

## Original Research Article

### RESPONSE OF SUMMER GROUNDNUT VARIETIES AS INFLUENCED BY PLANT GEOMETRY.

#### ABSTRACT

The field experiment was conducted during Zaid 2023 at Crop Research Farm, Department of Agronomy, SHUATS, Prayagraj (U.P.) to study the "Response of summer Groundnut Varieties as influenced by plant geometry". The experimental treatment comprised of three types of Groundnut varieties viz., Kadiri-6, TAG-24, Kadiri Amaravathi three different planting geometry viz., 30 cm x 15 cm, 35cm x 15 cm, 45cm x 10 cm, forming total 9 treatmentcombination each wasreplicated three times and laid out in randomized block design. The results showed that the significantly higher plant height (37.78cm), higher number of nodules/plant (125.77), higher plant dry weight (22.37 g),maximum number of pods/plant (30.20), maximum number of kernels/pod (1.50), higher seed index (32.20 g), higher seed yield (2.19 t/ha), higher haulm yield (5.20 t/ha), and higher harvest index (35.86%), Shelling percentage (55.97%) was recorded in treatment 7 [Kadiri Amravathi+ Spacing (30 cm x 15 cm)]. Similarly, maximum gross return (141650.00 INR/ha), net return (97386.00 INR/ha) and benefit cost ratio (2.20) was also recorded in treatment 7 [Kadiri Amaravathi + Spacing (30 cm x 15 cm)] as compared to other treatments. It is concluded that in Groundnut variety Kadiri Amaravathi along with the spacing (30cmx15cm) (Treatment 7) was observed highest seed yield and B: C ratio.

**Keywords:** Economics, Growth, Groundnut, Spacing, Varieties, Yield.

#### INTRODUCTION

Groundnut (*Arachis hypogea* L.) is a legume crop commonly known as peanut/earhnut a self-pollinated, annual, and herbaceous crop. Groundnut

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contains 45% of oil and 26% protein in kernels. Groundnut, King of Vegetable Oil Seeds in India, occupies pre-eminent position in national edible oil economy. Groundnut is originated from Brazil. In India groundnut cultivation is from 6.64 m. ha area produces 7.00 m.tproductivity 1045 kg/ha respectively (FAO Production Yearbook, (2004). In Uttar Pradesh, it is cultivated in an area of 8.51 mha and its production and productivity are 6.94mt and 816(kg/ha) respectively. (Fertilizer Association of India, 2006). Groundnut is a major oil seed crop that contains around 45% to 51% high-quality hydrogenatededible oil, dietary proteins (26%) as well as soluble carbohydrates (24.2%) and minerals. It is used not only as edible oil, but also used in manufacturing of hydrogenated vegetable oil, soaps, toilet requisites and for culinary purpose as well. The groundnut also high in vitamins such as A, B<sub>1</sub>, B<sub>2</sub>, and E and the cake is rich in protein (46%) content, hence make it a good for poultry and animal feed. (Patil *et al.*, 2007).

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Variety is the most important factor in groundnut production. Use of high yielding varieties has been increased remarkably in recent years and the country has reached almost a level of sufficiency in groundnut. Optimum plant population with unit area per hectare for a given variety at specific situation not only reduce the cost of cultivation but also augment to the full yield potential of the cultivar (Dileep *et al.*, 2021). Kadiri-6 varieties' crop duration is 100-105 DAS in (kharif) 110-115 DAS in (rabi). Its average yield is 20-25 q/ha in (kharif) and 40-45 q/ha in (rabi). The Oil percentage is 48% and shelling is 74%. The Kadiri-6 is an early maturing variety, high yielding, Spanish bunch, attractive kernel and synchronous maturity. (Salma *et al.*, 2023) TAG-24 is the high yielding, Spanish bunchy type variety of ground nut. This variety is of 100-105 days duration which gives pod yield of 1311 kg/ha, oil percentage of 45.5%. This variety is tolerant to bud necrosis and jassids. Kadiri Amaravathi, crop duration is 115-120 DAS in (kharif) while 120-125 DAS in (rabi). Its average yield is 20-25 q/ha in kharif and 40-45 q/ha in rabi. The oil percentage is 50% and shelling is 70%. Kadiri Amaravathi is high yielding, medium duration, Spanish bunch with attractive pods like Kadiri-6. Resistant to sucking pests like thrips, hoppers, mite and life eating insects, Spodoptera and Helicoverpa. (P.P.Reddy 2023).

