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Response of Groundnut Varieties to Phosphorus Management and its Residual Effect on Succeeding Baby Corn

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ABSTRACT: Phosphorus gets fixed (.> 80%) and becomes unavailable to crop after its application to soil. Baby corn can be successfully followed after groundnut. The experimental was conducted at RRS, BCKV, Jhargram during 2019 and 2020 in split plot design with three main and six subplot treatments to find out the effect of phosphorus management on growth and yield of groundnut varieties and its residual effect on succeeding baby corn. Highest pod yield (2007 kg/ha), shelling % (67.35%), Oil % (49.97%), number of nuts/plant (23.23) & 100 kernel weight (40.55g) were obtained with groundnut variety TG 51 and application of (100% RDP + PSB + FYM). The residual effect was highest for variety TAG 24 and above said phosphorus dose applied to previous groundnut. So, groundnut variety either TG 51 alone or TAG 24 followed by baby corn can be successfully grown with application of 100% RDP + PSB+ FYM.

Keywords: Phosphorus, Variety, Groundnut, Baby corn, PSB, FYM.

INTRODUCTION

Oilseed crops occupy second position after cereals in the context to agricultural economy in the world. There are different types of crops producing vegetable oil cultivated in the world as well as in India. These crops are mustard, groundnut, soybean, sunflower, coconut, sesame, linseed, palm, niger etc.

Phosphorus is one of the most essential nutrients needed for quality of pulses and oilseeds for increasing the productivity. The most important impact of phosphorus is observed in the development process of plant root system and it was supported by Ajay *et al.* (2018). Higher demand for phosphorus in nodulating legumes has been found as compared to non-nodulating crops as it plays important role in nodule formation and fixation of atmospheric nitrogen (Brady and Well 2002). Phosphorus takes part important role in different physiological processes of plants like development of meristematic tissue, cell division & photosynthesis etc. It was pointed by Amruth *et al*. (2018) that phosphorus as an important ingredient of nucleoproteins and phytins. At maturity most of the phosphorus assimilated by plant is stored in the seed & fruits. So, lack of phosphorus results in less translocation of photosynthates to seed & fruits resulting reduced yield. More than 80% of phosphorus becomes unavailable for plant uptake after its application to soil (Gulati *et al*., 2008; Miller *et al*., 2010). This problem is hastened in the soil where presence of Iron (Fe), Aluminium (Al) and Calcium (Ca) is more. Therefore, the efficiency of phosphorus uptake by plant is less. So, it becomes very much necessary to find out suitable dose of phosphorus for particular soil. Application phosphorus fertilization @ 60 kg/ha produced highest number of pod per plant, test weight, pod yield and total biomass yield of groundnut (Ibrahim *et al*., 2019). Phosphate solubilizing bacteria (PSB) and organic matter play an important role in releasing the fixed phosphorus and bring them in soil solution resulting increased availability to plants. Integrated application of inorganic phosphorus along with PSB and organic matter might enhance the yield parameters of groundnut. Application 100 % RDF + 5 t/ha of FYM increased pod and haulm yield (Nagar *et al*., 2019). Significant increase in number pods per plant, dry pod yield and test weight can be obtained with inoculation of PSB with groundnut seed over no inoculation (More *et al*., 2002). Groundnut must be given a fertilizer dose of 75% RDF (18.75 Kg N and 37.5 Kg P/ha) along with 10 t FYM/ha and inoculation of PSB to obtain more pod yield of groundnut (Kausale *et al*., 2009). Higher growth & yield parameters of groundnut was obtained with application of SSP @ 50 kg/ ha along with FYM (Ghotmukale *et al*., 2020). Integrated use of chemical and biological fertilizers with organic manures is the most efficient way to supply plant nutrients (Vala *et al*., 2018).

Groundnut varieties take important role for production of seed. Groundnut crop showed variable response to phosphorus whether the availability of phosphorus in soil may be low to medium (Patel *et al.,* 1984). Groundnut varieties TAG 24, TG 51 & TG 37A are very much suitable for West Bengalin the rabi and/or summer season (Oct-May). Small seeded groundnut should be used for table purpose and medium to bold size seed for higher oil (Mahatma *et al*., 2020).

Variation in crop growth parameters of groundnut crop caused variation in pod yield for different variety (Mohite *et al*., 2017; Naik *et al*., 2018). Improved ground varieties could increase yield up to 25 to 28 % where improved management practices contributed 30 to 32 % (Nagaeswara Rao, 1992).

