**Instruments for quality testing laboratory**				
	1.	UV-VIS Spectrophotometer		4.50		
	2.	Clevenger apparatus		0.25		
	3.	Soxhlet apparatus	1 set	0.25		

4.	Instrument for quick estimation of curcumin		2.50	
5.	Distillation unit for moisture content analysis		0.30	
6.	Glasswares and other lab accessories		0.70	
7.	Chemicals and standards		1.50	
		Total	**20.00**	
			Total	**200.00**

9. The outcome of the project is as follows:-

- Development of improved varieties with high curcumin content
- Distribution of quality planting materials to the farmers
- Development of hygienic post-harvest management practices and value additions.
- Enabling the farmers and extension officials with latest technical knowhows.

10. The Government, after careful examination of the proposal of the Registrar, Tamil Nadu Agricultural University and considering the outcome of proposed project on its implementation, hereby accord sanction for a sum of Rs.2.00 crore (Rupees Two Crore only) for **"Establishment of new Research Centre for Turmeric at Bhavanisagar"** as detailed below:-

S. No.	Particulars	Amount (Rupees in lakh)
1.	Renovation of the existing building at 'T' block of Agricultural Research Station (ARS), Bhavanisagar with staff room, office rooms, laboratory facilities	30.00
2.	Research Component Fund	50.00
3.	Strengthening of the fencing system	30.00
4.	Land development and soil reclamation	20.00
5.	Creation and strengthening of road facilities	15.00
6.	Operational expenses *viz.*, clearing of bushes, development of site for field experiments	20.00
7	Improving the irrigation facilities cum 3 phase electricity system	15.00
8	Farm implements, processing equipments and instruments related to quality testing	20.00
	Total	**200.00**

11. The expenditure sanctioned in para 10 above shall be debited to the following head of account:-

Head of Account	Amount (Rupees in lakh)
2415-AGRICULTURAL RESEARCH AND EDUCATION - 01 - Crop Husbandry-004 Research - State's Expenditure - AO - Establishment of Turmeric Research Centre at Erode - 309-Grants-in-Aid- 02 - Grants for Creation of Capital Assets (IFHRMS DPC 2415-01-004-AO-30902)	200.00
Total	**200.00**

12. The Joint Director of Agriculture, Coimbatore is authorized to draw the amount sanctioned in para 10 above and disburse the same to the Tamil Nadu Agricultural University, Coimbatore.

13. This order issues with the concurrence of Finance Department vide its U.O.No.237/JS(GKT)/Agri.&FW/2021, dated 08.12.2021.

(BY ORDER OF THE GOVERNOR)

C. SAMAYAMOORTHY
AGRICULTURAL PRODUCTION COMMISSIONER
AND SECRETARY TO GOVERNMENT

To
The Registrar, Tamil Nadu Agricultural University, Coimbatore – 3.
The Director of Local Fund Audit, Chennai – 108.
The Deputy Director of Local Fund Audit, Coimbatore-3.
The Principal Accountant General (A&E / Audit / AAD / G&SSA / E&RSA), Chennai-18.
The Resident Audit Office, Office of the Principal Accountant General (Social Sector Audit), Chennai-9.

Copy to:-
The Special Personal Assistant to the Hon'ble Minister for Agriculture and Farmers Welfare, Secretariat, Chennai-9.
The Senior Private Secretary to the Agricultural Production Commissioner and Secretary to Government, Agriculture and Farmers Welfare Department, Chennai-9.
The Assistant Programmer, Agriculture and Farmers Welfare Department, Chennai -9
The Finance (Agri. & F.W.) Department, Chennai-9.
The Agriculture and Farmers Welfare (OP3) Department, Chennai -9.
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SECTION OFFICER

09/12/2021