# Effect of Organic and Inorganic Sources of Nitrogen of on Growth, Yield and Economics of Baby Corn (*Zea mays* L.)

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**Abstract**

The results of field experiment conducted at Agricultural Research Institute, ANGRAU, Rajendranagar, Hyderabad during rainy (*kharif*) season of 2005 and 2006 revealed that recommended dose of N (RDN) through fertilizer application (90 kg N $ha^{-1}$) recorded significantly higher number of cobs $plant^{-1}$, cobs $ha^{-1}$, baby corn green ear yield, stover yield and nutrient uptake over combined application of 75% N through fertilizer + 25% N through Neem cake, 50% of N through fertilizer + 50% of N through Neem cake. However, the number of days taken to first harvest and harvest duration (First harvest to final harvest) were not influenced by N management practices. Higher net returns (₹30767 $ha^{-1}$) and B:C ratio (2.3) were obtained with recommended dose of N application. Out of all the cultivars tested VL-78 recorded significantly higher baby corns $plant^{-1}$ (2.92), more green ear weight (23.3 g), harvest duration (25.2 days), baby corn yield (5511 kg $ha^{-1}$), N and K uptake, also net returns (₹36693 $ha^{-1}$) and B:C ratio (2.5). Significantly higher net returns were obtained by cultivar VL-78 with combined application of 75% N through fertilizer + 25% N through Neem cake.



## 1. Introduction

In India, maize is principally grown for grain purpose which is consumed either as food or feed. Utilization of maize for specialized purpose is very rare, but, now a days it is having tremendous market potential in the form of sweet corn, pop corn, baby corn, high oil corn etc., in the national as well as in international market. Among the various specialty corn types, baby corn has good market potential and fetches very high market value. After successful venture in many South East Asian countries, it is fast gaining popularity in Indian market too, particularly in big cities. Baby corn is young finger like unfertilized cobs of maize, with one or three cm emerged silk, preferably harvested with in 24 hrs of silk emergence depending upon the growing season (Asha et al., 2007). It has high nutritive value compared to other vegetables. The desirable size of baby corn is 6 to 10 cm in length and 1 to 1.5 cm in diameter with regular row arrangement. On an average, the weight of the edible ear is 13% the weight of the ear with the husk (Carol and Zenz, 1998). Baby corn provides avenues for crop diversification, value addition and revenue generation. The features like higher profit unit $area^{-1}$ and short period from sowing to harvest compared to grain maize, good quality green fodder attracting growers..

Baby corn, being a relatively new introduction in India, requires development of production technology especially identification of suitable varieties and their nutritional requirement. The cultivars are the single most important factor determining the yield of baby corn (Kotch et al., 1995). A large number of evidences (Nanjundappa et al., 2000) confirm that judicious combination of inorganic fertilizers and organic manures bring favourable results interms of economic yield, improved crop qualities and soil fertility build up.

Keeping the above facts in view, present investigation was under taken to study the combined effect of organic and inorganic sources of N on growth, yield, yield attributes and quality parameters of different baby corn cultivars. In the traditional Indian farming system nutrient supply and pest management were integrated not only into the cropping system as a whole but also into their way of life. Locally available plant derived substances like Neem, Karanj, Tulsi; Vidang etc. protected the crops and nourished the soils. It is evident that the traditional Indian practices, in the pre-green revolution era were very sound, causing no major plant protection problems and these need to be refined by incorporating latest scientific and technical developments to arrive at crop practices that are best suited

to the present agricultural situation. The dual activity of Neem cake as fertilizer and pest repellent has made it a favoured input. It protects soil, reduces damage to environments (water beds, etc.) and increases efficiency of synthetic fertilizers and is lower in cost plus we are putting back in what we got out. When Neem cake is ploughed into the soil it also protects plant roots from nematodes and white ants. Neem seed cake can also reduce alkalinity in the soil by producing organic acids when mixed with the soil. The calcium and magnesium present in Neem cake also aid in removing alkalinity.

The bitterness in Nimin delay the denitrification process up to 30 days by either killing nitrifying bacteria or suppressing their activity. The seed coat is rich in lignin, cellulose etc. and can be used as a low calorific value fuel in brick kilns etc. Saha and Mandal (2006) reported that combined application of organic sources of nutrients viz. neem seed powder 1.5 t $ha^{-1}$or karanj cake 1.25 t $ha^{-1}$, farmyard manure 7.5 t $ha^{-1}$, commercial formulation of pelleted form of organic manures 0.75 t $ha^{-1}$ and organic manure rich with humus 1.8 $ha^{-1}$ along with 75% RDF were effective in increasing the standard corn yield by 6.20 % and 40.53 % over the control (100 percent RDF).