Baby corn is an unhusked or husked immatured unfertilized corn. Detasseling is done as soon as silk emergence is found or before the emergence of silk and young cob is harvested within four to five days after emergence of silk. It can be successfully grown after groundnut as cereal-legume cropping sequence is always desirable. Combined application of 125% RDF along with PSB, FYM, Rhizobium inoculation and VAM to groundnut followed by 100% RDF and biofertilizers to maize increased the system productivity of groundnut-maize cropping system (Rao *et al*., 2019). Application 75% RDF and 25 % N through FYM, AZO & PSB applied at groundnut produced significant higher seed yield, stover yield of succeeding maize crop (Dhadge and Sapute 2014).

Therefore to investigate the effect of phosphorus dose and variety on productivity of groundnut crop and its residual effect on succeeding baby corn, this experiment was conducted.

MATERIALS AND METHODS

The place where the experiments were conducted is situated at Jhargram, under Red and Laterite zone of West Bengal at 22°48′ N latitude and 86°59′E longitudes and at an elevation of 78.77 meter above the mean sea level. The annual average rainfall varies from 1000mm to 1200mm, mostly being precipitated during June to September. Mean monthly temperature ranged from 8.6 to 38.7 degrees centigrade (2019) and 9.9 to 35.6 degree centigrade (2020). The highest maximum temperature (42.5°C & 39.5°C respectively) was recorded in the second week of May 2019 & third week of May, 2020 when the crop was near to maturity. Generally, monsoon starts in this area by 2nd week of June with some seasonal variation found during different years. However, in some cases, the onset may delay up to last week of June. Norwester showers contributed an amount of 128.2 mm (2019) & 224.3 mm (2020) during May month. Maximum relative humidity varied almost 80 to 90 % during February to September (crop growth periods of groundnut & baby corn) during 2019 & 2020 respectively. Whereas the minimum relative humidity value differed widely from 38 to 72% during (2019) and 42 to 74% (2020).

Soil erosion is a major problem & fertility status of soil is poor as well as water retention capacity. Soil is sandy loam in nature having low amount of organic carbon (0.45%), with available nitrogen (110-120 kg/ha), phosphate (10-15 kg/ha), potash (150-200 kg/ha) etc. Soil is acidic in nature, soil pH is around 5.5. Drainage facility is moderate.

The experiment was conducted at Regional Research Station, Bidhan Chandra Krishi Viswavidyalaya, Jhargrm during 2019 & 2020. There were two experiments each year starting with groundnut in the month of March (pre kharif) followed by baby corn in kharif season (July). First experiment was laid out in split plot design with three main plot treatments (variety) and six sub plot treatments (phosphorus dose). The main plot treatments were variety- TAG 24(V_1), TG 51(V_2), TG 37A(V_3) and six subplot treatments were phosphorus dose-P_1- Pure Control of Phosphorus with full dose NK(nitrogen and potassium), P_2-100% RDF, P_3 -75% RDP(Recommended Dose of Phosphate) + full dose NK + PSB @ 25 g/ kg of seed, P_4-75% RDP + full dose NK + FYM @ 2 t/ha, P_5-75% RDP + full dose NK + PSB @ 25 g/ kg of seed + FYM @ 2 t /ha, P_6 -100% RDF + PSB @ 25 g/ kg of seed + FYM @ 2 t/ha.All the plots received uniform dose of nitrogen and potassium. Recommended dose of fertilizer (RDF) was followed at the rate 20-60-40 kg of NPK/ha. Farm yard manure (FYM) was applied @ 2 t/ha according to treatments. Phosphate Solubilizing Bacteria (PSB) was applied at the rate 25 g per kg of groundnut seed. Total treatment combinations were 18 with 3 replications, so total number of plots was 54. Plot size was of 5 m × 3 m. The programme was designed with split plot. Seed rate used for this experiment was @ 100 kg/ha. Spacing was maintained at 30 cm × 15 cm (Row to row × plant to plant). After harvesting of groundnut, baby corn was cultivated on the same field with minimum disturbance of previous layout without breaking of bund of respective plots. Seeds were sown at 20 kg/ha at a spacing of 50 cm × 25 cm with a fertilizer dose of 120-0-40 kg of NPK/ha. Variety for baby corn was VNR-4226. This programme was also investigated under split plot design with three replications. Baby corn was harvested at three phases.