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The cost-effective technologies for utilization of natural resources such as optimum row spacing, precise nutrient and irrigation management, timely weed management

etc, are the important agronomic techniques for enhancing and stabilizing the yield of any crop. Considering the above facts, plant density is one of the important factors which play a vital role in enhancing the production and productivity of groundnut. Plant density (plant spacing) is an efficient management tool for maximizing grain yield by increasing capture of solar radiation within the canopy thereby increasing land use efficiency (Gadadeet al., 2018). If early weeding is done well and /recommendation cropspacing is followed, then the weeds that come up later are smothered due to the vigorous growth of the crop. Plant density (Plant spacing) is an efficient management tool for maximizing grain yield thoughtenhancement in in the of solar radiation capture by the canopy, thereby increasing land use efficiency. The plant population is often determined by the various attributes which are largely under grower control and one of the major aspects of crop ecology, production and management which often limit crop production, improper crop density is maintain(Yeswanth and Debarma 2022). In order to increase the yield and to gain more profits we need to adopt cultivation certain developed varieties. We adopt some plant geometry for growing crops so that plant can grow freely without any competition and will give more yield by utilizing the resources provided. So to know which varieties exhibits better growth parameters and higher yield at different plant geometry in Prayagraj conditions my field trail on 'Response of summer Groundnut varieties as influenced by plant geometry on growth and yield of ground nut (Arachis hypogea. L)

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## MATERIAL AND METHOD

The experiment was carried out at the Crop Research Farm, Department of Agronomy, Sam Higginbottom University of Agriculture, Technology, and Sciences Prayagraj, (U.P) during *Zaid* season of 2023. The soil of the experimental field constituting a part of central Gangetic alluvial is neutral (PH 7.2) and deep. The soil was sandy loam in texture with, high in organic carbon (0.941%) and low in available nitrogen(225kg/ha), high in phosphorous(43.5kg/ha) and medium in potassium(253.4kg/ha). The treatments consist of three different varieties viz, kadiri-6, TAG-24, kadiriAmaravati with the combination of different row spacing of

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30cmx15cm,35cmx15cm,45cmx10cm,the experiment was laid out in RandomizedBlock Design (RBD) with total 27 plots and size of each plot 9 m<sup>2</sup>with 9 treatments each replicated thrice.The treatment combinations are T<sub>1</sub>[(Kadiri -6 + Spacing (30 cm x 15cm)],T<sub>2</sub> [(Kadiri-6+Spacing(35 cm x15cm)] ,T<sub>3</sub> [(Kadiri-6+Spacing(45cmx10cm)],T<sub>4</sub>[(TAG-24+spacing(30cmx15cm)],T<sub>5</sub>[(TAG-24+spacin(35cmx15cm)] T<sub>6</sub> [TAG-24+spacing (45cmx10cm)], T<sub>7</sub>[(Kadiri Amaravati + Spacing (30 cm x 15cm)], T<sub>8</sub> [(Kadiri Amaravati + Spacing (35 cm x 15cm)],T<sub>9</sub>[(Kadiri Amaravati + Spacing (45 cm x 10cm)].Urea, SSP, and MOP were chosen as the source for N, P, and K respectively. Thegrowth parameters such as, plant height(cm), dry weight(g), no/nodules (No), Crop growth rate(g/m/day), Relative growth rate (g/g/day), and yield attributes no.of pods /plant,no.of kernels/pod,seed Index (g),kernal yield (t/ha),halum yield (t/ha)harvest Index (%),shelling (%).The parameters were calculated and analysed using the statistical tool of ANOVA Analysis of variance for randomized block desingn(Gomezand Gomez 1984).

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## RESULT AND DISCUSSION

### A. GROWTH PARAMETERS

#### 1.plant height(cm)

The significantly and higher plant height(37.78cm) was observed in the Kadiri Amaravathi variety with the spacing 30cm x 15 cm, However, treatment 8[(Kadiri Amaravathi + Spacing (35cm x 15 cm)] (35.66) and treatment 1[(Kadiri - 6 +Spacing 30cm x 15 cm] (35.80) which was found statistically at par with treatment7 [(Kadiri Amaravathi + Spacing (30 cm x 15cm)].which might be due to wider space between plants in a row gave the opportunity for all the resources to be available readily to the individual plants such as nutrients, light, space, moisture and thus resulting in higher growth rate of the plant. Similarly, results were also reported by Ngala *et al.* (2013) while Kadiri Amaravathi has fast growing and bushy habit. Further, the differential behavior among the varieties depends on their genetic makeup and prevailing weather conditions (Kathirvelan and Kalaiselvan 2006).

