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# Integrated nutrient management for higher yield, quality and profitability of baby corn (*Zea mays*)

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## ABSTRACT

Field experiments were carried out on sandy loam soil at Varanasi during pre-*kharif* season of 2004 and 2005 to evaluate appropriate fertility levels and N sources for baby corn (*Zea mays* L.). Experiment was laid out in split–plot design and replicated thrice with three fertility viz. $F_1$, 60 + 12.9 + 24.9; $F_2$, 120 + 25.8 + 49.8, and $F_3$, 180 + 38.7 + 74.7 kg N+P+K/ha in main plots and three N sources viz. 100% N by fertilizer, 75% fertilizer N + 25% N by FYM and 50% fertilizer N + 50% N by FYM as sub plots. Significant increase in baby corn and green fodder yield and quality parameters (carbohydrate, sugar, starch, protein, N, P and K content and uptake) in baby corn were recorded with application of 120 + 25.8 + 49.8 over 60 + 12.9 + 24.9 kg N+P+K/ha. However, net returns increased significantly with each successive increase in fertility level upto highest fertility levels i.e. 180 + 38.7 + 74.7 kg N+P+K/ha. Application of N through fertilizer alone recorded significantly higher baby corn yield (2.30 t/ha mean) and net returns (Rs. 1,10,983/ha) over 50% fertilizer N + 50% N through FYM. Available N, P and K in the soil after baby corn harvest were highest with 180 + 38.7 + 74.7 kg N+P+K/ha and 50% N supplied through FYM.

***Key words***: Baby corn, Nutrient, management, Nutrient uptake, Quality

Baby corn *(Zea mays* L.) is immature dehusked, unfertilized maize ear, harvested 1 to 2 days after silking at 2-3 cm long silk stage are consumed as vegetable due to its sweet flavor. High nutritional value, eco-friendly and crispy nature of baby corn has made it special choice for various traditional and continental dishes apart from canning in the elight society. After the harvest of babies, the economics potential is further enhanced since it supplies green, soft, succulent, nutritious, palatable fodder with higher digestibility. Recently cultivation has started and gaining popularity in peri-urban areas due its export potential besides huge employment generation. Being a short duration crop (50-60 days) it can be sown and harvested 3 to 4 times in an year. In rice–wheat system, cultivation of summer moong (*Vigna radiata*) is a recommended practice which has been reported not remunerative when planted beyond 10 April. Besides being the privilege of bonus moong bean is grown on limited area, otherwise such lands remain unused between the turnover periods of wheat and paddy. Natural resources and irrigation system also found unutilized but paid for their service charges. The pre-season period (15 April - 15 July) if put under the cultivation of short duration vegetables like baby corn it will not cause any problem to the rice-wheat. Baby corn is nutrient exhaustive crop and due to high planting density, integrated nutrient management (INM) practices is important to get maximum benefit. To cope-up with the situation, the use of organic and inorganic sources of nutrients was taken to evaluate the varying levels of nutrients with and without organic sources on the physio-chemical properties of soil and crop yield.

## MATERIALS AND METHODS

Field experiment was conducted in pre-*kharif* season of 2004 and 2005 after the harvest of wheat at Agricultural Research Farm, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi. The farm is situated at 25°18'N latitude, 83°03'E longitude and at an altitude of 78.1 m above mean sea level. The sandy-loam soil of the experimental field was low in organic carbon (0.32%) and available N (219.6 kg/ha), medium in available P (18.81 kg/ha) and K (189.7 kg/ha) with pH 7.4. The experiment was laid out in split-plot design replicated thrice with 3 N+P+K fertility levels (kg/ha) *viz.* $F_1$(60+12.9+24.9), $F_2$(120+25.8+49.8) and $F_3$(180+38.7+74.7) in main plots and 3 nitrogen sources *viz.* $S_1$(100% N through fertilizer), $S_2$ (75% N through fertilizer + 25% N through FYM), $S_3$ (50% N through fertilizer + 50% N through FYM) in sub-plots. Baby corn 'MRM-3824' seeds (hybrid maize) were