## 2. Materials and Methods

A field experiment was carried out during rainy season of 2005 and 2006 at Agricultural Research Institute farm, Rajendranagar, Hyderabad having $17^0$19' N Latitude, $78^0$23' E Longitude and 542.3 m above mean sea level. The experimental site was red sandy loam, low in available N (225.8 kg N $ha^{-1}$) and high in available $P_2O_5$ (100.8 $P_2O_5$ kg $ha^{-1}$) and $K_2O$ (452.6 kg $ha^{-1}$). The experiment was laid out in split plot design with three replications with nitrogen fertilizer treatments as main plots viz., 100% recommended N (90 kg N $ha^{-1}$) through fertilizer; 75% N through fertilizer + 25% N through Neem cake; 50% of N through fertilizer + 50% of N through Neem cake and four baby corn cultivars HIM-129, VL-78, Madhuri and Moti as sub plots. The cv. VL-78 is extra early, yellow, prolific composite of baby corn, HIM-129 is extra early double top cross hybrid (dual purpose). Both of these cultivars were developed at Almora, Uttaranchal. Madhuri (Sweet corn) is extra early delicious table variety having high sugars and nutritive value (developed from ANGRAU) and Moti is private variety and available in local market. Crop was sown on ridges at spacing of 45 cm x20 cm on 27$^{th}$ July during both the years 2005 and 2006.

Organic manures were applied (on equal N basis) as per the treatment and incorporated into the soil before sowing. Crop was fertilized with uniform level of 60 kg $P_2O_5$ and 50 kg $K_2O$ $ha^{-1}$. Half of the total N and full P and K fertilizers were applied at sowing. Remaining N was applied in two equal splits at 20 and 35 DAS. The required amount of N, P and K fertilizers was applied through urea, DAP and Muriate of potash, respectively. Other cultural operations and plant protection measures were followed as per the recommendations. Crop received 941 mm (48 rainy days) and 525.5 mm (41 rainy days) rainfall during the crop growth period in 2005 and 2006, respectively.

Green cobs were harvested immediately within 24 hrs after silk emergence, counted and weighed. Thereafter husk and silks of cobs were removed. Baby corn physical quality parameters like de-husked cob weight, length, and girth, growth characters like plant height, number of leaves $plant^{-1}$ and dry matter production at 30 and 45 DAS were recorded. After final harvest of ears green fodder was harvested and fresh fodder yield was recorded. Monetary returns were calculated based on price of baby corn ₹10 $kg^{-1}$ and green fodder yield ₹50 100 $kg^{-1}$.

## 3. Results and Discussions

### *3.1. Green ear and stover yield in relation growth parameters, quality parameters and yield attributes*

The experimental results revealed that when crop received recommended dose of N (90 kg $ha^{-1}$) through fertilizer N, recorded significantly higher green ear yield (5027 kg $ha^{-1}$) over combined application of organic and inorganic sources of N (table 2). This might be due to more number of marketable baby corns (2,25,748 $ha^{-1}$), baby corn fresh weight (24 g), more dry matter production at 30 DAS and 45 DAS (table 1). The above results on plant height, stover yield and green ear yield were agreeable with findings of Sunder Singh (2001) at 150 kg N $ha^{-1}$. This increase in yield and growth attributing characters was due to increased nitrogen availability thereby higher uptake which resulted in greater assimilation and production of more dry matter there by better partitioning to yield. These results are in conformity with the result of Anita et al. (2008) at 120 kg N $ha^{-1}$ application.

Quality parameters of Baby corn de-husked cob length, cob weight, girth, days taken to initiate baby corn harvest and harvest duration were not significantly influenced by N management (table 1).

Significant genotypic differences were observed for all the growth and yield attributing characters, indicating the presence of enough genetic variability among the varieties (table 2). The cv. VL-78 produced higher baby corn yield (5511 kg $ha^{-1)}$ which was significantly greater by 8.1%, 23.8% and 30.4% over HIM-129, Madhuri and Moti respectively (table 2). Even though Madhuri recorded highest green ear weight (23.5 g) over HIM-129 and green ear length (16.4 cm) over VL-78 and HIM-129. This might be due to more number of cobs $ha^{-1}$ (251791), cobs $plant^{-1}$(2.94) and dry matter 30 DAS (132 $gm^{-2}$) and 45 DAS (395 $gm^{-2}$) obtained with VL-78.

