



ABSTRACT

Agriculture and Farmers Welfare – Tamil Nadu Agricultural University – Announcement made by the Hon'ble Minister for Agriculture and Farmers Welfare during the Agriculture and Farmers Welfare Department Demand 2021 – 2022 - **“Strengthening the research on Nano Technology by upgrading the Department of Nano Technology in Tamil Nadu Agricultural University”** at a total cost of Rs.2.00 crore under Government of India's Fund and Private Sponsor – Approval – Accorded - Orders – Issued.

AGRICULTURE AND FARMERS WELFARE (AU) DEPARTMENT

G.O.(Ms) No.163

Dated:26.10.2021

திருவள்ளூர் ஆண்டு, 2052

பிளை வரூடம், ஐப்பசி

Read:

1. From the Registrar, Tamil Nadu Agricultural University letter No.TNAU- Honourable Minister's Announcements -2021, Sl.No.20 Proposal, dated 18.09.2021.
2. From the Vice Chancellor, Tamil Nadu Agricultural University Letter No.TNAU- Honorable Minister's Announcements -2021 - Sl.No.20 Proposal, dated 01.10.2021.

ORDER:

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

20. நானோ தொடர்பான ஆராய்ச்சியை பஸ்படுத்துவதற்கு, தமிழ்நாடு வேளாண்மைப் பல்கலைக் கழகத்தின், நானோ தொழில்நுட்பத் துறையானது, இரண்டு கோடி ரூபாய் நிதியில் நானோ வேளாண்மை தொழில்நுட்ப மையமாக மேம்படுத்தப்படும்.

2. The Vice Chancellor, Tamil Nadu Agricultural University in his letter second read above has stated that the Tamil Nadu Agricultural University is being the torchbearer of developing nano-technologies and is

in the process of commercialization of products to benefit large number of farmers. The Department of Nano Science and Technology is currently working on nano-inputs (nano-fertilizers, nano-herbicides, nano-pesticides), biosensors (seed sensor and early detection of diseases), food systems (nano-films and nano encapsulation of functional foods) besides nano-remediation of pollutants in soil and aquatic systems. The Nano centre is fostering multi-faceted research collaborations with national and international organizations.

3. The Center has developed nano-formulation, nano-stickers and nano-pellets that are proved to extend shelf-life of fruits (mango and banana) by 1 - 2 weeks that assist in price stabilization and additional income due to the reduction in post-production losses which constitute 30 - 35% for perishables. These products have been extensively tested, validated and proved effective in major mango and banana growing districts of the State.

4. Further, the smart delivery of nano-agri inputs developed by the center such as Rhizoboost, Nano-Vigour and Nano-Revive, Nano-bio pesticides and Nano-lure have shown to promote productivity of crops under low input or constraints of soil moisture and also to manage the challenging pests and diseases. These inputs improve the nutrient and water use efficiencies besides economizing the cost of production.

5. The details of Nano technologies under adoption are as follows:

- Nano-fibre based Multi Nutrients Delivery to Achieve Balanced Nutrition for Pulses and Groundnut
- Tamil Nadu Agricultural University Rhizo Boost
- Polymeric nano formulation for preventing fungal growth in coconut copra
- Nano bio formulation for the effective deodorization and decomposition of vegetable, food and slaughter house wastes
- Nano Biopesticide for the management of Tea Mosquito Bug and other pests

6. The Justification / Rationale of the Project are as follows:-

Nanotechnology is a fast-evolving field and various nano inventions made by the Department of Nano Science and Technology can be converted into nano products for the benefit of the farmers, industries and agro entrepreneurs. Considering the impressive track record of the Department of Nano Science and Technology, its accomplishments, and the potential role it could play in transforming agriculture in the State through cutting edge technologies and products, it has now been decided to upgrade it as Centre for Agricultural Nanotechnology (CANT). This shall certainly strengthen the research in nanotechnology and enable

conversion of techniques into technologies to achieve the yield and productivity targets set by the Tamil Nadu State Government.

7. The objectives of the project are as follows:-

- Strengthening the research in nanotechnology based on the market demand/field problems
- Developing biosafety protocols for screening nano products
- Fast Commercialization of nano inventions into products for the benefit of the farming community

8. The duration of the project is 12 months and the activities covered in this project are as follows:-

- Enable commercially viable nano-products, processes and gadgets for the use at the farm gate;
- Strengthen infrastructure to cater to the needs of advanced education and research;
- Establish fast track bio-safety assessment protocols; and
- Derive solution to unresolved field problems faced by the farmers

9. The beneficiaries are as follows:-

- Farmers
- Agro entrepreneurs
- Agro based industries
- Students and researchers

10. The budget requirement for the project is as follows:-
(Source of Funding: Government of India's Fund and Private Sponsor)

S. No.	Facility / Equipment	Cost (Rupees in Lakh)	Remarks
1	Establishing Nano Formulation pilot production facility for product commercialization	100	Cost inclusive of retrofit provision and basic equipments
2	Establishing Biosafety Unit for screening the products before commercialization	100	This facility can also be used to test nano products for biosafety from other institutes/companies on cost basis.
	Total	200	