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**Table 1.** Effect of fertility levels and sources of nitrogen on yield attributes of baby corn

| Treatment | Yield attributes | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Barren plant (%) | | Baby cobs /plant | | Cob weight (g/cob) | | Baby corn weight (g/cob) | | Baby corn girth (cm) | | Baby cob: baby corn | |
| | 2004 | 2005 | 2004 | 2005 | 2004 | 2005 | 2004 | 2005 | 2004 | 2005 | 2004 | 2005 |
| *Fertility level (N+P+K kg /ha)* | | | | | | | | | | | | |
| $N_{60}P_{12.9}$ $K_{24.9}$ | 7.55 | 7.59 | 1.85 | 1.79 | 32.55 | 31.49 | 7.25 | 7.02 | 3.10 | 3.06 | 4.46 | 4.47 |
| $N_{120}P_{25.8}K_{49.8}$ | 5.09 | 5.95 | 2.68 | 2.53 | 37.17 | 36.37 | 7.76 | 7.55 | 3.78 | 3.72 | 4.77 | 4.81 |
| $N_{180}P_{38.7}K_{74.7}$ | 3.41 | 3.88 | 3.01 | 2.90 | 40.10 | 38.78 | 7.96 | 7.78 | 4.37 | 4.13 | 5.04 | 5.02 |
| SEm ± | 0.29 | 0.22 | 0.11 | 0.10 | 1.12 | 1.18 | 0.17 | 0.18 | 0.16 | 0.13 | 0.20 | 0.21 |
| CD (P=0.05) | 0.98 | 0.87 | 0.42 | 0.40 | 4.40 | 4.60 | 0.65 | 0.72 | 0.63 | 0.50 | NS | NS |
| *Sources of N application (% Fertilizer + % FYM)* | | | | | | | | | | | | |
| 100 + 0 | 4.82 | 5.07 | 2.69 | 2.52 | 38.69 | 37.19 | 7.70 | 7.60 | 3.88 | 3.81 | 5.07 | 4.90 |
| 75 + 25 | 5.36 | 5.86 | 2.51 | 2.41 | 36.75 | 35.76 | 7.65 | 7.32 | 3.75 | 3.64 | 4.72 | 4.91 |
| 50 + 50 | 5.87 | 6.49 | 2.34 | 2.29 | 34.88 | 33.68 | 7.41 | 7.15 | 3.62 | 3.46 | 4.66 | 4.75 |
| SEm± | 0.15 | 0.11 | 0.06 | 0.05 | 0.73 | 0.62 | 0.11 | 0.14 | 0.06 | 0.07 | 0.09 | 0.09 |
| CD (P=0.05) | 0.46 | 0.35 | 0.18 | 0.16 | 2.26 | 1.90 | 0.24 | 0.31 | 0.19 | 0.22 | NS | NS |

sown adopting the seed rate of 40 kg/ ha on leveled soil by opening 5 cm deep furrow at 40 cm x 20 cm spacing. Baby corn was sown on 19 and 20 May during 2004 and 2005, respectively. The minimum and maximum temperature ranged from 25.9$^0$ to 29.2$^0$C and 32.6 to 41.6$^0$C in first year and 24.7$^0$ to 30.4$^0$C and 32.4$^0$ to 44.1$^0$C during second year, respectively. The crop received 347 mm rainfall during 24 May to 1 August 2004 and 273 mm rainfall during 25 June to 2 August 2005. FYM (0.45-0.2-0.5% N-P-K) was used as an organic source of N and applied as per treatment. Urea, Diammonium phosphate and muriate of potash were taken as fertilizer sources for N, P and K, respectively. Farmyard manure and fertilizers were calculated and applied as per treatment. Full dose of FYM, P and K and half-dose of N were applied as basal. Remaining N was top dressed at knee high stage. Crop received 3 irrigations on 21, 29 May and 25 June, 2004 while 4 irrigations on 23 May, 2, 12 and 20 June, 2005. All the agronomic practices were followed throughout the cropping period. The immature cobs (baby corn) were harvested at 2 to 3 days after silk emergence. These baby cobs were counted weighted and thereafter husked and silk was removed and baby corn yield was recorded. Crop was harvested on 2 and 3 August, 2004 and 2005, respectively. Physio-chemical properties of soil, nutrient content and uptake by baby corn were analysed through prescribed laboratory procedures.