RESULT AND DISCUSSION

Dry matter production. The dry matter produced under different groundnut varieties was significantly varied during both years of experiments (Table 1) at all growth stages of crop. As per pooled data presented in Table 1, variety TG 51 accumulated highest dry matter per square meter area (229.65 g/m^2, 493.62 g/m^2 and 530.48 g/m^2 at 30, 60 and 90 DAS respectively) followed by variety TAG 24 and TG 37A. Good response of different groundnut varieties subjected to addition of phosphorus in soil was obtained in better dry matter production was referred by Kamara *et al.* (2011); Rezaul Kabir *et al.* (2013). Pooled data shows (Table 1) that dry matter accumulation (244.04 g/m^2, 522.56 g/m^2 and 595.19 g/m^2 at 30, 60 and 90 DAS respectively) recorded with the treatment of application of (100% RDP @ 60 kg/ha, PSB @ 25 g per kg of seed and FYM @ 2 ton per ha) was significantly higher than the other phosphorus treatments during the all crop growth stages. Application of phosphorus in judicious manner may cause better root growth and development resulting more water and nutrient uptake, consequently photosynthetic activity and vegetative production was also more, so dry matter production was enhanced. Similar response was obtained by Intodia *et al.* (1998) with use of phosphorus @ 60 kg/ha to dry matter production. Significant interaction was found between groundnut variety and phosphorus dose on dry matter

production at all the crop growth stages during both years.

Number of nuts per plant, shelling percentage, hundred kernel weight & pod yield. From Table 2 and 3 it is found that groundnut varieties caused significant variance in number of nuts per plant, shelling percentage, 100 kernels weight and pod yield during both years. TG 51 variety had highest number of nuts per plant (23.23), shelling % (67.35), 100 kernels weight (40.55) and pod yield (2007 kg/ha) (Table 2 and 3) followed by variety TAG 24(20.75, 65.31%, 37.92, 1923.46 kg/ha) and TG 37A (20.71, 61.82%, 37.30 & 1727.57 kg/ha). However, the variation in nut number per plant, shelling %, hundred kernel weight & pod yield is related to efficiency of the variety to utilize either added phosphorus or locked up phosphorus in soil solution which ultimately governed the photosynthetic rate, higher dry matter production and then transportation of photosynthates to reproductive structure. This finding was in accordance with the experiment where groundnut variety TG 51 recorded 12 % more pod yield over the variety TAG 24of groundnut (Kale *et al*, 2009). Variation in growth and yield parameters among the groundnut variety affected the pod yield, this finding was in accordance with the thought of Mohite *et al.* (2017); Naik *et al.* (2018). Difference in above mentioned characters among the groundnut varieties are also to some extent genetically controlled therefore different verities reacted differently under same level of management and ultimately number and weight of nuts and pod shell was differed leading to varied percentage of shell, test weight and pod yield. This idea was supported by Kaushik and Chaubey (2000) that genetical variation in groundnut varieties mostly controlled the hundred kernel weight rather than by plant geometry.

Combined application of 100% RDP @ 60 kg/ha, PSB @ 25 g per kg of seed and FYM @ 2 t per ha i.e. treatment P_6 produced maximum number of nuts per plant (24.62), pod yield (2264.60 kg/ha), shelling % (68.44) and 100 kernel weight (41.84 g) followed by P_5, P_2, P_4 and P_3respectively except number of nuts per plant where P_3 is greater than P_4. Control plot i.e. P_1 produced minimum value for the above said characters as expected (Table 2 and 3). Use of phosphorus in full dose along with PSB and FYM registered more number of pods per plant, pod production, shelling % and 100 kernels weight as compare to application of phosphorus at reduced dose (75%) with PSB, FYM and 100% application of phosphorus @ 60 kg/ha respectively. This was in accordance with Patra *et al.* (1995) who got the variation between no phosphorus application and application of phosphorus at different levels to groundnut crop with respect to number pod per plant, test weight and shelling percentage. Similar trend of increased groundnut yield by 64 to 68% with combined application of phosphorus @ 30 kg/ha and rhizoboium inoculation was reported by (Asante *et al*. 2020). Application of P.S.B helped to unlock the phosphorus into soil solution which in conjugation with FYM had hastened the growth and yield parameters resulting increase in above parameters of groundnut. This result was in corroboration with Kausale *et al*. (2009). It was also supported by the finding of Bala *et al.* (2011) who said that availability of phosphorus in sufficient amount and at right stage of crop growth enhanced shelling percentage positively. Significant interaction was found between groundnut variety and phosphorus dose on number of nut per plant, shelling %, hundred kernel weight and pod yield.