## 2. Number of nodules/plants

The significant and higher number of nodules/plants (125.77) was observed in the Kadiri Amaravathi variety with the spacing (30 cm x 15 cm). However, treatment 8 [(Kadiri Amaravathi + Spacing (35 cm x 15 cm))] (49.89) were found statistically at par with treatment 7 [(Kadiri Amaravathi + Spacing (30 cm x 15 cm))].

## 3. Plant dry weight (g/plant)

A significant and higher plant dry weight (22.37) was observed with the spacing (30 cm x 15 cm). However, treatment 6 [(TAG -24 + Spacing (45 cm x 10 cm))] (20.35) and treatment 1 [(Kadiri-6 + Spacing 30 cm x 15 cm)] (20.78g) which was found statistically at par with treatment 7 [(Kadiri Amaravathi + Spacing (30 cm x 15 cm))]. This might be due to the production increased steadily with advancing growth stages and reached the maximum at harvest results in higher dry weight of the plant. Similar results were also reported by Varshitha (2022). Highest dry weight was observed in Kadiri Amaravathi, this might be due to production of a greater number of branches per plant and increased assimilation of nutrients which increased the leaf biomass compared to other varieties (Vaseem Akram *et al.*, 2021).

## B. YIELD ATTRIBUTES

### 1. Number of Pods/plants

The significantly highest number of pods/plant (30.20) was recorded in the treatment 7 [Kadiri Amaravathi + Spacing (30 cm x 15 cm)]. However, treatment 2 [Kadiri-6 + Spacing 35 cm x 15 cm] (27.73), treatment 1 [Kadiri - 6 + Spacing 30 cm x 15 cm] (28.06) and treatment 8 [Kadiri Amaravathi + Spacing 30 cm x 15 cm] (28.26) were found to be statistically at par with treatment 7 [Kadiri Amaravathi + Spacing (30 cm x 15 cm)]. These results are due to the sufficient space between rows which encouraged more plants and also less in inter-competition for space, light, nutrient and moisture. Similarly, results were also reported by Chandrasekaran (2007). Highest pods/plant was observed in the variety Kadiri Amaravathi due to the variation in the number of pods per plant observed was highly attributed to

the genetic character of the groundnut varieties. Similar results were reported by, Gabisa *et al.* 2017

## **2. Number of kernels/pods**

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Significantly and higher number of kernels/pod (1.50) was recorded in the treatment 7 [Kadiri Amaravathi + Spacing (30 cm x 15 cm)]. However, the treatment 8 [Kadiri Amaravathi + Spacing (30 cm x 15 cm)] (1.38), and treatment 1 [Kadiri - 6 + Spacing 30 cm x 15 cm] (1.42) were statistically at par with treatment 7 [Kadiri Amaravathi + Spacing (30 cm x 15 cm)]. This might be due to wider spacing plants have more space to grow vigorously and produced lengthy pods, which contained more seeds. Similar results were also agreed by Shaukat *et al.* (2012) and Idris *et al.* (2008).

## **3. Seed Index (g):**

The significantly highest seed index (33.20 g) was recorded in the treatment 7 [Kadiri Amaravathi + Spacing (30 cm x 15 cm)]. However, the treatment 2 [Kadiri-6 + Spacing 35 cm x 15 cm], (30.46) and treatment 9 [Kadiri Amaravathi + Spacing 45 cm x 10 cm], (30.46) were found to be statistically at par with the treatment 7 [Kadiri Amaravathi + Spacing (30 cm x 15 cm)]. The maximum seed index was observed with the 30 cm x 15 cm spacing. Might be due to wider spacings provides more soil space for growth and development due to less plant competition both in above and below the ground biomass resulted better proliferation and higher canopy development which finally results in higher nutrients up take, seed fillings and more seed weight. Similar results were also reported by Singh *et al.* (2021).

## **4. Kernel yield (t/ha)**

The significantly highest seed yield (2.91 t/ha) was recorded in the treatment 7 [Kadiri Amaravathi + Spacing (30 cm x 15 cm)]. However, treatment 1 [Kadiri Amaravathi + Spacing 45 cm x 10 cm] (2.50), was found to be statistically at par with treatment 7 [Kadiri Amaravathi + Spacing (30 cm x 15 cm)]. This might be due to the better availability of growth resources like water, nutrients.

air, better cultural practices and effective weed control in wider plant geometry were aided the plants to exhibit their maximum yield full potential and produced higher yield. Similar findings were also agreed by Meena *et al.* (2011).