## RESULTS AND DISCUSSION

### *Yield attributes and yield*

Yield attributes and yield of baby corn were significantly affected by fertility levels and sources of N (Tables 1 and 2). Significant reduction in the barren plants (%) was found with increase in fertility level upto the highest level of 180+38.7+74.7 kg N+P+K/ha. Significant increase in baby cob weight, baby corn weight, cobs/ plant, baby corn girth, baby cob yield, baby corn and green fodder yield were observed with application of 180+38.7+74.7 kg N+P+K/ha compared to 60+12.9+24.9 kg N+P+K/ha. The baby cob: corn ratio was found to increase with each increase in fertility level but it did not differ significantly. This has been due to additive enrichment and enhanced nutrient availability. However, the former treatment was at par with that of 120+25.8+49.8 kg N+P+K/ha. This might be attributed to the fact that increase in fertility level provided better nutrient supply to baby corn but at 180+38.7+74.7 kg N+P+K/ha could not be properly utilized by baby corn because of its short growth duration. Significantly higher yield of sweet corn and fodder (Sahoo and Mahapatra, 2007), 'PAC-792' and composite maize 'Shakti for baby corn (Ramachandrappa *et al.,* 2004b) have been reported with increasing fertilizer.

Significantly higher values of yield attributes *viz*. baby cob weight, baby corn weight/cob, number of cobs/plant, baby corn girth and baby corn yield were recorded with the application of 100% N as fertilizer than 50% fertilizer + 50% N as FYM. The application of 75% through fertilizer and 25% N by FYM being at par with 100% N through fertilizer, registered higher values of above characters over 50% fertilizer + 50% N as FYM in both the years. Baby cob and green fodder yield was significantly higher with application of 100% N as fertilizer over integrated nutrient management treatment of 75% fertilizer + 25% N as FYM and 50% fertilizer + 50% N as FYM. Similarly application of 75% fertilizer + 25% N as FYM also followed same trends and registered significantly

**Table 2.** Effect of fertility levels and sources of nitrogen on yield and economics of baby corn

| Treatment | Baby cob yield | | Baby corn yield | | Fodder yield | | Cost of cultivation | Net return | | B:C ratio | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2004 | 2005 | 2004 | 2005 | 2004 | 2005 | | 2004 | 2005 | 2004 | 2005 |
| *Fertility level ( N+P+K kg/ha)* | | | | | | | | | | | |
| $N_{60}P_{12.9}K_{24.9}$ | 6.87 | 6.57 | 1.48 | 1.39 | 26.53 | 23.60 | 23,871 | 58,148 | 53,687 | 2.43 | 2.21 |
| $N_{120}P_{25.8}K_{49.8}$ | 11.64 | 10.99 | 2.39 | 2.26 | 40.00 | 35.96 | 26,526 | 1,09,842 | 1,01,399 | 3.95 | 3.67 |
| $N_{180}P_{38.7}K_{74.7}$ | 13.45 | 12.80 | 2.70 | 2.56 | 45.85 | 41.84 | 29,179 | 1,28,231 | 1,19,747 | 4.10 | 3.83 |
| SEm ± | 0.47 | 0.47 | 0.08 | 0.08 | 1.43 | 1.43 | 896 | 3,013 | 2,767 | 0.12 | 0.11 |
| CD (P=0.05) | 1.86 | 1.83 | 0.32 | 0.31 | 5.87 | 5.89 | 3,518 | 11,830 | 10,864 | 0.47 | 0.44 |
| Sources of N application (% Fertilizer + % FYM) | | | | | | | | | | | |
| 100 | 12.13 | 11.03 | 2.37 | 2.23 | 40.58 | 36.47 | 24,157 | 1,17,450 | 1,04,516 | 4.41 | 4.08 |
| 75 + 25 | 10.48 | 10.21 | 2.21 | 2.08 | 37.41 | 33.53 | 26,459 | 97,011 | 92,445 | 3.60 | 3.31 |
| 50 + 50 | 9.35 | 9.13 | 1.99 | 1.91 | 34.38 | 31.09 | 28,959 | 81,760 | 77,873 | 2.79 | 2.61 |
| SEm± | 0.21 | 0.25 | 0.05 | 0.04 | 0.73 | 0.74 | 475 | 2,308 | 2,111 | 0.09 | 0.08 |
| CD (P=0.05) | 0.63 | 0.78 | 0.16 | 0.15 | 2.25 | 2.29 | 1,464 | 7,114 | 6,505 | 0.27 | 0.25 |

