PROPOSAL FOR THE GRANT

of

STUDENT PROJECT SCHEME (TNSCST)

on

SEED AUGMENTATION IN GROUND-NUT

Submitted to

TAMILNADU STATE COUNCIL FOR SCIENTIFIC AND TECHNOLOGY

DOTE CAMPUS,

CHENNAI-600 025.

Submitted By

Students Name	Register No.
RAHUL A	721820108017
NAVEENKUMARRAJA V	721820108013
AAQIL HUQ N	721820108001

Department of Agricultural Engineering

Rathinam Technical Campus

(Autonomous)

Approved by AICTE, New Delhi & Affiliated to Ama University,
Chennai Accredited by NAAC with A+ Grade.

Rathinam Techzone, Pollachi Main Road,

Eachanari, Coimbatore - 641 021, Tamilnadu, India.

TAMILNADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY

STUDENT PROJECT PROPOSAL

1. Name of the Student (s):

S. No	Name of the student	E-Mail ID	Phone No
1	RAHUL A	aasairahul6@gmail.com	+91 6385705660
2	NAVEENKUMARRAJA V	vnaveenkumarraja@gmail.com	+91 7904077239
3	AAQIL HUQ N	aakileicher@gmail.com	+91 7339555015

2. Name of the Guide : **Mr.T. PRABHU**

Department/Designation : **AGRICULTURAL ENGINEERING /ASSISTANT PROFESSOR**

Institutional Address : **RATHINAM TECHNICAL CAMPUS, POLLACHI ROAD, EACHANARI, COIMBATORE- 641021.**

Phone No. & Mobile No. :**8667074778**

3. Project Title : **Seed Augmentation in Ground-nut**

4. Sector in which your Project proposal is to be Considered : **AGRICULTURAL SCIENCES**

5. Project Details :(write up (max. 3 pages only) should be given foreach item including justification for acquiring / fabricating equipment's / apparatus in the budget)

i. Introduction ii. Objectives

iii. Methodology iv. details Work Plan

v. Budget vi. Any other

6. Has a similar project been Carried out in your college / elsewhere? If so, furnish details of the previous project and highlight the improvements suggested in the present one : No

CERTIFICATE

This is to certify that **Mr. RAHUL A (721820108017)** is a bonafide final year student of U.G. Engineering of our college and it is also certified that two copies of utilization certificate and final report along with seminar paper will be sent to the Council after completion of the project by the end of May 2024.

Signature of the Guide **Signature of the HOD** **Signature of the Principal/ Head of the institution**

Seed Augmentation in Ground-nut

INTRODUCTION:

Agriculture encompasses both the art and science of cultivating soil, cultivating crops, and raising livestock. It involves the careful preparation of agricultural products from plants and animals, with a focus on their efficient production. Additionally, agriculture plays a crucial role in providing essential food and resources for human consumption. Finally, it involves the distribution of these products to various markets, ensuring a steady supply of food and other agricultural commodities for society. Organic farming is a sustainable method of agricultural production characterized by its commitment to natural processes and ecological balance. It fundamentally rejects the use of synthetic substances, including pesticides, synthetic medicines, and chemical fertilizers. Instead, organic farming relies on natural methods like crop rotation, composting, and biological pest control to enhance soil fertility and protect crops from pests and diseases. Furthermore, genetically modified organisms (GMOs) are prohibited in organic farming, promoting the preservation of traditional crop varieties and biodiversity. This approach aims to minimize environmental impact, reduce chemical residues in food, and foster healthier ecosystems. Organic farming often promotes the well-being of animals, emphasizing ethical treatment and access to natural environments for livestock. Overall, organic farming prioritizes sustainability, environmental stewardship, and the production of wholesome, chemical-free food while promoting a holistic and eco-friendly approach to agriculture. Early explorers discovered extensive cultivation of this plant in both Mesoamerica and South America. Pericarp tissue remnants, specifically fruit hulls, recovered from archaeological sites in Peru, provide evidence of its deliberate agricultural utilization in that region dating back approximately 3900–3750 years before the present (YBP). Organic agriculture is practiced in 187 countries, and 72.3 million hectares of agricultural land were managed organically by at least 3.1 million farmers. With the most organic agricultural land in Australia (35.69 m hectares) followed by Argentina (3.63 m hectares) and the Spain (2.35 m hectares). Asia has approximately 10% of the world's organic agricultural land. There were 731'315 producers reported. The leading countries by area are China (1.9 million hectares) and India (1.2 million hectares). India as on 31st March 2023 total area under organic certification process (registered under National Programme for Organic Production) is 10.17 mha (2022-23). This includes 5391792.97 ha cultivable area and another 4780130.56 ha for wild harvest collection. Tamil Nadu ranks 14th in the country in organic farming with 31,629 hectares of organic farm land. It includes 14,086 hectares of organic certified area and 17,543 hectares under the process of certification. India With annual all-season coverage of 54.2 lakh hectares, globally, India ranks first in Groundnut area under cultivation and is the second largest producer in the world with 101 lakh tonnes with productivity of 1863 kg per hectare in 2021-22 (agricoop.nic.in).