#### 5. Haulm yield (t/ha)

Higher haulm yield (5.20 t/ha) was recorded in the treatment 7 [Kadiri Amaravathi+ Spacing(30 cm x15 cm)]. However, treatment 8[Kadiri Amaravathi +Spacing35cmx15 cm], (4.93) was statistically at par with treatment 7 [Kadiri Amaravathi+ Spacing(30 cm x15 cm)]. This might be due to optimum row spacing have effectively utilized the growth resources, particularly solar radiation. Similar results were also agreed by Bhairappava *et al.* (2005) and Murade *et al.* (2014). The highest haulm yield was obtained with Kadiri Amaravathi, which was significantly higher than rest of the varieties tried, due to increased vegetative growth in terms of plant height, leaf area index and dry matter production resulting in increased haulm yield. Bhagavata Priya *et al.* (2019) Among the varieties Kadiri Amaravathi resulted in significantly highest haulm yield.

#### 6. Harvest Index (%)

The significantly harvest index (35.86%) was recorded in treatment 7 [Kadiri Amaravathi+ Spacing (30cmx15cm)]. However, treatment 4 [TAG-24 +Spacing30cmx15cm], (33.59) was found to be statistically at par with treatment 7 [Kadiri Amaravathi+ Spacing (30cmx15cm)].

#### 7. Shelling Percentage (%)

Significantly highest Shelling Percentage (%) (55.97%) was recorded in treatment 7 [Kadiri Amaravathi+ Spacing (30cmx15cm). However, treatment 4 [TAG-24 +Spacing30cm15cm], (50.59) was found to be statistically at par with treatment 7 [Kadiri Amaravathi+ Spacing (30cmx15 cm)]. Significantly the highest shelling percentage (55.97%) was recorded with Kadiri Amaravathi variety. The reason is that the difference between the varieties for the shelling percent originated from their genetic background. Similar results were reported by Rakesh *et al.* (2010).

#### C. ECONOMICS.

The maximum gross return (141650.00 INR/ha), net return (97386.00 INR/ha) and highest benefit cost ratio (2.20) was recorded in treatment-7 [Kadiri Amaravathi + Spacing (30 cm x 15 cm)].

### CONCLUSION

It is concluded that in Groundnut variety Kadiri Amaravathi along with the spacing (30 cm x 15 cm) (Treatment 7) was observed highest seed yield and B: C ratio.

### REFERENCES

- Ahmad N, Rahim MD, Khan U. Evaluation of different varieties, seed rates and row spacing of groundnut, planted under agro-ecological conditions of Malakand Division. *Journal of Agronomy*. 2007;6(2):385-387.
- Bhagavathi P.T, Chandrika, V. Sumathi, K.V, Naga Madhuri, C. Ramana and Mahesh. V. (2019). Performance of Groundnut (*Arachis hypogaea* L.) Under Different Tillage and Nutrient Management Practices. *Andhra Pradesh Journal Agriculture Science* 5(4):259-264.
- Bhairappanavar, S.T., Jaydeva, H.M., Gowda, T.H., Shivanna, S. (2005). Effect of nutrients and spacing on the yield of Uradbean under late sown condition. *Legume Research* 28(1):48-50.
- Chandrasekaran, R., Somasundaram, E., Mohamed, A.M., Thirukumar, K. and Sathyamoorthi, K. 2007. Influence of varieties and plant spacing on growth and yield of confectionery groundnut (*Arachis hypogaea* L.). *Research Journal of Agriculture and Biological Sciences* 3(5): 525-528.
- Gabisa M, Tana T, Urage E. Effect of planting density on yield components and yield of groundnut (*Arachis hypogaea* L.) varieties at Abeya, Borene Zone Southern Ethiopia. *International Journal of Scientific Engineering and Applied Science*. 2017;3(3):23-34.
- Gadade, G. D., Dhopte, R. V. and Khode, U.M. (2018). Effect of Different Spacing on Growth and Yield of BBF Raised Summer Groundnut (*Arachis*