**Table 3.** Interaction effect of fertility levels and N sources on baby corn and green fodder yield (t/ha)

| Treatment | 2004 | | | 2005 | | |
|---|---|---|---|---|---|---|
| | $S_1$ | $S_2$ | $S_3$ | $S_1$ | $S_2$ | $S_3$ |
| | | | *Baby corn yield* | | | |
| $N_{60}P_{12.9}K_{24.9}$ | 1.67 | 1.49 | 1.27 | 1.53 | 1.38 | 1.26 |
| $N_{120}P_{25.8}K_{49.8}$ | 2.56 | 2.42 | 2.18 | 2.43 | 2.27 | 2.08 |
| $N_{180}P_{38.7}K_{74.7}$ | 2.87 | 2.72 | 2.52 | 2.75 | 2.58 | 2.37 |
| SEm± (S at same level of F) | | | 0.07 | | 0.08 | |
| CD (P=0.05) | | | 0.18 | | 0.20 | |
| SEm± (F at same or different level of S) | | | 0.08 | | 0.09 | |
| CD (P=0.05) | | | 0.25 | | 0.26 | |
| | | | *Green fodder yield* | | | |
| $N_{60}P_{12.9}K_{24.9}$ | 29.58 | 26.53 | 23.46 | 26.26 | 23.58 | 20.95 |
| $N_{120}P_{25.8}K_{49.8}$ | 43.08 | 39.87 | 37.05 | 39.02 | 35.26 | 33.58 |
| $N_{180}P_{38.7}K_{74.7}$ | 49.07 | 45.84 | 42.64 | 45.04 | 41.74 | 38.74 |
| SEm± (S at same level of F) | | | 1.15 | | 1.15 | |
| CD (P=0.05) | | | 2.96 | | 2.97 | |
| SEm± (F at same or different level of S) | | | 1.26 | | 1.28 | |
| CD (P=0.05) | | | 3.88 | | 3.96 | |

$S_1$: 100% inorganic; $S_2$: 75% inorganic + 25% organic; $S_3$: 50% inorganic + 50% organic

higher values of baby cob and fodder yield over application of 50% fertilizer + 50% N as FYM ($S_3$). It seems that conjunctive application of organic and fertilizer N could not supply sufficient N at critical growth stages of plant because of slow nutrients release pattern (Sahrawat, 2006) and proved inferior than fertilizer N source. Baby corn: baby cob ratio did not differ significantly, but was highest with 100% N fertilizer during both the years, however, a significant reduction in barren plant (%) were observed with 100% N fertilizer which increased with increasing proportion of FYM ($S_2$ and $S_3$) due to its slow nutrient release pattern.

