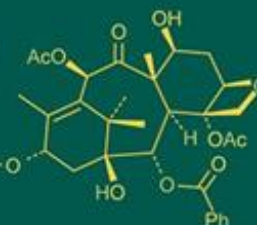
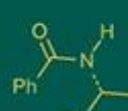
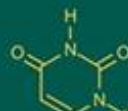
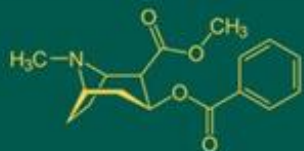


International Journal of Advanced Biochemistry Research



ISSN Print: 2617-4693
ISSN Online: 2617-4707
NAAS Rating (2026): 5.29
IJABR 2026; SP-10(7): 244-250
www.biochemjournal.com
Received: 05-05-2026
Accepted: 08-06-2026

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Influence of Establishment methods and Nitrogen Management on Yield and Economics of Baby Corn (*Zea mays* L.)

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DOI: <https://www.doi.org/10.33545/26174693.2026.v10.i7Sc.8974>

Abstract

The experiment was conducted during Zaid season of 2024-2025 at the Crop Research Farm, Department of Agronomy, Naini Agricultural Institute, SHUATS, Prayagraj, (U.P) The experiment was laid out in a Randomized Block Design (RBD) along with two factor four level nitrogen different sources and three sowing methods. N1 100% N through Goat manure, N2 100% RDN through Urea, N3 25% N through Goat manure+ 75% N Through Urea, N4 50% RDN through Goat manure +50% N Through Urea and a.Flat method, b. Ridge method, c. Furrow Irrigation Raised bed System (FIRBs) their combination of twelve treatments which are replicated thrice. The results of experiment based on the 1st year trail in 2024, revealed that significantly higher growth attributes of baby corn at Harvest &, plant height was recorded the maximum (159.55 cm), Dry weight (75.43), number of leaves/plant (12.20), Crop Growth Rate (30.95 g/m²/day), Relative Growth Rate (0.036 mg/g/day), Number of cobs/plant (2.0), cob length (20.09), cob weight with husk (44.04), cob weight without husk (13.29), cob yield (11.89 t/ha), green fodder yield (32.27 t/ha), Harvest index (26.92 %) was with the application of Ridge method + 50% N through Goat manure + 50% N through Urea (T₈). While, during the 2nd year 2025, plant height was recorded the maximum (161.88 cm), Dry weight (74.10), number of leaves/plant (12.73), Crop Growth Rate (29.96 g/m²/day), Relative Growth Rate (0.035 mg/g/day), Number of cobs/plant (2.17), cob length (20.86), cob weight with husk (41.89), cob weight without husk (12.53), cob yield (11.76 t/ha), green fodder yield (30.77 t/ha), Harvest index (27.65 %) was recorded with the application of Ridge method + 50% N through Goat manure + 50% N through Urea (T₈). Result of pooled analysis for plant height, at 60 DAS the maximum plant height was recorded (160.71 cm), Dry weight (74.76), number of leaves/plant (12.63), Crop Growth Rate (30.45 g/m²/day), Relative Growth Rate (0.036 mg/g/day), Number of cobs/plant (2.08), cob length (20.47), cob weight with husk (42.96), cob weight without husk (12.91), cob yield (11.82 t/ha), green fodder yield (31.52 t/ha), Harvest index (27.28 %) was recorded with the application of Ridge method + 50% N through Goat manure + 50% N through Urea (T₈). Maximum gross return (296920.00 INR), Net Returns (223940.00 INR), and benefit cost ratio (3.1), were obtained highest recorded with the application of Ridge method + 50% N through Goat manure + 50% N through Urea (T₈).

