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Effect of lime and bioferilisers on growth, yield and economics in Groundnut (*Arachis hypogaea* L)

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Abstract:

Groundnut (*Arachis hypogaea* L.) is considered as a unique and important legume oil seed crop grown over area of 28.5 mha with a total production of 46 mt in the whole world. In India groundnut is grown over an area of 4 mha with total production of 6.73 mt. Combined use of lime and biofrtilisers, organic and inorganic source of nutrients a better option to alleviate the nutrient deficiency in groundnut. On farm testing was conducted in farmer's field Khairabareni and Machhakuta village of Chhendipada block in Angul district of Odisha during rabi seasons of 202 22 and 2022-23 to study the effect of lime and biofertlisers on growth, yield and economics in groundnut comprisi three treatments viz. application of 40:28:15 N-P2O5-K2O/ha (farmer's practice), 100% soil test based fertiliz (STBFR) 25:40:40 kg N: P2O5: K2O/ha, STBFR+ lime 0.2 LR+ seed inoculation with biofertilisers (Rhiozobium and P @20 g/kg of seed each) laid out in randomized block design with ten replications. The trial revealed that STBFR+ lin 0.2 LR+ seed inoculation with biofertilisers (Rhiozobium and PSB @20 g/kg of seed each) recorded significantly high pods/plant (20.6), pod weight/plant (18.3 g), nodules/plant (84.9) resulting maximum pod yield (21.6 q/ha) which w 3.8% and 16.8% higher yield, respectively, over farmer's practice and 100% STBFR. This might be owing to increase solubility and availability of N in the rhizosphere due to biofertilisers, improvement of soil pH due to lime and insta availability of nutrients from inorganic fertilisers. The same treatment fetched higher net return (Rs.47527.5/ha) and B ratio(1.63) and found suitable for higher growth, productivity, profitability of groundnut in the existing farming situation

Table 1. Effect of lime and bioferilisers on growth, yield and economics in groundnut (Pooled data over two years)

Treatment	Pods/ plant	Pod weight (g/plant)	Nodules/ plant	Pod yield (q/ha)	Net returns (Rs./ha)	Benefit: cost Ratio
40:28:15 N-P_2O_5-K_2O/ha (farmer's practice)	16.6	14.3	69.9	18.5	36402.5	1.53
100% STBFR (25:40:40 N-P_2O_5-K_2O/ha)	19.3	17.6	72.4	20.8	44704.5	1.61
100% STBFR (25:40:40 kg N: P_2O_5: K_2O/ha, STBFR+ lime 0.2 LR+ seed inoculation with biofertilisers (*Rhiozobium* and *PSB* @20 g/kg of seed each)	20.6	18.3	84.9	21.6	47527.5	1.63
SEm±	0.309	0.787	1.915	0.121	-	-
CD (P= 0.05)	0.92	2.34	5.69	0.36	-	-

Biography:

Dr. Tiryak Kumar Samant, a native of Angul district of Odisha acquired Ph.D. degree in Agronomy from Odisha University Agriculture and Technology (OUAT), Bhubaneswar, Odisha. He is working as Scientist (Agronomy) in Krishi Vigyan Kendra (OUA Angul. He has 18 years of experience in extension education system and he has published 60 research articles in reputed scient national and international journals and also written 70 numbers of different abstracts in seminar/symposium, popular articles a book chapters/bulletins. He had attended more than 30 national and international seminars, workshop and symp siums. He has imparted training to farmers and the officials of the line departments organized by the Go agencies, public sectors and NGOs

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