Oil percentage. Oil percentage of nuts was significantly varied by the groundnut variety during booth year of experiments. As per pooled data (Table 3) variety TG 51 obtained highest oil percentage (49.97%) followed by variety TAG 24 (47.81%) and TG 37A (46.62%). All the varieties were statistically different from each other in oil percentage of nuts (pooled data in Table 3). Regarding formation oil, lecithin played an important role, fat is present as lecithin in plant body, different groundnut varieties showed different ability in lecithin formation which would lead to variation in oil content by the nuts of respective variety. Phosphorus dose significantly influenced the oil percentage of nuts during both years. Pooled data (Table 3) expressed that combined application of 100% RDP@ 60 kg/ha, PSB@ 25 g per kg of seed and FYM @ 2 t per ha i.e. treatment P_6 provided significantly highest oil content of nuts (52.10%) followed by P_5, P_2, P_4, P_3 and P_1 (Table 3). Role of phosphorus is very much connected with formation of lecithin, essential for oil formation in groundnut. Therefore, absence of phosphorus as in control plot or use of improper dose of phosphorus might hamper lecithin formation which in turn affected the oil percentage of nut. So integrated use of phosphorus in a judicious manner had made significant difference in oil percentage of nuts. This idea was supported by (Jain *et al*., 1990) who indicated the role phosphorus in oil content of groundnut. Similar trend was found in an experiment that application of 60 Kg P_2O_5/ha had increased oil yield by 44.3% in the 1st year & 48.8% in the following year (Patra *et al.*, 1995). Interaction effect failed to register any significant effect on oil percentage of groundnut (Table 3).

Harvest index. Different groundnut varieties failed to register any significant effect on harvest index either in 2019, 2020 or in pooled (Table 3). However it was highest for variety TAG 24 (0.42) and lowest for TG 37A (0.41). All the phosphorus dose produced statistically at par effect on harvest index (varied from 0.41 to 0.43) as presented in pooled data in Table number 3, whereas control treatment showed least harvest index (0.35) as expected. However higher harvest index was due to enhancement in pod yield and haulm yield. Interaction effect between groundnut variety and phosphorus dose on harvest index was found non-significant.

Residual effect.

Number of cobs per plant & individual corn weight. In the second experiment number cobs per plant and individual corn weight were significantly affected by the residual effect of different groundnut varieties grown in the previous cropping system (Table 4). Pooled data in Table 4 shows that, number of cobs per plant & individual corn weight was highest for variety

TAG 24(1.82, 10.91 g) followed by variety TG 37A (1.74 & 10.54 g) and TG 51 (1.68 &10.30 g). It was found that residual effect of all the varieties provided significantly different effect on number of cobs per plant & individual corn weight of baby corn (pooled data in Table 4). This may be due to the fact that baby corn reacted to nutrients available in soil left by the previous respective groundnut variety after harvesting and their subsequent utilization by baby corn. Various levels of phosphorus applied to previous groundnut crop significantly influenced the number of cobs per plant &individual corn weight of baby corn (Table 4). Treatment P_6 registered maximum number of cobs per plant (1.96) & individual corn weight (11.52 g)immediately followed by P_5, P_2, P_3, P_4& control in case of individual corn weight, however treatment P_5& P_2 presented reverse result for number of cobs per plant (pooled data in Table 4). It was presented by Patra *et al.* (2017) in one of his research findings on the beneficial effect of residual effect of organics on groundnut maize cropping sequence. The residual effect of PSB and to some extent FYM along with nutrients available for next crop i.e. baby corn made the difference among these attributes of baby corn. The interaction between the residual effect of groundnut variety and phosphorus dose failed to register any significant effect on number of cobs per plant &individual corn weight of subsequent baby corn.

Corn yield. In case of corn yield the residual effect of previous groundnut variety cultivated at different plots and phosphorus dose, produced significant effect on corn yield of subsequent baby corn (Table 4). As residual effect, plots of TAG 24 grown groundnut gave highest baby corn yield (1337.85 kg/ha) and it was 13.49 % & 17.98% more than TG 37A & TG 51 respectively. These variations may be due to the residual nutrients made available by previous respective groundnut variety for subsequent baby corn. Highest amount of corn was obtained from residual effect of treatment P_6 (1564.80 kg/ha). The advantage in corn yield was 12.34% & 13.95% more for corn yield than treatment P_5& P_2 respectively. Similar trend was obtained by Aniket *et al.* (2014) in one of his findings where he narrated that seed yield of maize crop was significantly influenced by the residual effect of the treatments applied to groundnut crop in groundnut – maize cropping system.