- hypogea* L.). under Drip irrigation. *International Journal of Current Microbiology and Applied Sciences* **6**:593-597.
- Gomez, K.A. and Gomez, A.A. (1976). Three or more factor experiment. (In:) *Statistical Procedures for Agricultural Research* 2<sup>nd</sup> ed., pp.139-141.
- Hama Kareem, H. F., Hamahasan, B. M and Ali, S. H. S. (2016). Influence of Plant Spacing on the Growth and Yield of Groundnut (*Arachis hypogaea* L.) *International Journal of Current Research in Biosciences and Plant Biology* **3**(10):2349-8080.
- Idris, ALY. (2008). Effect of seed size and plant spacing on yield and yield components of faba bean (*Vicia faba* L.). *Research Journal of Agriculture and Biological Sciences* **4**(2):146-148.
- Jujjavarapu Yeswanth and Victor Debbarma Effect of sulphur and spacing on growth and yield of groundnut (*Arachis hypogea* L.). *The Pharma Innovation Journal* **11**(10): 1255-1258
- Kathirvelan, P. and Kalaiselvan, P. 2006. Growth characters, physiological parameters, yield attributes and yield as influenced by the confectionary groundnut varieties and plant population. *Research Journal of Agriculture and Biological Sciences*, **2**(6): 287-291.
- Konlan S, Sarodie-Addo J, Asare E, Kombiok MJ. Groundnut (*Arachis hypogaea* L.) varietal response to spacing in the Guinea savanna agro-ecological zone of Ghana: Growth and yield. *African Journal of Agricultural Research*. 2013; **8**:2769-2777. 9.
- Meena, B., Hulihalli, U.K., Kumar B.N.A. and Meena, M.K. (2011). Biomass Production, its Distribution and Yield of Hybrid Pigeonpea as Influenced by Plant Geometries and Fertility Levels. *Research Journal of Agricultural Sciences* **2**(4):833-836.
- Murade, N.B., Patil, D.B., Jagtap, H.D. and More, S.M. (2014). Effect of spacing and fertilizer levels on growth and yield of urad bean. *The Bioscan* **9**(4):1545-1547.
- Ngala, A.L., Dugle, I.Y. and Yakubu, H. (2013). Effects of inter-row spacing and plant density on performance of sesame (*Sesamum indicum* L.) in a Nigerian Sudan Savana. *Science of International* **25**(3):513-519.

- Patil P.T, Kolekar and B.T. Shete. (2007). Effect of layouts and spacing on yield and quality of bold seeded summer groundnut (*Arachis hypogea* L.). *International Journal of Agriculture Science* **3**(2):210-213.
- Rasekh H, Asghari J, Safaizadeh MN, Zakerinejad R. Effect of planting pattern and plant density on physiological characteristics and yield of peanut in Iran. *Research Journal of Biological Sciences*. 2010;**5**(8):542-547. 13.
- Sarkar R.K. and Banik. P. (2002). Effect of planting geometry, direction of planting and sulphur application on growth and productivity of sesame (*Sesamum indicum* L.). *Indian Journal of Agricultural Sciences* **72**: 270-73.
- Shaukat, S.A., Ahmad, Z., Choudhary, Y.A., Shaukat, S.K. (2012). Effect of different sowing dates and row spacing on growth, seed yield and quality of off-season pea (*Pisum sativum* L. Cv. Climax) under temperate conditions of Rawalakot Azad Jammu and Kashmir. *Science Journal of Agriculture* **1**(5):117-125.
- Singh, R.P., Singh, V.K. and Ranjeet Kumar, V.K. (2021). Effect of plant density on yield and economics of pigeon pea [*Cajanus cajan* (L.) MILLISP.]. *Journal of Plant Development Sciences* **13**(7):525-527.
- SkVaseem Akram, P V N Prasad, K Chandrasekhar and P Venkata Subbaiah. Growth, Yield and Economics of Groundnut (*Arachis hypogaea* L.) Cultivars as Affected by Levels of Nitrogen. *The Andhra Agric.* 2021, J **68** (2): 163-167.
- Varshitha, K.M., Singh, V., George, S.G. and Singh, A.C. (2022). Effect of Plant Growth Regulators and Spacing on Growth and Yield of Chickpea (*Cicer arietinum* L.). *Research Journal of Agriculture and Biological Sciences* **1** **2**(10):614-619.