However, all varieties did not show any significant difference

Table 1: Growth, dry matter and stover yield of baby corn cultivars as influenced by nitrogen management (pooled over 2005-06 and 2006-07)

| Treatment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Nutrient levels | | | | | | | | | |
| 100% RDF | 51 | 117 | 8.8 | 9.3 | 146 | 434 | 16.95 | 47.4 | 23.6 |
| 75% RDF + 25% Neem cake | 41 | 101 | 7.7 | 8.8 | 114 | 360 | 13.07 | 48.5 | 22.5 |
| 50% RDF + 50% Neem cake | 36 | 98 | 7.8 | 8.9 | 87 | 273 | 10.75 | 48.7 | 22.3 |
| SEm± | 2.9 | 1.8 | 0.1 | 0.2 | 4.7 | 2.9 | 0.15 | 0.49 | 0.55 |
| CD (*p*=0.05) | 8.0 | 4.9 | 0.27 | NS | 13.0 | 8.0 | 0.41 | NS | NS |
| Varieties | | | | | | | | | |
| HIM-129 | 45 | 106 | 8 | 8.7 | 119 | 362 | 10.65 | 45.5 | 25.5 |
| VL-78 | 45 | 106 | 7.8 | 9.2 | 132 | 395 | 11.72 | 45.9 | 25 |
| Madhuri | 40 | 105 | 8.4 | 9.3 | 109 | 345 | 9.53 | 50.8 | 20.2 |
| Moti | 40 | 104 | 8.1 | 8.9 | 104 | 320 | 8.87 | 50.5 | 20.5 |
| SEm± | 1.7 | 1.5 | 0.2 | 0.3 | 2.8 | 8.5 | 0.33 | 0.45 | 0.42 |
| CD (*p*=0.05) | 3.5 | NS | 0.42 | NS | 5.9 | 17.9 | 0.69 | 0.94 | 0.88 |
| Interaction | | | | | | | | | |
| SEm± | 2.2 | 1.9 | 0.3 | | 3.5 | 10.5 | 0.4 | 0.56 | 0.51 |
| CD (*p*=0.05) | NS | NS | NS | NS | NS | NS | 0.8 | 1.17 | 1.07 |

1: Plant height 30 DAS (cm); 2: Plant height 45 DAS (cm); 3: Number of leaves plant$^{-1}$ at 30 DAS; 4: Number of leaves plant$^{-1}$ at 45 DAS; 5: Dry matter 30 DAS (gm$^{-2}$); 6: Dry matter 45 DAS (gm$^{-2}$); 7: Stover yield (t ha$^{-1}$); 8: Days to corn initiation; 9: Harvest duration (Days)

Table 2 :Yield and yield attributes of different baby corn cultivars as influenced by nitrogen management (pooled over 2005-06 and 2006-07)

| Treatment | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Nutrient levels | | | | | | | | |
| 100% RDF | 2.73 | 24.0 | 16.2 | 7.3 | 5.3 | 3.9 | 225748 | 5027 |
| 75% RDF + 25% Neem cake | 2.39 | 22.7 | 16.1 | 7.2 | 5.2 | 3.8 | 204485 | 4724 |
| 50% RDF + 50% Neem cake | 2.30 | 21.8 | 15.8 | 7.2 | 4.9 | 3.8 | 193212 | 4203 |
| SEm± | 0.1 | 0.5 | 0.2 | 0.1 | 0.2 | 0.1 | 2125 | 73 |
| CD (*p*=0.05) | 0.28 | 1.3 | NS | NS | NS | NS | 5886 | 202 |
| Varieties | | | | | | | | |
| HIM-129 | 2.6 | 21.6 | 15.7 | 6.8 | 4.9 | 3.8 | 222460 | 5065 |
| VL-78 | 2.9 | 23.3 | 15.8 | 7.1 | 5.2 | 3.9 | 251791 | 5511 |
| Moti | 2.05 | 22.9 | 16.2 | 7.7 | 5.3 | 3.9 | 166659 | 3835 |
| SEm± | 0.16 | 0.5 | 0.2 | 0.2 | 0.2 | 0.1 | 4831 | 147 |
| CD (*p*=0.05) | 0.32 | 1.0 | 0.4 | 0.4 | NS | NS | 10145 | 309 |
| Interaction | | | | | | | | |
| SEm± | 0.19 | 0.6 | 0.2 | 0.2 | 0.2 | 0.1 | 5917 | 180 |
| CD (*p*=0.05) | NS | NS | NS | NS | NS | NS | NS | 378 |