Table 1: Effect of phosphorus fertilization on dry matter production of groundnut varieties at different days after sowing.

Treatments	Dry matter production (g/m^2)								
	30 DAS			60 DAS			90 DAS		
	2019	2020	Pooled	2019	2020	Pooled	2019	2020	Pooled
Main plot: Variety (V)									
V_1	213.84	21.791	212.81	455.00	428.60	441.80	516.62	464.95	490.79
V_2	230.63	228.66	229.65	508.10	479.14	493.62	558.40	502.56	530.48
V_3	200.94	197.54	199.24	420.41	396.48	408.45	455.02	409.51	432.26
SEm(±)	4.91	2.88	2.84	6.50	5.58	4.28	3.29	2.96	2.21
CD at 5%	19.30	11.31	9.29	25.53	21.94	13.98	12.92	11.63	7.22
Sub plot :Phosphorus dose (P)									
P_1	180.04	178.44	179.24	339.22	325.38	332.30	348.02	313.22	330.62
P_2	233.06	230.82	231.94	512.87	482.43	497.65	564.08	507.67	535.88
P_3	194.70	192.03	193.36	432.26	406.07	419.16	454.75	409.28	432.01
P_4	199.78	196.06	197.92	444.28	418.21	431.25	488.92	440.03	464.47
P_5	238.00	235.78	236.89	499.70	469.91	484.81	577.77	520.00	548.88
P_6	245.25	242.84	244.04	538.68	506.44	522.56	626.51	563.86	595.19
SEm(±)	3.92	4.82	3.10	7.77	7.37	5.35	4.28	3.85	2.89
CD at 5%	11.32	13.93	8.79	22.45	21.30	15.15	12.36	11.12	8.14
Interaction	S	S	S	S	S	S	S	S	S

Table 2: Effect of phosphorus fertilization on number of nuts per plant, shelling %, and hundred kernel weight of groundnut varieties.

Treatments	No. of nuts per plant			Shelling %			100 kernel weight (g)		
	2019	2020	Pooled	2019	2020	Pooled	2019	2020	Pooled
Main plot: Variety (V)									
V_1	21.25	20.25	20.75	65.96	64.65	65.31	38.14	37.69	37.92
V_2	23.78	22.68	23.23	68.03	66.68	67.35	40.87	40.24	40.55
V_3	21.20	20.23	20.71	62.43	61.20	61.82	37.47	37.12	37.30
SEm(±)	0.51	0.52	0.36	0.31	0.31	0.22	0.62	0.58	0.428
CD at 5%	1.99	2.04	1.18	1.24	1.22	0.72	2.45	2.30	1.39
Sub plot: Phosphorus dose (P)									
P_1	18.07	17.83	17.95	61.11	59.90	60.50	30.71	30.68	30.69
P_2	23.52	22.15	22.84	67.84	66.50	67.17	40.42	39.63	40.03
P_3	20.93	20.11	20.52	62.30	61.07	61.69	38.78	38.57	38.67
P_4	20.88	20.06	20.47	64.19	62.92	63.56	39.66	39.23	39.45
P_5	23.68	22.29	22.98	68.27	66.92	67.60	41.23	40.49	40.86
P_6	25.36	23.89	24.62	69.13	67.76	68.44	42.17	41.51	41.84
SEm(±)	0.54	0.54	0.38	0.42	0.41	0.29	0.77	0.73	0.53
CD at 5%	1.56	1.57	1.09	1.22	1.20	0.84	2.23	2.11	1.50
Interaction	S	S	S	S	S	S	S	S	S

RDP: Recommended; Dose of Phosphate; V- Variety
DAS: Days after sowing; P- Phosphorus dose; NS-Non significant

Table 3: Effect of phosphorus fertilization on pod yield, oil percentage and harvest index of groundnut varieties.