According to 1st advance estimates during 2022-23, groundnut was grown in 6.04 lakh hectares with a production of 4.87 lakh tonnes and productivity was 806 kg/ha Tamil Nadu. In Kharif 2021-22, groundnut production was 82.54 lakh tones (1st advance estimates) in an area of 49.14 lakh hectares (Agricoop.) In Kharif 2022-23, groundnut production was 83.69 lakh tonnes (1st advance estimates) in an area of 45.53 lakh hectares (Agri coop. Nic). Though groundnut is primarily used as oil seed crop, some of the groundnut varieties are recommended as table purpose for direct consumption because of its high food value in terms of higher protein (22%), carbohydrates (10%), minerals (3%), niacin (17 mg 100g-1) and vitamin B (1mg 100g-1) especially thiamine content.References-1: Indian Journal of Agronomy 57 (4): 386__389 (December 2012) -Uttar Banga Krishi Viswavidyalaya, Pundibari, Cooch Behar, West Bengal 736 165, Studies on organic cultivation of groundnut (Arachis hypogaea) in Cooch Behar. References-2: Research Journal of Agricultural Sciences. 7(2): 300-303, March-April (2016)- ISSN: 0976-1675 https:// www.rjas.org DI: 3072-0411-2015-080. Evapotranspiration, Yield Attributes and Growth Parameters Influenced by Organic Nutrient Management of Groundnut.to refer this two Research Paper to feeding in new pesticide and fertilizer in groundnut plants. T_1, T_2 and T_3 this process to find in organic tablet, vermicompost and ash use to calculate the groundnut plant growth and yield capacity to find out.

The objective of the research work is to study the effect of seed enhancements treatment on

1. Growth parameter in Ground-nut.
2. Yield parameter in Ground-nut.
3. Resultant seed quality in Ground-nut.

METHODS

In the field experiment conducted in Paganatham, located at 10.8378° N latitude and 78.0531° E longitude in Karur District, the study covered the crop growth period from December 2022 to April 2023. The study area experienced a weekly mean maximum temperature of 30.1°C, a weekly mean minimum temperature

of 28.6°C, and a weekly mean relative humidity ranging from 51.5% to 86.5%. Sunshine hours averaged 4.2 hours, with an evaporation rate of 3.7 mm/day and a wind velocity of 6.1 km/h. Rainfall totaled 150.8 mm over 15 rainy days.

TREATMENT

1. **T_0**- (control).
2. **T_1**- (bio-organic tablet [Aloe vera 1%+Aadathoda leaf 0.5%+Neem leaf 0.5%+Nochi leaf 0.5%+Erukku leaf 0.25%+Castor leaf 0.25%]).

