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Effect of integrated nutrient management on yield attributes and economic of pea

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Abstract
Input-output data on farm trails of three most popular pea varieties of eastern Uttar Pradesh cultivated under low cost input like biofertilizer were collected during2002-05 from the experimental field of the Indian Institute of vegetable Research Varanasi, The highest yield and benefit ratio per unit input ratio was found when the crop was cultivated under pressmud @2t/ha with recommended dose of NPK. A return ratio of 3.5 rupees per rupee invested was realized in fresh vegetable pea and pea seeds under pressmud with recommended dose of NPK accounted net Profite of 102% to 140.7%. Maximum net return and cost benefit ratio 1: 3.5 was realized in Arkel when market as fresh vegetable. Maximum net return and cost benefit ratio was obtained when pea grain was marketed.

Keywords: Integrated nutrient, yield attributes, economic, pea

Introduction
The green revolution brought impressive gains in food production but with insufficient. Concern for more expensive and sustainability. Because Agriculture production totally dependence on chemical fertilizers for modern agricultural. Its due to major cases poor yield of crop and growth would mean further loss in soil quality, possibilities of water contamination and unsustainable burden on the fiscal system. The Government of India has been trying to promote an improved practice involving use of fertilizers along with organic manure. These inputs have multiple beneficial impacts on the soil and can be relatively cheap and convenient for use. Consistent with current outlook, commercial viability of production because farmer aims not only to encourage their use in agriculture but also to promote economic profit.

Now- a-days with the increasing awareness in dairy forming and sugar industries there is scope for utilizing there was products in crop production. The need of the hour is to incorporate the Integrated Plant Nutrient Supply System can bring about on equilibrium degenerative and restorative activities of the soil environment for sustainable Agriculture. Integration of chemical and biological sources of plant nutrients and their efficient management is effective not only in sustaining productivity and soil health, but also in supplementing apart of chemical fertilizers requirement of different crops. By product of sugar industries origins can be advantageously blended in soil to replace a part of the energy intensive inputs. Press mud and FYM low costly and more effective and renewable source of plant nutrient to supplement chemical fertilizer in soil system

The production of vegetable peas adapted to commercial purpose. Then knowledge of nutrient requirements for become increasing yield for less expended to become a significant proportion of crop production neither more use of fertilizer and organic combination gain less profit. Therefore use of any fertilizers care mind effect was synergistic but no antagonistic

Materials and Methods
A field experiment was conducted to evaluate the impact of organic and inorganic combination on yield and biochemical constituents of vegetable pea seeds at Indian Institute of Vegetable Research. Varanasi (U.P).

The soil used for the basic properties of the soil were as fallows pH 7.6, EC 0.41 dSm^{-1}, available N $_{270}$ kg ha^{-1}, P_2O_5 $_{18}$ kg ha^{-1} and K_2O $_{180}$ kg ha^{-1} sulphur $_{10}$ kg ha^{-1}, organic carbon 0.38% and (Ca^{+2} + Mg^{+2}) 6.42 meq/100 g soil and Just before sowing.

The treatment combination viz., to – control T_1 - $N_{30}P_{60}K_{80}$ kg/ha T_2 – Press mud 5 t/haT_3 - $N_{30}P_{60}K_{80}$ kg/ha+ press mud 2t/ha T_4 - N_0 $P_{60}K_{80}$ kg+Press mud 2t/haT_5 – FYM 5t/ha. The full amount of FYM, N P K and pressmud were applied at the time of field preparation. The crop was irrigated at active growth stage and at pod initiation stage. Recommended agronomic practices and plant protection measures were followed.

Nitrogen, Phosphorus and Potash were applied at the time of sowing. Application of these nutrient as basal dose through Urea, DAP, murate of potash. FYM and pressmud were applied at the time of field preparation.

Were evaluated in split plot design with three replication. The size of each plote was $5m^2$. The crop was planted in16 November 2002-2003 to 2003-2004 and recommended Agronomic practices and plant protection measures were fallowed. The crop was irrigated at active growth stage and pod initiation stage. Observation of yield at physiological maturity.

Pea fruits were harvested at breaker stage from each subplot and marketable fruits only weighed for yield determination. In addition to yield and yield contributing traits, the data were also recorded on marketable yield and price fetched by the crop. The costs of cultivations in general (table-1) vis-à-vis net returns and cost: benefit ratios were worked out for all the varieties and treatment.