### *Interaction*

Interaction between fertility levels and N sources on baby corn and fodder yield was found significant (Table 3). Application of 180+38.7+74.7 kg N+P+K/ha as 100% N through fertilizer recorded highest baby corn and green fodder yield which was significantly superior to all remaining treatments except 180+38.7+74.7 kg N+P+K/ha applied as 75% fertilizer N source with 25% N by FYM, that was at par during both the years of investigation. It was due to adequate and rapid availability of nutrients by fertilizer source at higher fertility level. Further, the data indicates that application of 100% N by fertilizer produced highest baby corn and green fodder yield at each fertility level.

### *Nutrient uptake*

Nutrient uptake by baby corn (baby corn + green fodder) was affected significantly due to fertility levels and sources of N (Table 5). The uptake of N, P and K by plants increased significantly with successive increase in fertility level, which led to maximum N, P and K uptake at 180+38.7+74.7 kg N+P+K/ha ($F_3$) that was significantly higher than that of 120+25.8+49.8 kg N+P+K/ha ($F_2$) and 60+12.9+24.9 kg N+P+K/ha ($F_1$) in both the years of study. This increase was mainly due to increased green cob and green fodder yield and higher concentrations of respective applied nutrients (NPK). The findings of Saha and Mondal (2006) confirmed these results. Significantly higher nutrients uptake (NPK) were recorded with the application of 100% N through fertilizer ($S_1$) over integrated nutrients applied as $S_3$ (50% fertilizer + 50% N as FYM) and $S_2$ (75% fertilizer + 25% N as FYM). Similarly, $S_2$ (75% fertilizer + 25% N as FYM) removed significantly higher NPK as compared with $S_3$ (50% fertilizer + 50% N as FYM) during both the years of investigation. This might be due to lower content of nutrients in the plants and reduced yield of baby corn and green fodder with integrated use of N sources.

### *Quality parameters*

The quality parameters were affected significantly due to various fertility level. The quality parameters *viz.* protein, carbohydrate, starch, reduced sugar and non-reduced sugar, N, P and K content in baby corn increased with each increase in fertility level with maximum values of above parameters at 180+38.7+74.7 kg N+P+K/ha (Table 4). Consequently, the N, P and K being involved in physico-chemical reactions in plant body of baby corn did behave accordingly to their effect on plant system and enhanced the values of quality parameters. Ramchandrappa *et al*. (2004a) observed highest values of protein, sugars, N, P and K content in baby corn with application of 150+75+40 kg N+P+K/ha.

Sources of nitrogen made marked improvement in quality parameters *viz.,* carbohydrate, reduced sugar and non-reduced sugar and P content in baby corn. Significantly higher values of these parameters were noticed with application of 100% N through fertilizer as compared to integrated nutrient application. This was due to rapid availability of applied nutrients to the plants. Protein, starch, N and K content in baby corn did not differ significantly. Although, organic N source (FYM) is the store house of nutrients but the slow nutrient release pattern to the short duration baby corn crop resulted in comparatively lower values of above quality parameters.

### *Economics*

Net returns and B:C rato was significantly influenced by levels of fertilization and soruces of N (Table 2). Net return and B:C ratio increased significantly with each successive increase in fertility level and on mean basis, net returns and B:C rato were highest (Rs 1,23,989 and 3.97) with application 180+38.7+74.7 kg N+P+K/ha. Similar effect of fertility levels on economics of baby corn has been reported by Sahoo and Mahapatra (2005).

Similarly, application of entire N through fertilizer has significantly higher net return and B:C ratio (Rs 1,23,989 and 4.25) than integrated nutrient management as $S_2$ (75% N through fertilizer + 25% N through FYM) and $S_3$ (50 % N through fertilizer + 50 % N through FYM). The higher baby corn and green fodder yield with 100% inorganic N source led to higher net returns and B:C ratio.