The soil in the experimental site was categorized as red soil loam with a pH level of 6-6.5 in untreated soils, but in sludge-treated soil, the pH was reduced to 5.0. The chemical composition of the red soil indicated the presence of non-soluble material (90.47%), iron (3.61%), aluminium (2.9%), organic matter (1.01%), magnesium (0.70%), lime (0.56%), carbon dioxide (0.30%), potash (0.24%), soda (0.12%), phosphorus (0.09%), and nitrogen (0.08%). Prior to sowing the main crop, a local variety of sun hemp was dibbled into the experimental site with a seed rate of 35 kg/ha, establishing the environmental and soil conditions for the study of groundnut plant-based organic pest and fertilizer tablets. Sowing of the main crop took place on December 21, 2022, using the dibbling method, with a seed rate of 35 kg/ha at a recommended spacing of 15X10 cm and a sowing depth of 5 to 7 cm. The experiment employed a randomized block design with three replications, distributing treatments (T1, T2, and T3) across 45 beds. Treatments were administered as follows: T1 involved applying 100g mixed in 10lit water for spraying on 15 beds, T2 utilized 3kg for 15 beds, and T3 also used 3kg for 15 beds. Weeding occurred three times, with the first weeding between 20 to 25 days after sowing, the second between 50 to 55 days after sowing, and the final weeding between 80 to 85 days after sowing. For growth enhancement, T1 employed bio-organic tablets applied on January 17, 2023, and March 14, 2023, for 15 beds. T2 utilized vermicompost on January 5, 2023, and March 11, 2023, for 15 beds. T3 involved the application of ash on January 3, 2023, and March 12, 2023, also for 15 beds. These practices aimed to facilitate the growth and development of groundnut plants. Crop harvesting occurred on April 8, 2023, with assessments conducted to evaluate treatment effectiveness in influencing groundnut plant growth and yield. Yield percentages were analyzed to determine the impact of each treatment on the overall crop yield.

Steps in cultivation

Influence of organic nutrient management on growth parameters of organically grown table purpose groundnut.

S/No	Treatments	Plant height (cm) (80 DAS)	No. of branches plant-1 (80 DAS)	Leaf area index (80 DAS)	Dry matter production 120 DAS (g m^{-2})
01	T_0	19.2	6	2.13	812.6g
02	T_1	23.2	8	3.89	873.2g

Final table report:

S/NO	TREATMENTS	BED	DIBBLING SEED RATE	GROWTHING RATE	TOTAL GROWTH PERCENTAGE	HARVESTING PLANT RATE	TOTAL HARVESTING PERCENTAGE	OIL YIELD (Kg /ml)
01	T_0	15 100seed=1bed	11.5kg	1bed= 78seed	78%	1bed=4.6-.5.4kg	76%	220ml
02	T_1	15 100seed=1bed	11.5kg	1bed= 88 seed	88%	1bed=5-7kg	86%	280ml
AVERAGE	**2**	**45**	**35kg**	**1bed=83 seed**	**83%**	**6.2kg**	**81%**	**250ml**

A day before sowing, fresh seed of Ground-nut variety cv.**CO-3** will be soaked in the respective solutions for 12hr in 2:1.5 proportion for growth medium.

TESTS

Field assessment: Treated seed will be evaluated in field conditions for the parameters such as plant growth, plant height, number of branches, number of leaves, day to 75% flowering. number of pods plants, pod length, number of seeds per pod, 100 seed weight, seed yield per plant and seed yield.

The data will be statistically analyzed using ANOVA.

BUDGET

SI. ON	MATERIALS/EQUIPMENT	COST/Kg/UNIT/QUANTITY IN (Rs)	TOTAL COST (Rs)
1	Seeds	35Kg	2800
2	Treatments	1000	1400
3	Field preparation	1800	2100
4	Intercultural operation	1600	1700
5	Post-harvest management	1900	1900
		Total cost	**9900**

BENEFITS TO THE SOCIETY

1. Prevents of plant diseases.
2. Protects seed from seed root and seedling blights.
3. Improves germination.
4. Provides protection from insects during storage of seed/grains.
5.

OUTCOMES

1. High yield.
2. High growth parameters.
3. Good germinations.
4. Reduced environmental harm.