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EVALUATING THE SYNERGY BETWEEN GROUNDNUT GENOTYPES AND NANO UREA FOR OPTIMIZED AGRONOMIC OUTCOMES

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ABSTRACT

The field experiment titled "Response of Groundnut Varieties to Foliar Application of Nano Urea" was conducted during the *Kharif* season of 2023 at CCSHAU Regional Research Station, Bawal. The experiment was laid out in factorial randomized block design with two different genotypes (GNH804 and HNG 69) and eight treatments i.e. RDF :15 kg N, 50Kg P_2O_5, 25kg K_2O, 25 Kg $ZnSO_4$/ha; Only foliar application of 0.1 % of Nano Urea solution at 3 and 6 weeks after sowing; RDF + foliar application of 0.1 % of Nano Urea solution at 3 weeks after sowing; RDF + foliar application of 0.1 % of Nano Urea solution at 6 weeks after sowing; RDF + foliar application of 0.1 % of Nano Urea solution at 3and 6 weeks after sowing; 50% RDF + foliar application of 0.1% of Nano Urea solution at 3 weeks after sowing**;** 50% RDF + foliar application of 0.1 % of Nano Urea solution at 6 weeks after sowing; 50% RDF + foliar application of 0.1% Nano urea at 3 and 6 weeks after sowing) with three replication. Between two varieties GNH 804 performed better than HNG 69. Genotype GNH 804 was found better than HNG 69 in respect of growth, yield as well as economics. It produced pod yield (2461 kg/ha), biological yield (6368 kg/ha) and straw yield (3997 kg/ha) which were 17.9, 10.6 and 6.4% higher than HNG 69, respectively.It fetched 42.6 and 17.6 % more net returns and B: C ratio than HNG 69. Among different treatments of foliar application of nano urea, RDF + foliar application of 0.1 % of nano urea solution at 3 and 6 weeks) produced 12.9 and 3.3 % more pod and biological yield than RDF 15 kg N, 50 Kg P_2O_5, 25kg K_2O, 25 Kg $ZnSO_4$/ha. This treatment i.e. RDF + foliar application of 0.1%of nano urea solution at 3 and 6 weeks fetched 14.3 and 6.8 percent higher net returns and B:C ratio, than RDF only.
***Keywords* :** Groundnut, Nano Urea, Pod Yield, Growth, Foliar Spray, Net returns.

Introduction

Groundnut, scientifically known as *Arachis hypogaea* L., is an annual herbaceous oilseed crop that belongs to the family Leguminosae. It holds great significance as the primary oilseed crop in India, covering 25% of the total oilseed production, and ranks as the 4th most important oilseed crop globally (Manan and Sharma 2018). Groundnut serves as a crucial source of edible oil and vegetable protein in tropical and semi-arid tropical regions. Groundnut oil is a valuable vegetable oil, with groundnut kernels containing 48-50% edible oil, 25-34% protein, and 10-20% carbohydrates, along with high levels of vitamins E, K, and B complex (Das 1997)

The residual oil cake obtained after extraction is nutrient-rich (7-8% N, 1.5% P_2O_5, and 1.2% K_2O) making it valuable as animal feed and organic manure. Moreover, the groundnut crop aids in improving soil fertility by fixing atmospheric nitrogen in its root nodules (Bairagi *et al.,* 2017). China leads in groundnut production, contributing 36.29% of the global total, with an area of 4.6 mha, production of 17 mt, and productivity of 3709 kg/ha. India follows as the second-largest groundnut producer globally, contributing 19.49% of the total production, with an area of 4.8 mha, production of 9.9 mt, and productivity of 2063 kg/ha during 2023 (Anonymous 2024). The key groundnut-producing states in India include

Gujarat, Rajasthan, and Tamil Nadu. Groundnut is cultivated in India during both the *Kharif* and *Rabi* seasons.