### *Soil fertility status*

Available nutrient in the soil after 2nd crop of baby corn harvest were affected significantly due to fertility levels and sources of N (Table 5). Significant variation in avail-

**Table 4.** Effect of integrated nutrient management on quality parameters (%) of baby corn (mean values of 2 years)

| Treatment | Carbohydrate | Starch | Protein | Reduced sugar | Non-reduced sugar | N | P | K |
|---|---|---|---|---|---|---|---|---|
| *Fertility level ( N+P+K kg/ha)* | | | | | | | | |
| $N_{60}P_{12.9}$ $K_{24.9}$ | 65.47 | 61.52 | 15.97 | 0.27 | 2.25 | 2.57 | 0.55 | 2.56 |
| $N_{120}P_{25.8}K_{49.8}$ | 70.06 | 64.99 | 18.25 | 0.43 | 2.53 | 2.94 | 0.75 | 2.72 |
| $N_{180}P_{38.7}K_{74.7}$ | 74.33 | 67.93 | 19.27 | 0.45 | 2.67 | 3.14 | 0.78 | 2.86 |
| SEm ± | 1.55 | 1.55 | 0.58 | 0.01 | 0.07 | 0.07 | 0.02 | 0.06 |
| CD (P=0.05) | 6.07 | 5.90 | 2.26 | 0.04 | 0.27 | 0.29 | 0.07 | 0.22 |
| *Sources of N application (% Fertilizer + % FYM)* | | | | | | | | |
| 100 + 0 | 71.38 | 65.79 | 18.04 | 0.41 | 2.53 | 2.93 | 0.72 | 2.77 |
| 75 + 25 | 69.95 | 65.15 | 17.82 | 0.38 | 2.50 | 2.88 | 0.69 | 2.71 |
| 50 + 50 | 68.53 | 63.51 | 17.63 | 0.36 | 2.42 | 2.85 | 0.67 | 2.65 |
| SEm ± | 1.09 | 1.19 | 0.31 | 0.02 | 0.04 | 0.05 | 0.01 | 0.05 |
| CD (P=0.05) | 3.48 | NS | NS | 0.05 | 0.11 | NS | 0.04 | NS |

**Table 5.** Effect of fertility levels and sources of nitrogen on nutrient uptake and soil fertility status

| Treatment | Nutrients (kg/ha) uptake by crop | | | | | | Available nutrients content (kg/ha) after 2nd crop harvest | | |
|---|---|---|---|---|---|---|---|---|---|
| | N | | P | | K | | N | P | K |
| | 2004 | 2005 | 2004 | 2005 | 2004 | 2005 | | | |
| *Fertility levels ( N-P- K kg /ha)* | | | | | | | | | |
| $N_{60}P_{12.9}$ $K_{24.9}$ | 88.2 | 77.7 | 19.2 | 16.4 | 96.2 | 84.2 | 188.4 | 21.3 | 140.0 |
| $N_{120}P_{25.8}K_{49.8}$ | 142.8 | 127.9 | 37.4 | 32.7 | 161.9 | 141.5 | 211.2 | 22.7 | 157.9 |
| $N_{180}P_{38.7}K_{74.7}$ | 176.8 | 159.7 | 51.3 | 47.6 | 234.1 | 199.9 | 230.9 | 24.0 | 168.9 |
| SEm ± | 5.7 | 5.6 | 1.7 | 1.5 | 7.5 | 6.5 | 4.0 | 0.4 | 3.1 |
| CD (P=0.05) | 22.2 | 21.9 | 6.5 | 5.9 | 29.3 | 24.5 | 15.6 | 1.7 | 12.3 |
| *Sources of N application (% Fertilizer + % FYM)* | | | | | | | | | |
| 100 + 0 | 149.3 | 134.3 | 43.4 | 39.3 | 189.3 | 163.5 | 197.4 | 21.0 | 143.3 |
| 75 + 25 | 136.0 | 120.6 | 36.1 | 32.2 | 161.4 | 139.5 | 210.8 | 22.9 | 152.8 |
| 50 + 50 | 122.5 | 110.3 | 28.3 | 25.1 | 141.4 | 122.7 | 222.3 | 24.2 | 169.6 |
| SEm ± | 2.9 | 2.4 | 0.9 | 0.8 | 4.0 | 3.5 | 3.3 | 0.3 | 2.3 |
| CD (P=0.05) | 8.9 | 7.5 | 2.8 | 2.5 | 12.2 | 10.6 | 7.2 | 0.7 | 4.9 |
| Initial status | | | | | | | 219.6 | 18.8 | 189.7 |