**Table No. 1 Response of summer Groundnut varieties as influenced by plant geometry.**

S.No.	Treatments combinations	At 80 DAS		At 60 DAS	At 40-60 DAS	
		Plant Height (cm)	PlantDry weight (g)	No. of Nodules/plant	CGR (g/m <sup>2</sup> /day)	RGR (g/g/day)
1	Kadiri - 6 +Spacing 30cm x 15 cm	35.80	20.78	114.66	6.47	0.023
2.	Kadiri-6 + Spacing 35 cm x 15 cm	34.28	18.26	111.00	4.33	0.022
3.	Kadiri -6 + Spacing 45 cm x 10cm	36.10	18.41	112.88	5.92	0.023
4.	TAG-24 + Spacing 30 cm x 15 cm	34.67	21.43	112.33	4.27	0.016
5.	TAG-24 + Spacing 35 cm x 15 cm	34.08	19.46	115.00	6.06	0.026
6.	TAG-24 + Spacing 45 cm x 10 cm	33.48	20.35	108.55	7.02	0.027
7.	Kadiri Amaravathi+ Spacing 30 cm x 15cm	37.78	22.37	125.77	7.06	0.024
8.	Kadiri Amaravathi + Spacing 35 cm x 15cm	35.66	19.5	120.44	4.97	0.022
9.	Kadiri Amaravahti + Spacing 45 cm x 10 cm	34.44	21.46	115.44	7.27	0.026
	SEm(±)	0.78	0.72	3.01	0.65	0.0025
	CD (P=0.05)	2.36	2.18	9.05	1.95	—

**Table No. 2 Response of summer Groundnut varieties as influenced by plant geometry.**

Treatment combinations	Pods/ plant	Kernels/pods	Seed Index (g)	Seed yield (t/ha)	Halum yield (t/ha)	Harvest index (%)	Shelling (%)
1. Kadiri - 6 +Spacing 30 cmx 15 cm	28.06	1.42	29.10	2.50	5.16	32.40	48.18
2. Kadiri-6 + Spacing 35 cm x 15 cm	27.73	1.25	30.46	2.05	4.43	31.76	46.77
3. Kadiri -6 + Spacing 45 cm x 10cm	26.80	1.20	28.70	2.10	4.30	32.84	48.93
4. TAG-24 + Spacing 30 cm x 15 cm	27.00	1.30	31.07	2.21	4.36	33.59	50.59
5. TAG-24 + Spacing 35 cm x 15 cm	26.46	1.25	30.36	2.03	4.43	31.44	45.93
6. TAG-24 + Spacing 45 cm x 10 cm	24.33	1.26	30.43	2.17	4.53	32.38	47.90
7. Kadiri Amaravathi+ Spacing 30 cm x 15 cm	30.20	1.50	32.20	2.91	5.20	35.86	55.97
8. Kadiri Amaravathi + Spacing 35 cm x 15 cm	28.26	1.38	30.27	2.36	4.93	32.44	48.05
9. Kadiri Amaravathi + Spacing 45 cm x 10 cm	26.80	1.32	30.46	2.46	4.43	35.75	55.66
<b>SEm±</b>	<b>0.97</b>	<b>0.050</b>	<b>0.622</b>	<b>0.141</b>	<b>0.186</b>	<b>0.99</b>	<b>2.15</b>
<b>CD (p = 0.05)</b>	<b>2.91</b>	<b>0.150</b>	<b>1.865</b>	<b>0.422</b>	<b>0.560</b>	<b>2.97</b>	<b>6.46</b>

**Table No. 3 Response of summer Groundnut varieties as influenced by plant geometry.**

<b>S.No</b>	<b>Treatment combinations</b>	<b>Cost of cultivation (INR/ha)</b>	<b>Gross return (INR/ha)</b>	<b>Net return (INR/ha)</b>	<b>B:C</b>
1.	Kadiri - 6 +Spacing 30cm x 15 cm	44264.00	122833.33	78569.33	1.78
2.	Kadiri-6 + Spacing 35 cm x 15 cm	43164.00	101116.67	57952.67	1.34
3.	Kadiri -6 + Spacing 45 cm x 10cm	44264.00	103100.00	58836.00	1.33
4.	TAG-24 + Spacing 30 cm x 15 cm	44264.00	108183.33	63919.33	1.44
5.	TAG-24 + Spacing 35 cm x 15 cm	43164.00	100366.67	57202.67	1.33
6.	TAG-24 + Spacing 45 cm x 10 cm	44264.00	106866.67	62602.67	1.41
7.	Kadiri Amaravathi+ Spacing 30 cm x 15cm	44264.00	141650.00	97386.00	2.20
8.	Kadiri Amaravathi + Spacing 35 cm x 15cm	43164.00	116366.67	73202.67	1.70
9.	Kadiri Amaravathi + Spacing 45 cm x 10 cm	44264.00	119866.67	75602.67	1.71