The country's expanding population is leading to a geometric increase in domestic edible oil consumption, surpassing the annual supply. The low productivity of groundnut in Indian soil can be attributed to various factors such as suboptimal land use, poor soil fertility, lack of balanced nutrient management, absence of improved varieties, and prevalence of pests and diseases. Proper fertilizer application is crucial for successful oilseed cultivation, with key nutrients including nitrogen, phosphorus, potassium, sulphur, zinc, and boron. Therefore, focusing on groundnut nutrition is essential to boost productivity and meet the rising demand. Nitrogen is vital for plant metabolism and the synthesis of proteins, amino acids, and nucleic acids, while phosphorus supports protoplasm formation, cell division, and nodule development. In intensive farming systems, timely and balanced nitrogen application is essential for maximizing yield and quality. However, nitrogen losses through leaching, denitrification, and volatilization reduce efficiency and contribute to environmental issues such as water pollution, eutrophication, and greenhouse gas emissions (e.g., nitrous oxide). These challenges have raised concerns among scientists, policymakers, and farmers, prompting the search for more sustainable nutrient sources. Over the past two decades, nano-fertilizers have gained attention for their potential to enhance nutrient use efficiency and reduce environmental impact. As a novel alternative to conventional urea, nano fertilizers offer a promising solution to improve productivity, farmer income, and ecosystem health.

Nano urea, containing 4% nitrogen, has a shelf life of about two years and a zeta potential above 30 (Kumar *et al.,* 2021). Due to their nanoscale size (1 nm = 10^{-9} m), nano fertilizers improve nutrient solubility, enhance soil nutrient uptake, and increase fertilizer use efficiency by up to three times. They also reduce nutrient losses through leaching and extend nutrient availability in the soil. These properties contribute to a 17–24% increase in crop yield by improving nutrient mobilization and uptake (Cui *et al.,* 2010). Foliar nutrition is an effective strategy to overcome soil limitations in nutrient availability, which may be restricted by factors such as poor root distribution, low soil moisture, temperature fluctuations, and nutrient imbalances. It helps maintain internal nutrient balance that soil application alone may not achieve (Meena *et al.,* 2007). In India, groundnut cultivation has declined in recent years, with one key reason for lower productivity-compared to countries like China—being the imbalanced and inefficient use of nutrients. This paper explores the effect of groundnut varieties and foliar application of nano urea on growth, yield and economics on groundnut.

Material and Methods

The experiment was conducted during *Kharif* 2023 at Regional Research Station, Bawal (Haryana) having dry sub-tropical climate. The groundnut crop received total 1029 mm of rainfall with highest rainfall during July month (542 mm). The various agrometeorological parameters have been depicted in figure 1. The factorial randomized block design was used with 3 replication and total 16 different treatment combination. The details of treatment have been given in table 1. The soil was slightly alkaline having 8.1 pH, low organic carbon (0.19), available N (113.10 kg ha^{-1}), available P (10.35 kg ha^{-1}) and available K (176 kg ha^{-1}). The sowing of GNH 804 and HNG 79 was done on 26 June 2023 at 30 cm x 15 cm (row – row × plant –plant). The recommended dose of nutrients for ground nut included 15 kg of nitrogen (N), 50 kg of phosphorus (P_2O_5) and 25 kg of potassium (K_2O) and 25 kg zinc per hectare. Nitrogen and phosphor were supplied through DAP in plots of RDF and RDF, Potash and Zinc were applied through use of Murate of potash (MOP) and Zinc sulphate, respectively. Observations were recorded for growth and yield parameters. The total value of the output was quantified in monetary terms and calculated using the following equations:

(i) Gross returns (Rs./ha) = Value of grain (Rs./ha) + Value of straw (Rs./ha)

(ii) Net returns (Rs./ha) = Gross returns (Rs./ha) – Total costs (Rs./ha)

(iii) B:C ratio = Net returns (Rs./ha) ÷ Total costs (Rs./ha)

The analysis was done through OPSTAT software available on official website of CCSHAU, Hisar.

Results and Discussion

Growth parameters

Plant height

Among the varieties, significantly higher plant height at 30 DAS (24.08 cm), 60 DAS (38.7 cm), 90 DAS (49.9 cm) and at maturity (51.4 cm) was recorded in GNH 804. However, among nutrient levels, maximum plant height was observed under T_5 (RDF + foliar application of 0.1 % of nano urea solution at 3and 6 weeks after sowing) at all stages of crop growth followed by T_4 (RDF + foliar application of 0.1 % of nano urea solution at 6 weeks after sowing). The minimum plant height was observed in T_2 where only 0.1% nano urea was applied at 3 and 6 weeks after sowing. All three treatments with 50% of recommended dose of nitrogen along with foliar sprays of nano urea *i.e.* T_6, T_7 and T_8 produced statistically lesser plant height than T_1 *i.e.* RDF, it could be attributed to enhanced cell division and apical meristematic activity due to foliar application of nitrogen. Therese results were confirmed by (Gaurav and Chaturvedi, 2023)