1: Number cobs plant$^{-1}$; 2: Green cob weight (g); 3: Green cob length (cm); 4: Dehusked cob length (cm); 5: Dehusked cob wt (g); 6: Girth of cob (cm); 7: Number of cobs ha$^{-1}$; 8: Green ear yield (kg ha$^{-1}$)

in plant height and number of leaves plant$^{-1}$ at 45 DAS. The cv.HIM 129 (45.7 days) and VL-78 (46.2 days) took minimum number of days to initiate baby corn harvest, while, Madhuri (51 days) and Moti (50.8 days) took maximum days for baby corn harvest. The cv. HIM-129 (25.7 days) and VL-78 (25.22 days) had maximum harvest duration for baby corn. Similar results on varietal differences were reported by Pandey et al. (2002).

Quality parameters like de-husked cob weight and girth were not influenced by either nitrogen management or varieties. However Moti variety recorded significantly more de-husked cob length than VL-78 and HIM-129 and it was followed by Madhuri. It may be due to genetic variation among the varieties

*3.2. Interaction effect of nitrogen management X cultivars*

Nitrogen management practices showed significant influence on varietal performance on stover yield and green ear yield (figure 1). However, the interaction effect of

varieties and nutrient management practices did not influence the growth and yield attributing characters. The cultivar VL-78 recorded significantly higher stover yield at all nitrogen management practices than HIM-129, Madhuri and Moti.

Green ear yield of different baby corn varieties declined with increase in proportion of nitrogen substitution from 25 to 50% through neem cake, owing to slow release of organic N during current season, which was probably not sufficient to meet the N requirement of the crop during current season, as neem oil cake decomposes slowly giving steady source of nitrogen along with aldehyde, fatty acids, tannins and phenols. The cultivar VL-78 produced significantly higher green ear yield than Sweet corn and Moti at 75% N through fertilizer + 25% N through neem cake nitrogen management practice but it was on par with HIM-129 at recommended level of nitrogen. But Sweet corn and Moti did not show any significant increase in yield level at $F_2$ (75% N through fertilizer + 25% N through neem cake) and $F_3$ (50% of N through fertilizer + 50% of N through neem cake) nitrogen management practices (figure 2).

*3.3. Nutrient uptake*

N uptake in green fodder at 30 (22 kg ha$^{-1}$)and 45 DAS (69 kg ha$^{-1}$) increased when crop received recommended dose of N (90 kg ha$^{-1}$) through fertilizer N due to highest nitrogen content and dry matter yields. P and K uptake also followed the same trend. The present investigation is found to be in conformity with that of Anita et al. (2008) who reported similar results in baby corn at higher level of nitrogen application (150 kg N ha$^{-1}$).

The cultivar VL-78 showed highest nitrogen uptake in green fodder at 30 and 45 DAS (20 and 62 kg ha$^{-1}$). It was due to increase in both nitrogen content and respective yields. These results confirm the result of Anita et al. (2008). K uptake by varieties also followed the same trend as N uptake but the varieties did not show any significant difference in P uptake. Generally when the uptake of N is more, the crop would have a tendency to absorb more P and K (Thava Prakash and Velayudhan, 2007).

*3.4. Economics*

Cost of cultivation of baby corn increased with the substitution of N through Neem cake (table 3), when crop was supplied with recommended dose of N, recorded higher net returns (₹33127 ha$^{-1}$) and benefit cost ratio (2.3) due to more baby corn green ear yield and green fodder yield(16.95 t ha$^{-1}$). Pandey et al. (2002) also reported significantly more net returns and B: C ratio at 1, 33,000 and 1, 66,000 ha$^{-1}$ population was attributed to more baby corns ha$^{-1}$ and fodder yield ha$^{-1}$.