Treatments	Pod yield (kg/ha)			Oil %			Harvest index (%)		
	2019	2020	Pooled	2019	2020	Pooled	2019	2020	Pooled
Main plot: Variety (V)									
V_1	1943.12	1903.79	1923.46	48.38	47.25	47.81	0.42	0.43	0.42
V_2	2016.93	1997.06	2007.00	50.51	49.42	49.97	0.40	0.41	0.41
V_3	1762.66	1692.48	1727.57	47.14	46.10	46.62	0.39	0.40	0.40
SEm(±)	43.97	45.23	31.54	0.50	0.54	0.37	0.01	0.01	0.01
CD at 5%	172.65	177.63	102.87	1.97	2.13	1.20	0.03*	0.04*	0.02*
Sub plot: Phosphorus dose (P)									
P_1	1387.00	1417.10	1402.05	42.69	41.71	42.20	0.34	0.35	0.35
P_2	2044.17	1928.84	1986.51	49.82	48.72	49.27	0.42	0.42	0.42
P_3	1801.16	1695.27	1748.22	47.00	45.89	46.44	0.41	0.41	0.41
P_4	1805.51	1804.53	1805.02	48.27	47.19	47.73	0.41	0.42	0.41
P_5	2126.40	2092.93	2109.66	51.62	50.47	51.04	0.43	0.44	0.43
P_6	2281.19	2248.01	2264.60	52.65	51.55	52.10	0.42	0.43	0.43
SEm(±)	50.98	50.48	35.87	0.59	0.65	0.44	0.01	0.01	0.01
CD at 5%	147.24	145.80	101.48	1.71	1.87	1.24	0.02	0.02	0.02
Interaction	S	S	S	NS	NS	NS	NS	NS	NS

Table 4: Residual effect of groundnut variety and phosphorus fertilization on number of cobs per plant, individual corn weight and corn yield of baby corn.

Treatments	No. of cobs per plant			Individual corn weight (g)			Corn yield (kg/ha)		
	2019	2020	Pooled	2019	2020	Pooled	2019	2020	Pooled
Main plot: Variety (V)									
V_1	1.88	1.77	1.82	11.31	10.50	10.91	1362.68	1313.03	1337.85
V_2	1.73	1.64	1.68	10.67	9.94	10.30	1150.65	1117.12	1133.89
V_3	1.79	1.69	1.74	10.94	10.13	10.54	1200.44	1157.06	1178.75
SEm(±)	0.01	0.01	0.00	0.09	0.11	0.07	34.91	23.96	21.17
CD at 5%	0.05	0.04	0.02	0.34	0.41	0.22	137.089	94.07	69.04
Sub plot: Phosphorus dose (P)									
P_1	1.64	1.56	1.60	9.13	8.99	9.06	714.33	678.62	696.47
P_2	1.84	1.76	1.80	11.53	10.60	11.06	1390.81	1355.64	1373.22
P_3	1.72	1.64	1.68	10.90	10.10	10.50	1208.93	1173.45	1191.19
P_4	1.72	1.60	1.66	10.54	9.63	10.09	1099.37	1065.52	1082.45
P_5	1.85	1.74	1.79	11.75	10.79	11.27	1409.95	1375.71	1392.83
P_6	2.02	1.90	1.96	11.99	11.04	11.52	1604.13	1525.48	1564.80
SEm(±)	0.04	0.04	0.03	0.09	0.09	0.07	37.15	30.48	24.03
CD at 5%	0.14	0.12	0.09	0.27	0.28	0.19	107.29	88.02	67.96
Interaction	NS	NS	NS	NS	NS	NS	NS	NS	NS

RDP: Recommended Dose of Phosphate V- Variety
DAS: Days after sowing; P- Phosphorus dose; NS-Non significant

CONCLUSIONS

So, groundnut variety either TG 51 alone or TAG 24 followed by baby corn can be successfully grown with application of phosphorus @ 60 kg/ha along with PSB @ 25 g per kg of seed & FYM @ 2 ton /ha. Regarding the beneficial role of PSB & FYM, FYM performed little better than PSB on different growth (particularly at later crop growth stage) & yield parameters of groundnut crop and for the subsequent baby corn PSB was found better than FYM. Inoculation of PSB and FYM to reduced phosphorus dose (75% of RDP) may be recommendable to farmers instead of 100% RDP application for prolonged residual effect on succeeding crops.

FUTURE SCOPE

The present study is a good approach to find out the effect of different phosphorus fertilization on different aspects of groundnut varieties and their residual effect on baby corn. However, this experiment generates abundant data where further research can be done involving other groundnut varieties and to find their impact on yield parameters of baby corn. Investigation can be done with other phosphorus schedules involving other bio fertilizers and beneficial microorganisms. Further studies can be carried out on quality aspects of groundnut and baby corn.

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Conflict of Interest. None.

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