Dry weight (g/plant)

Dry weight per plant was significantly affected by variety as well as foliar application of nano urea at all stages of crop growth. Significantly higher dry weight per plant of ground nut was observed in GNH 804 as compared to HNG 69 at all stages *i.e.* 6.91, 28.94, 37.94 and 50.32 g/plant at 30, 60, 90 DAS and at maturity, respectively. The dry weight per plant of ground nut varied significantly with varying nutrient levels at all stages. It was found maximum in T_5 followed by T_4 at maturity. At this stage, treatments T_1 (RDF) and T_8 also produced statistically similar dry weight per plant. The enhancement observed with the foliar application of nano-urea fertilizer may be attributed to improved translocation of starch from photosynthetically active tissues to the developing grains, coupled with increased nitrogen availability from nano-urea and a basal potassium supply throughout the growth stages. This combination likely promoted greater interception of photosynthetically active radiation, thereby boosting overall photosynthetic efficiency. These findings are consistent with the observations reported by Islam *et al.* (2023).

Leaf area index

Variety GNH 804 witnessed significantly higher leaf area index than HNG 69 at all the stages. Further perusal of data unveiled that an increase in number of foliar applications of nano urea produced significant variation in leaf area index. At maturity, T_5 (RDF + foliar application of 0.1 % of nano urea solution at 3 and 6 weeks) recorded higher leaf area index (8.71) over all other treatments. LAI under T_1 (RDF) and T_8 was statistically at par. Lowest LAI was recorded under T_2. The abundance of nutrients available to the crops led to a higher leaf area index, promoting the development of more photosynthetically active organs.

Crop growth rate

During early and late growth period (30-60 DAS) genotype GNH 804 observed significantly higher CGR than HNG 804, on the other hand during 60-90 DAS and 90 DAS – at maturity, the CGR was found more for HNG 69.

Application of RDF + foliar application of 0.1 % of Nano Urea solution at 3 and 6 weeks after sowing recorded significantly higher CGR as compared to control with an increase of 17.76, 10.06 and 5.60 at 30-60 DAS and 60-90 DAS and 90 DAS to harvest stages, respectively. Treatment T_1 and T_8 were also found statistically at in terms of CGR through crop season.

Yield attributes

Genotype GNH 804 produced significantly higher number of pods/ plant (21.1) compared to HNG 69 (17.5). Two foliar sprays of nano urea 0.1% solution over RDF (T_5) resulted into maximum number of pods/ plant (23.6), number of kernels/ plod (2.7) and 100 kernel weight (46.6). While, lowest values for these attributes viz. pods/ plant, number of kernels/ pod and 100 kernel weight were reported in application of only 2 foliar sprays of nano urea at flowering and pegging in groundnut. Meanwhile, 50% dose of RDF + application of two foliar sprays of nano urea solution @ 0.1 per cent at flowering and pegging produced statistically at par yield attributes (pods/plant and kernels/ pod) with RDF. The increase in the total number of kernels per pod may be attributed to the foliar application of nano urea, which enhances photosynthetic activity and facilitates efficient translocation of assimilates from source to sink, as supported by Hafize and Bati (2023); Ravi et al., 2024 and Aniket *et al.* (2024).

Yield parameters

Pod Yield

GNH 804 resulted into significantly higher pod yield (2461 kg/ha) as compared to HNG 69 (2087 kg/ha). The treatment T_5 (2732 kg/ha) resulted into significantly higher pod yield as compared to other treatments, followed by T_4 treatment (2561 kg/ha). The treatment T_2 resulted in minimum pod yield (1697 kg/ha) has shown in table 5.