The economics also differed significantly among cultivars of

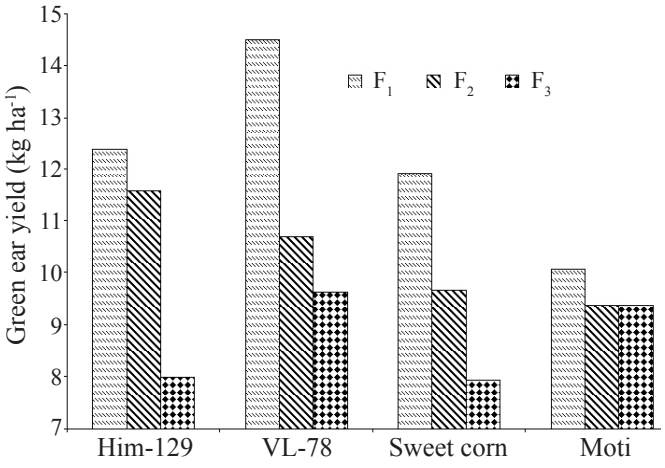


Figure 1: Green ear yield influenced by nitrogen management practices and cultivars (pooled over 2005 & 2006)

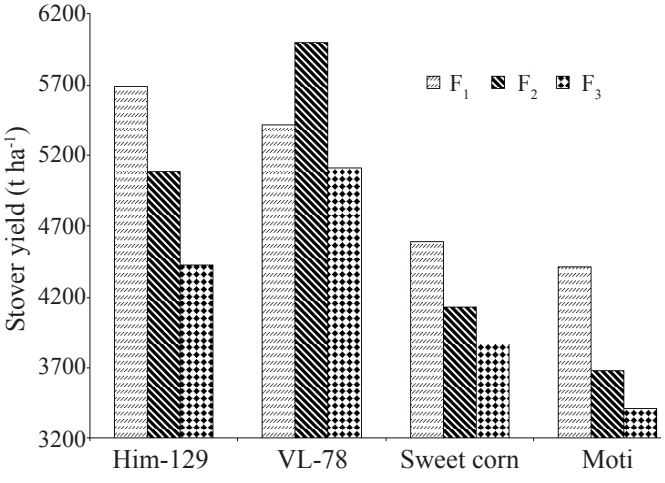


Figure 2: Stover yield as influenced by nitrogen management practices and cultivars (pooled over 2005 & 2006)

Table 3: Removal of N,P and K different baby corn cultivars as influenced by nitrogen management (pooled over 2005-06 and 2006-07)

| Treatment | N uptake (kg ha$^{-1}$) | | P uptake (kg ha$^{-1}$) | | K uptake (kg ha$^{-1}$) | |
|---|---|---|---|---|---|---|
| | 30 DAS | 45 DAS | 30 DAS | 45 DAS | 30 DAS | 45 DAS |
| Nutrient levels | | | | | | |
| 100% RDF | 22 | 69 | 4 | 11 | 25 | 75 |
| 75% RDF + 25% Neem cake | 17 | 57 | 3 | 10 | 19 | 58 |
| 50% RDF + 50% Neem cake | 12 | 42 | 2 | 7.0 | 14 | 47 |
| SEm± | 0.5 | 1.8 | 0.2 | 0.6 | 0.7 | 1.6 |
| CD ($p$=0.05) | 1.3 | 4.9 | 0.6 | 1.6 | 1.9 | 4.4 |
| Varieties | | | | | | |
| HIM-129 | 17 | 57 | 3 | 9.0 | 20 | 61 |
| VL-78 | 20 | 62 | 3 | 10.0 | 23 | 66 |
| Madhuri | 16 | 53 | 3 | 9.0 | 19 | 59 |
| Moti | 16 | 50 | 3 | 9.0 | 17 | 55 |
| SEm± | 1 | 2.1 | 0.2 | 0.7 | 0.9 | 2.8 |
| CD ($p$=0.05) | 2.1 | 4.4 | NS | NS | 1.8 | 5.9 |
| Interaction | | | | | | |
| SEm± | 1.2 | 2.6 | 0.3 | 0.8 | 1.1 | 3.4 |
| CD ($p$=0.05) | NS | NS | NS | NS | NS | NS |

Table 4 : Productivity, economics of different baby corn cultivars affected by nitrogen management (pooled over 2005-06 and 2006-07)

| Treatment | Cost of cultivation (₹ ha$^{-1}$) | Gross returns (₹ ha$^{-1}$) | Net returns (₹ ha$^{-1}$) | B:C ratio |
|---|---|---|---|---|
| Nutrient levels | | | | |
| 100% RDF | 25618 | 58745 | 33127 | 2.3 |
| 75% RDF + 25% Neem cake | 27155 | 53775 | 26620 | 2.0 |
| 50% RDF + 50% Neem cake | 28703 | 47405 | 18702 | 1.7 |
| Varieties | | | | |
| HIM-129 | 24490 | 55975 | 31485 | 2.3 |
| VL-78 | 24277 | 60970 | 36693 | 2.5 |
| Madhuri | 22827 | 46715 | 23888 | 2.0 |
| Moti | 37043 | 42785 | 5742 | 1.2 |