Table 1

Treat.	Cost of cultivation	Yield q/ha		Gross return		Net return		Return/ rupee invested	
		Grain	Fresh pod	Grain	Fresh pod	Grain	Fresh pod	Grain	Fresh pod
T0	11180	6.5	38.3	32590	26810	21410	22630	1.9	2.4
T1	13648	9.8	68.7	49350	48090	35702	34442	2.6	3.5
T2	13180	7.9	52.7	39390	36890	26210	23710	2.0	2.8
T3	15648	11.8	100.2	59085	70140	43437	54490	2.8	3.5
T4	15348	11.5	99.3	57415	69510	42067	54162	2.7	3.5
T5	13980	734	54.7	36700	38290	22720	24310	1.6	2.7
LSD		0.94	6.1						

Result and Discussion

Fresh pod and grain yield

The application of recommended dose of NPK found remarkably higher fresh pod yield followed by application of recommended dose of PK and e zero N along with press mud @ 2 t/ha.

During the decomposition of organic manure release of appreciable quantities of CO2 play an important role in increasing the P availability. The higher availability of K in soil is due to reduction of K fixation, added by organic manure interacted with K clay to release K from the non-exchangeable fraction to available pool. Similar observation was Jambhekar (1994) [4]. The higher availability of Fe, S, Cu and Zn nutrients in soil due to application of organic manures was ascribed to mineralize action of manure, reduction of fixation and complexing properties of this manure with micronutrient. These micronutrient play a vital role in enzyme activity involved in all the major metabolic process of plant such as synthesis of carbohydrate organic acid vitamins.

Organic manure in combination with recommended dose of NPK was significantly superior in all growth attributes compared to other treatment combination. Organic and inorganic combination may be synergistic on nutrient supply. Organic source have been reported to improve the physical and biological health of soil, water and nutrient holding capacity and, the aeration (Acharya 2002) [1]. High root proliferation was noted due to more absorption of water and nutrient, which help in more accumulation of dry matter when treated with organic nutrient. Increase nutrient use efficiency (Baskar 2003) [2] sufficient supply of nutrient more plant and root vigor Nambior (1994) [5]. Sharma *et al* (2002) [6]. This might be owing to the fact organic manure supply both Macro and micro had also been reported (Yadvanshi and Yadav 1995) nutrient further microbial decomposition and supply of energy brought about the transformation of inorganic nutrients held in soil colloid readily utilized by growing plant that corroborates with (Tisdal *et al* 1985, Gopal and Suryonarayon 1998) [3].

The maximum net return and cost benefit ratio was found was of Rupees sixty eight thousand six hundred and (1:3.4) respectively under treatment of recommended dose of NPK along with pressmud @2t/ha and at par treatment whereas Nitrogen levels is zero and recommended dose of NPK along with Pressmud @2t/ha (Sixty seven thousand nine hundred and 1:3.4C:B) under this treatment in case of fresh pod sailing.

The data indicated that reflection between grain and fresh pod sailing for grain C: B ratio (1:2.8 and 1:3.4, 1:2.7 and 1:3.4) respectively grain and fresh pod sailing under this treatment.

Genotypic variation of economics impact

Table 2

Var.	Cast of cultivation	Grain yield Kg/ha		Gross return		Net return		Return/ rupee invested	
		Grain	Fresh pod	Grain	Fresh pod	Grain	Fresh pod	Grain	Fresh pod
Arkel	13648	7.6 c	62.6 b	38220	62600	24572	48952	1.5	3.5
AP-1	13648	11.12a	81.4 a	55625	56980	41977	43332	2.6	3.2
AP-3	13648	8.7 b	68.2 b	43370	61380	29722	47732	1.8	3.5
		0.57	5.9						

Observation of data indicates that significant effects on grain/fresh pod yield in Azad P1 fallowed by Azad P3 and Arkel. The maximum net return of rupees and cost benefit ratio of fourty three thousand three hundred thirty two and cost benefit ratio (1:3.5) was realized by Arkel and Azad P3 compared to Azad P1 (1:3.2) in case of fresh pod sailing. Whenever the maximum net return and cost benefit ratio of rupees fourty one thousand three hundred seventy seven and cost benefit ratio was realized by(1:2.6 in Azad P1 compared to Azad P3 and Arkel (1:1.8, and 1:1.5) respectively in case of dry seed sailing

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