The interaction effect observed for pod yield obtained by ground nut varieties (GNH 804 and HNG 69) with various nutrients levels showed that between the two varieties, GNH 804 produced significantly more pod yield with all treatments of nano urea has been depicted in figure 2. In case of GNH 804, T_5 was significantly higher as compared to other treatments whereas T_4 and T_1; T_8 and T_3; and T_6 and T_7 were statistically at par with each other. With variety HNG 69, the treatment T_1, T_3, T_4, and T_5 were statistically at par. Similarly, T_6, T_7 and T_8 were also statistically similar to each other. Higher grain yield might be due to improved nutrient uptake by the plant leading to the better growth of the plant parts and metabolic processes like photosynthesis resulting in maximum accumulation and translocation of photosynthates to the economic parts of the plant, hence ensuing in higher yield, that might be due to improved source (leaves) and sink (economic part) strength. The present findings are in line with those of Nandhakumar *et al.,* 2024; Kumar *et al.*, 2021, Heba *et al.*, 2021 and Nandan *et al.* (2020).

Straw Yield

It was observed that variety GNH 804 gave 6.4 percent higher straw yield over variety HNG 69. Among different nutrient levels, the treatment T_1 gave maximum straw yield (4097 kg/ha) that was 27.0 percent higher in comparison to treatment T_2. All treatments with RDF (T_1, T_3, T_4, and T_5) were statistically at par with each other and significantly higher than treatments with 50% RDF + foliar spray of nano urea. The increase in the straw yield with the foliar spray of nano nitrogen fertilizers might be due to quick absorption by the plant and easy translocation at a faster rate that aids in higher rate of photosynthesis and more dry matter accumulation which resulted in higher straw yield. All these findings agreed with the reports of Kumar *et al.*, 2025; Aswini *et al.* (2024) and Głowacka *et al.* (2023).

Biological Yield and Kernel yield

The results revealed that maximum biological yield (6368 kg/ha) and kernel yield (1746 kg/ha) was obtained in groundnut variety GNH 804 which was significantly higher in comparison to HNG 69.

The highest kernel yield (2075 kg/ha) was achieved from treatment T_5 and the lowest kernel yield 1011 kg/ha was recorded from the treatment T_2.

Shelling percentage and harvest index

Significantly higher shelling percentage was observed in genotype GNH 804 than HNG 69. In case of nutrient level, the shelling percentage was T_5 and T_1 than all other treatment and these two treatments were statistically at par with each other. Significantly higher harvest index (38.47%) was observed in variety GNH 804 than variety HNG 69 (36.18).

Among different nutrient levels T_5 resulted into maximum harvest index (40.37 percent) which was significantly superior to other treatments and it was followed by T_4. On the other hand, minimum harvest index was recorded in T_2 (34.52 %).

Economics

Genotype GNH 804 proved superior to HNG 69 in terms of gross returns, net returns and B: C ratio. The treatments with RDF+ nano urea (T_3, T_4 and T_5) resulted into better returns and B: C ratio than the treatments with 50% RDF+ nano urea (T_6, T_7 and T_8). The treatment with two foliar sprays of nano urea (T_2) fetched lowest gross return, net returns and B: C ratio. Treatment T_1 (RDF) also fetched more profit than treatments with 50% RDF+ nano urea (T_6, T_7 and T_8) as indicated in Table 6.

Conclusion

The present study revealed that GNH 804 was found better as compare to HNG 69 in respect of growth, yield, and economics. Genotype GNH 804 fetched 42.6 higher net returns and 17.6 % B: C ratio in comparison to HNG 69. In case of nitrogen levels, the RDF+ foliar application of 0.1 % of nano urea solution at 3 and 6 weeks) produced 12.9 and 3.3 % more pod and biological yield and fetched 14.3 and 6.8 % higher net returns and B:C respectively than T_1 viz. RDF. So, GNH 804 variety with conjunctive use of RDF + foliar application of 0.1 % of nano urea has resulted in better growth, yield and economics in groundnut crop.