Note: Price of Baby corn = ₹10.00 kg$^{-1}$, Stover / Green fodder price = ₹0.50 kg$^{-1}$

baby corn. Higher seed cost attributed to increased cost of cultivation in Moti. Whereas the cost of cultivation of Madhuri is lower than rest of the varieties owing to lesser harvest duration. Cultivar VL-78 provided higher net returns by 14.1%, 34.89% and 84.35.0% more than HIM-129, Madhuri and Moti respectively (table 4).This might be due to higher green ear yield and green fodder obtained with cv. VL-78 than HIM 129, Madhuri and Moti. Significantly higher net returns were obtained by cultivar VL-78 with combined application of 75% N through fertilizer + 25% N through Neem cake (table 5).

Table 5: Net returns (₹ ha$^{-1}$) influenced by interaction of nitrogen management and cultivars

| Cultivars | Nitrogen management | | | |
|---|---|---|---|---|
| | $F_1$ | $F_2$ | $F_3$ | Mean |
| HIM-129 | 40143 | 32135 | 22168 | 31482 |
| VL-78 | 38723 | 41068 | 30130 | 36640 |
| Madhuri | 30575 | 23287 | 18259 | 24040 |
| Moti | 13626 | 4486 | 217 | 6110 |
| Mean | 30767 | 25244 | 17693 | 32757 |

HIM-129 is the next best cultivar which gave significantly higher net returns, B:C ratio than Madhuri and Moti. These findings confirm the results of Pandey et al. (2002) in VL Makka-42 hybrid.

**4. Conclusion**

It can be concluded that substitution of 25% to 50% N through neem cake did not commensurate with the yield advantage

and income as that of recommended dose of fertilizer N (90 kg $ha^{-1}$) application. The highest net returns (₹ 41068 $ha^{-1}$) can be obtained with combined application of 75% N through fertilizer + 25% N through Neem cake by selecting Baby corn cv. VL-78 in rainy season.

**5. References**


Anita, B., Barik, K.C., Garnayak, L.M., Mahapatra, P.K., 2008. Productivity and nitrogen use efficiency of baby corn (*Zea mays*) at different levels and timing of nitrogen application under rainfed conditions. Indian Journal of Agricultural Sciences 78, 629-31.

Asha, K., Dharanpal Yadav, V.K., Sujay, R., Sigh, R.P., Santosh, H., Mehta, J.C., Singh, S.B., Gupta, N.P., Kumar, P., Neelam, N., Dhanju, K. S., Rajpal, S., Zaidi, P.H., Singh, K.P., 2007. Baby corn cultivation and value addition. Project Directorate, Directorate of Maize Research, 1-2.

Carol, A.M., Zenz, L., 1998. Baby corn research project 1998. Washington State University Co-operative extension publication, part of the Farming West of the Cascades series Gomez, A.K., Gomez, A.A., 1983. Statistical procedure for agricultural research (2nd Edn) John Wiley & Sons, New York, NJ, 84-101.

Kotch, R.S., Murphy, J.H., Orzolck, M.D., Feretti, P.A., 1995. Factors affecting the baby corn production. Journal of Vegetable crop production 1, 19-28.

Saha, M., Mandal, 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, 202-205.

Nanjundappa, G.B., Shivraj, S., Jaharjuna, S., 2000.Effect of organic and inorganic sources of nutrients alone and in combination on growth and yield of fodder maize. Mysore Journal of Agricultural Sciences 34, 247-250.

Pandey, A.K., Mani, V.P., Ved Prakash, R.D., Singh Gupta, H.S., 2002. Effect of varieties and plant densities on yield, yield attributes and economics of baby corn (*Zea mays*). Indian Journal of Agronomy 47, 221-226.

Sunder Singh, S.D., 2001. Effect of irrigation regimes and nitrogen levels on growth, yield and quality of baby corn. Madras Agriculture Journal 88, 367-370.

Thava Prakash, N., Velayudhan, K., 2007. Effect of crop geometry, intercropping system and INM practices on cob yield and nutrient uptake of baby corn. Asian Journal of Agricultural Research, 10-16.