(i) Item-wise details of the scheme:-

S. No.	Title of the Scheme	Item	Head of Account	Sponsor
1.	DBT - Bioplastic - Establishing rural bio resource centre for the production of Nano bio polymer (bio plastic) from agro-cellulosic wastes and dry land succulent plants	Establishing Nano Formulation pilot production facility for product commercialization	E28AFK	Government of India, Ministry of Science & Technology, Department of Biotechnology
2.	EID Parry (Phase I) - Developing cost effective and biodegradable mulching sheet, grow bags from bagasse fibres and value addition of grow medium through hydrogel and nano nutrients	Establishing Nano Formulation pilot production facility for product commercialization	F37AJT	Private Agency - EID Parry, Chennai
3.	EID Parry (Phase - II) - Insights into molasses based Potash and bio slurry and value addition through Nanotechnological interventions	Establishing Nano Formulation pilot production facility for product commercialization	F37AJT	Private Agency - EID Parry, Chennai
4	Insights and Biosafety of IFFCO nano fertilizer in Agricultural Production System and Design and fabrication of a customized Nano - Fertilizer formulation for Drone enabled delivery of nitrogen for improved use efficiency and environmental safety	Establishing Nano Formulation pilot production facility for product commercialization	F37AJP	IFFCO, Chennai

5.	Nanofibre encapsulation of <i>Methylobacterium</i> for Groundnut seed invigouration to improve productivity under rainfed ecosystem.	Establishing Nano Formulation pilot production facility for product commercialization	E28AEX	Government of India - Department of Science & Technology, Science & Engineering Research Board (SERB)
6.	Double encapsulated nano composite granules for the staged delivery of herbicides and growth stimulant to control striga, a parasitic weed in sugarcane	Establishing Biosafety Unit for screening the products before commercialization	E28AFO	Government of India - Department of Science & Technology
7.	Developing Chitosan Nano formulation as an alternate to toxic sulphur for the safe preservation of coconut copra	Establishing Biosafety Unit for screening the products before commercialization	E28AEK	Government of India - Coconut Development Board - Ministry of Agriculture & Farmers Welfare
8.	Transforming coconut waste into high value carbon dots (C-Dots) and Development of Nanobased Technology for Disinfection of water	Establishing Biosafety Unit for screening the products before commercialization	E28AEL	Government of India - Coconut Development Board - Ministry of Agriculture & Farmers Welfare
9.	NanoBeelure - A novel nano based honeybee lure dispenses mechanism to increase pollination in vegetable crops	Establishing Biosafety Unit for screening the products before commercialization	E28AFG	Government of India, Ministry of Science & Technology, Department of Science & Technology, SEED Division
10.	Flexible and adhesive surface enhanced Raman Spectroscopy based Nano structures device for efficient detection of multicomponent pesticide residues in fruits and vegetables	Establishing Biosafety Unit for screening the products before commercialization	E28ADU	Government of India, Ministry of Science & Technology, Department of Biotechnology

(ii) Item-wise time line required for implementation of the scheme

Sl. No.	Item	Time line
1	Establishing Nano Formulation pilot production facility for product commercialization	5 months
2	Establishing Biosafety Unit for screening the products before commercialization	7 months

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

- Quick commercialization of nano inventions into products for the benefit of the farming community.
- The center can concentrate on market driven nano research to resolve unresolved field problems.
- Various nano systems can be more efficiently used as functional molecules and delivery vehicles for enhancing the productivity in various crops besides minimizing post-harvest losses.

12. After careful examination and considering the outcome of proposed project on its implementation, the Government accord approval to the Vice Chancellor, Tamil Nadu Agricultural University for **“Strengthening the research on Nano Technology by upgrading the Department of Nano Technology in Tamil Nadu Agricultural University”** at a total cost of Rs.2.00 crore (Rupees Two Crore only) as detailed below under Government of India’s Fund and Private Sponsor:-

S. No.	Facility / Equipment	Cost (Rupees in crore)
1	Establishing Nano Formulation pilot production facility for product commercialization	1.00
2	Establishing Biosafety Unit for screening the products before commercialization	1.00
	Total	2.00

13. This order issues with the concurrence of Finance Department vide its U.O.No.45252/Agri.&FW/2021, dated: 21.10.2021.

(BY ORDER OF THE GOVERNOR)

**C. SAMAYAMOORTHY
AGRICULTURAL PRODUCTION COMMISSIONER
AND SECRETARY TO GOVERNMENT**

To

The Vice Chancellor, Tamil Nadu Agricultural University, Coimbatore – 3.

The Director of Local Fund Audit, Chennai – 108.

The Deputy Director of Local Fund Audit, Coimbatore.

The Principal Accountant General (A&E/Audit/AAD/G&SSA/E&RSA),
Chennai-18.

The Resident Audit Officer, 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 (Agriculture and Farmers Welfare) Department, Chennai-9.

The Agriculture and Farmers Welfare (OP3) Department, Chennai -9.

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C.No.20011/AU/2021

//FORWARDED/BY ORDER//

சு. சமயமூர்த்தி
27/10/2021
SECTION OFFICER

சு. சமயமூர்த்தி
27/10/2021