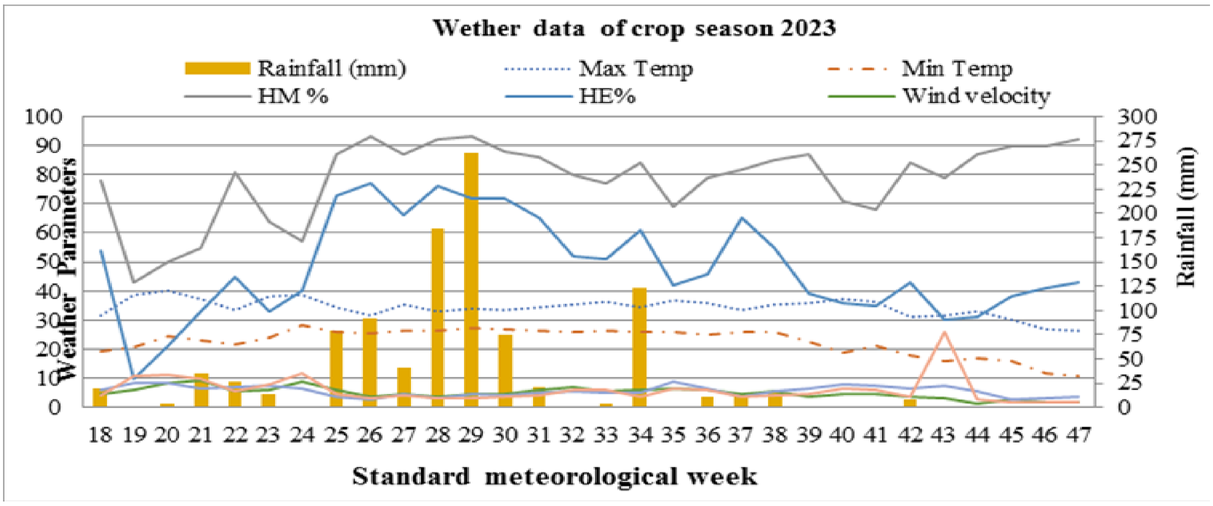

Fig. 1 : Meteorological data recorded from June-November, 2023

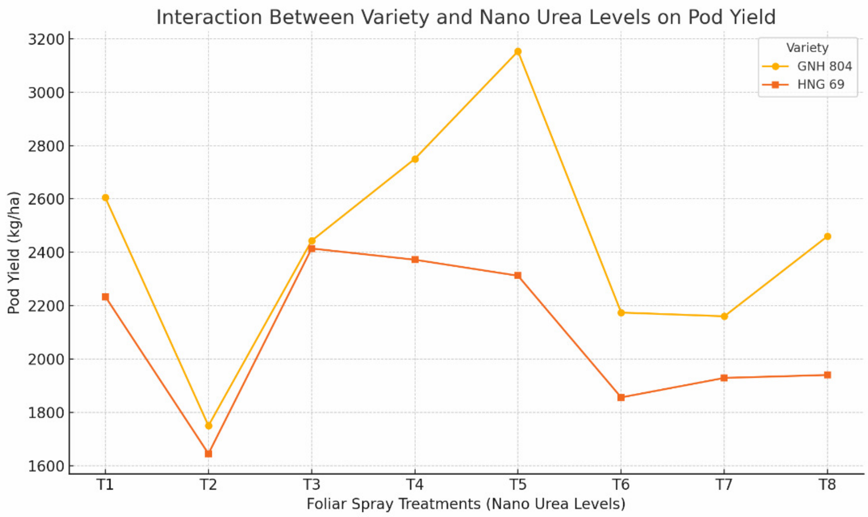

Fig. 2 : Interaction effect of variety and foliar spray of nano urea on pod yield of groundnut

Table 1 : Treatment details

Treatments	
Variety	
GNH 804	
HNG 69	
Foliar Application of Nano Urea	
T_1	RDF (15 kg N, 50 Kg P_2O_5, 25kg K_2O, 25 Kg $ZnSO_4$)/ ha
T_2	Only 0.1% Nano Urea at 3 & 6 WAS
T_3	RDF+0.1% Nano Urea at 3 WAS
T_4	RDF+0.1% Nano Urea at 6 WAS
T_5	RDF+0.1% Nano Urea at 3 & 6 WAS
T_6	50% RDF+0.1% Nano Urea at 3 WAS
T_7	50% RDF+0.1% Nano Urea at 6 WAS
T_8	50% RDF+0.1% Nano Urea at 3 & 6 WAS

Table 2 : Effect of groundnut variety and foliar spray of nano urea on plant height and dry weight