able N, P and K in the soil was observed with each successive increase in fertility level and being highest with application of 180+38.7+74.7 kg N+P+K/ha ($F_3$). The balance of N, P and K over initial soil fertility was 5.10, 27.7 and -8.9 %, respectively with application of $F_3$. With increase in the level of fertility (N, P and K) also assured the availability of these nutrients to the crop plants in adequate amount and remained in soil in substantial quantity after fulfilling the crop requirement that ultimately improved the soil fertility. It was confirmed by the findings of Saha and Mondal (2006).

Significantly higher soil fertility were recorded with integrated nutrients applied as $S_3$ (50% fertilizer + 50% N as FYM) compared to $S_2$ (75% fertilizer+ 25% N as FYM) and $S_1$ (100% N from fertilizer). The balance of N, P and K over initial soil fertility was 1.2, 28.87 and -9.0%, respectively with application of $S_3$. It might be due to direct addition of partial N through FYM and greater multiplication of soil microbes, which convert organically bound N to inorganic form. The increase in P content may be ascribed to the capacity of FYM to form a cover of sesquioxide which reduces the phosphate fixation. The availability of K might be due to addition of K to the available pool of the soil (Panwar, 2008). Another reason may be short duration baby corn crop, could not fully utilize the applied nutrients and remained left in the soil. Similar findings are also reported by Gawai and Pawar (2006).

It may be concluded from the 2 year investigation that application of $N_{180}$+ $P_{38.7}$+ $K_{74.7}$ with entire N as fertilizer or 75% N through fertilizer and 25% N by FYM was promising for yield, quality and net return of baby corn.

## REFERENCES


Gawai, P.P. and Pawar, V.S. 2006. Integrated nutrient management in sorghum (*Sorghum bicolor*)-chickpea (*Cicer arientinum*) cropping sequence under irrigated condition. *Indian Journal of Agronomy* **51**(1): 17–20.

Panwar, A.S. 2008. Effect of integrated nutrient management in maize (*Zea mays* L.) - mustard (*Brassica compestris* var *toria*) cropping system in mid hills altitude. *Indian Journal of Agricultural Sciences* **78**(1): 27–31.

Ramachandrappa, B.K., Nanjappa, H.V. and Shiva Kumar, H.V. 2004a. Yield and quality of baby corn (*Zea mays*) as influenced by spacing and fertilization levels. *Acta Agronomica Hungarica* **52**(3): 237–243.

Ramachandrappa, B.K., Nanjappa, H.V., Thimmegowda, M.N. and Soumya, T.M. 2004b. Production management for profitable baby corn cultivation. *Indian Farming* **8:** 3–7.

Saha, Mithun and Mondal, S.S. 2006. Influence of integrated plant nutrient supply on growth, productivity and quality of baby corn (*Zea mays*) in Indo-Gangetic Plains. *Indian Journal of Agronomy* **51**(3): 202–205.

Sahoo, S.C. and Mahapatra, P.K. 2005. Response of sweet corn (*Zea mays*) to fertility levels under on-farm situation. *Indian Journal of Agricultural Sciences* **75**(9): 603–604.

Sahoo, S.C. and Mahapatra, P.K. 2007. Response of sweet corn to plant population and fertility levels during *rabi*. *Indian Journal of Agricultural Sciences* **77**(11): 779–781.

Sahrawat, K.L. 2006. Organic matter and mineralizable N relationship in wet land soils. *Communication in Soil Science and Plant Analysis* **37**: 787–796.