Treatment	**Plant Height (cm)**				**Dry Weight (g/plant)**			
	30 DAS	**60 DAS**	**90 DAS**	**Maturity**	**30 DAS**	**60 DAS**	**90 DAS**	**Maturity**
Variety								
GNH 804	23.66	38.7	48.9	51.4	5.63	28.94	37.56	50.32
HNG 69	23.04	30.4	44.7	46.8	5.29	20.15	33.91	40.92
SE(m) ±	0.2	0.4	0.2	0.26	0.08	0.44	0.38	0.35
CD (p=0.05)	NS	1.3	0.7	0.75	0.23	1.29	1.12	1.02
Foliar Application of Nano urea								
T1 – RDF	25.8	38.8	51.6	50.6	5.93	27.07	40.82	47.16
T2 – 0.1% Nano urea @ 3 & 6 WAS	19.7	24.6	35.0	40.1	4.58	18.84	25.11	38.3
T3 – RDF + 0.1% Nano urea @ 3 WAS	25.2	39.0	53.3	54.6	5.96	26.77	38.7	47.32
T4 – RDF + 0.1% Nano urea @ 6 WAS	25.3	40.6	54.0	55.1	5.98	27.61	39.51	49.99
T5 – RDF + 0.1% Nano urea @ 3 & 6 WAS	25.7	43.0	55.8	58.5	6.07	30.17	43.64	52.46
T6 – 50% RDF + 0.1% Nano urea @ 3 WAS	21.3	28.5	39.4	42.5	5.01	20.0	30.19	40.1
T7 – 50% RDF + 0.1% Nano urea @ 6 WAS	21.8	29.0	40.5	44.6	4.98	21.62	32.04	42.85
T8 – 50% RDF + 0.1% Nano urea @ 3 & 6 WAS	22.3	32.8	45.0	46.6	5.16	25.27	37.86	45.56
SE(m) ±	0.4	0.9	0.5	0.5	0.15	0.89	0.77	0.7
CD (p=0.05)	1.2	2.8	1.5	1.5	0.46	2.59	3.24	4.05

Table 3 : Effect of groundnut variety and foliar spray of nano urea on leaf area index and crop growth rate

Treatment	Leaf Area Index				Crop growth rate (g/m^2/day)		
	30 DAS	60 DAS	90 DAS	Maturity	30-60 DAS	60-90 DAS	90 DAS to harvest
Variety							
GNH 804	4.03	5.61	6.92	7.62	17.27	6.57	7.85
HNG 69	3.14	4.83	5.73	7.30	11.02	10.37	4.20
SE(m) ±	0.07	0.08	0.08	0.07	0.36	0.43	0.32
CD (p=0.05)	0.22	0.23	0.25	0.20	**1.03**	**1.23**	**0.92**
Foliar Application of Nano urea							
T_1 RDF (15 kg N, 50Kg P_2O_5, 25kg K_2O, 25 Kg $ZnSO_4$)/ ha	3.94	5.43	6.84	7.51	15.57	10.28	4.02
T_2 Only 0.1% Nano urea at 3 & 6 WAS	2.77	4.38	4.51	6.84	10.48	4.74	8.37
T_3 RDF+0.1% Nano urea at 3 WAS	3.95	5.43	7.06	7.76	15.33	8.93	5.47
T_4 RDF+0.1% Nano urea at 6 WAS	4.00	5.68	7.21	8.24	15.93	8.90	6.66
T_5 RDF+0.1% Nano urea at 3 & 6 WAS	4.38	6.50	8.13	8.71	17.76	10.06	5.60
T_6 50% RDF+0.1% Nano urea at 3 WAS	3.09	4.31	4.97	6.46	11.02	7.63	6.29
T_7 50% RDF+0.1% Nano urea at 6 WAS	3.27	4.92	5.42	6.86	12.24	7.80	6.87
T_8 50% RDF+0.1% Nano urea at 3 & 6 WAS	3.29	5.11	6.43	7.31	14.80	9.42	4.89
SE(m) ±	0.15	0.16	0.17	0.13	0.71	0.85	0.64
CD (p=0.05)	0.45	0.46	0.51	0.40	**2.06**	**2.46**	**1.85**

Table 4 : Effect of varieties and foliar application of nano urea on yield attributes of groundnut

Treatment	Yield attributes		
	Number of pods per plant	Number of kernels per pod	100 kernel weight (g)
Variety			
GNH 804	21.1	2.7	41.4
HNG 69	17.5	1.4	40.7
SE (m) ±	0.4	0.07	0.1
CD (p=0.05)	**1.4**	**0.2**	**0.5**
Foliar Application of Nano urea			
T_1 RDF (15 kg N, 50Kg P_2O_5, 25kg K_2O, 25 Kg $ZnSO_4$)/ ha	19.2	2.0	42.1
T_2 Only 0.1% Nano urea at 3 & 6 WAS	16.8	1.5	33.3
T_3 RDF+0.1% Nano urea at 3 WAS	19.4	1.8	43.6
T_4 RDF+0.1% Nano urea at 6 WAS	20.7	2.4	45.3
T_5 RDF+0.1% Nano urea at 3 & 6 WAS	23.6	2.7	46.6
T_6 50% RDF+0.1% Nano urea at 3 WAS	17.3	1.7	37.8
T_7 50% RDF+0.1% Nano urea at 6 WAS	18.7	1.8	39.1
T_8 50% RDF+0.1% Nano urea at 3 & 6 WAS	18.8	2.2	40.6
SE(m) ±	0.9	0.1	0.3
CD (p=0.05)	**2.8**	**0.4**	**1.0**

Table 5 : Effect of varieties and foliar application of nano urea on yield studies of groundnut

Treatment	Yield studies					
	Pod yield (kg/ha)	Biological yield (kg/ha)	Straw Yield (kg/ha)	Kernel Yield (kg/ha)	Shelling %	Harvest Index (%)
Variety						
GNH 804	2461	6368	3906	1746	70.15	38.47
HNG 69	2087	5758	3670	1360	64.47	36.18
SE(m) ±	26	38	29	21	0.34	0.15
CD (p=0.05)	75	112	84	62	0.99	0.45
Foliar Application of Nano urea						
T_1 RDF (15 kg N, 50Kg P_2O_5, 25kg K_2O, 25 Kg $ZnSO_4$)/ ha	2419	6516	4097	1798	74.11	37.07
T_2 Only 0.1% Nano urea at 3 & 6 WAS	1697	4922	3225	1011	59.48	34.52

T_3 RDF+0.1% Nano urea at 3 WAS	2429	6515	4087	1751	72.09	37.35
T_4 RDF+0.1% Nano urea at 6 WAS	2561	6548	3987	1805	70.26	39.06
T_5 RDF+0.1% Nano urea at 3 & 6 WAS	2732	6729	3997	2075	75.60	40.37
T_6 50% RDF+0.1% Nano urea at 3 WAS	2065	5491	3426	1262	60.85	37.51
T_7 50% RDF+0.1% Nano urea at 6 WAS	2094	5720	3626	1319	62.72	36.56
T_8 50% RDF+0.1% Nano urea at 3 & 6 WAS	2200	6063	3863	1403	63.37	36.15
SE(m) ±	52	77	58	42	0.68	0.31
CD (p=0.05)	150	223	168	123	1.99	0.91

Table 6 : Effect of different treatments on economics of groundnut cultivation

Treatment	Cost of cultivation (Rs./ha)	Gross returns (Rs./ha)	Net returns (Rs./ha)	B: C
Variety				
GNH 804	78809	160496	81688	2.03
HNG 69	78809	136644	57835	1.73
Foliar Application of Nano Urea				
T_1 RDF (15 kg N, 50 Kg P_2O_5, 25kg K_2O, 25 Kg $ZnSO_4$)/ ha	78972	157792	78820	2.00
T_2 Only 0.1% Nano Urea at 3 & 6 WAS	77870	111750	33880	1.44
T_3 RDF+0.1% Nano Urea at 3 WAS	79230	158365	79135	2.00
T_4 RDF+0.1% Nano Urea at 6 WAS	79230	166815	87585	2.11
T_5 RDF+0.1% Nano Urea at 3 & 6 WAS	80330	177752	97422	2.21
T_6 50% RDF+0.1% Nano Urea at 3 WAS	77740	135185	57445	1.74
T_7 50% RDF+0.1% Nano Urea at 6 WAS	77740	137088	59348	1.76
T_8 50% RDF+0.1% Nano Urea at 3 & 6 WAS	79357	143815	64458	1.81

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