Keywords: Baby corn, sowing methods, nitogen, Growth, Economic and Yield

Introduction

Maize is the third most important cereal crop in India as well as in the world. A recent trend is of growing maize for vegetable purpose, which is commonly known as 'baby corn'. It is a small young cob or ear or the female inflorescence before pollination or fertilization. The important attributes relevant to baby corn are early maturity, synchronized ear emergence and small palatable yellow kernels (Kumar and Kalloo, 1998) ^[10]. The early harvest and sale of baby corn ears before dry spells provides higher profits and untranslocated photosynthates left in green stover becomes valuable source for nutritious green fodder to live stock giving impetus to dairy, meat production. Thus baby corn is safe for consumption in fresh state. Its economic potential is further enhanced owing to the availability of green, soft, succulent nutritious, palatable fodder with higher digestibility (Ramachandrappa et al., 2004) ^[16]. Baby corn provides the valuable nutrition which lack in most people's diet. It is extremely high in potassium, B vitamins, thiamine, riboflavin, niacin, folates that helps in brain function and improves memory and low in fat that helps in weight loss goals. The yellow corn contains more carotenoid content, but baby corn is plucked white which contains lesser content of carotenoid. The lesser quantity of carotenoid reduces the risk of heart diseases and cancer. Also it has better glycemic index than the regular corn making it a good substitute.

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Baby corn has a short growing period (60-75 days), so that a farmer can grow four or more crops per year depending upon the agro-climatic conditions. Corn has always had high nutrient demands and already puts a great strain on soil and fertilizer nutrient sources. Large quantities of N, P, K, Ca, Mg, and S are removed with the grain and stover from the soil. Trace elements are also removed and must be replaced. Use of inorganic fertilizers for increasing cereal production is inevitable in the present circumstances where cereal crop needs and livelihood issues of the people have sustained national priority. But this has declined the soil fertility in the long term. The only way out to this gloomy scenario is to develop sustainable and nutrient balance through organic farming, which would increase the cereal crop production substantially without harming the precious environment. Organic manures and biofertilizers serve as an alternate to chemical inputs and are being increasingly used in vegetable production today. Organic manure serves as an alternate practice to mineral fertilizers for improving soil structure (Dauda *et al.*, 2008) [5] and microbial biomass (Suresh *et al.*, 2004) [23]. In addition to that, the cultivation of baby corn can lead to at least double return to the farmer unlike normal grain maize. One hundred grams of baby corn are found to be rich in 89.1% Moisture, 1.9 g Protein, 0.2 g Fat, 0.06 g Ash, 8.2 mg Carbohydrate, 28 mg Calcium, 86 mg Phosphorus and 11mg Ascorbic Acid (Thavaprakash *et al.*, 2005) [24].

Maize (*Zea mays L.*) as the third most important cereal crop in the world following wheat and rice, has been cultivated for centuries as a grain crop and more recently as a vegetable crop, such as Baby corn and sweet maize (Muthukumar *et al.* 2005; Mahajan *et al.* 2007) [11]. Baby corn (also known as young corn, mini corn or candle corn) is the ear of maize (*Zea mays L.*) plant harvested young, when the silks have either not emerged or just emerged and no fertilization has taken place. Baby corn is one of the most important dual-purpose crops grown round the year in India (Singh *et al.*, 2015) [19].

Nitrogen is the most essential nutrient by crops, as it is a chemical element in the structure of amino acid, protein, enzyme, pigment and by-product molecules, which bring about functions related to plant growth and development. The fact that nitrogen helps in higher photosynthetic activity, cell and internodal elongation and maintenance of higher auxin levels, which might have resulted in the plants of taller stature. (Pavithra *et al.* (2018) [14].

Materials and Methods

The materials and methodology and techniques adopted in the present experiment entitled, “Effect of Establishment methods

and nitrogen management on growth and yield of baby corn (*Zea mays L.*)” with a brief description regarding site of experiment, soil properties, sampling techniques, climatic conditions during crop growing period, cropping history, calendar operations and statistical analysis are presented in this chapter with following headings.

Experimental site

The experiment was carried out during *Zaid* season of both the year 2024, 2025 at the CRF (Crop Research Farm), Department of Agronomy, Naini Agricultural Institute, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, Uttar Pradesh. The CRF is situated at 25°24′41.27” N latitude, 81°50′56” E longitude (Google, 2018) and 98 m altitude above the mean sea level. This area is situated on the right side of the river Yamuna and south east side of Prayagraj city. All the facilities required for crop cultivation were available. The soil was sandy loam in texture, moderately basic in reaction neutral pH (7.12), medium organic carbon (0.45), available nitrogen (223.12 kg/ha), potassium (36.21 kg/ha), phosphorus (38.2 kg/ha), and lowest available phosphorus (20.1 kg/ha), the experiment was laid out in Randomize block design (RBD), with three replications. Plant growth characteristics, including Plant height (cm), number of leaves/plant, dry weight (g/plant), CGR, RGR, were measured at regular interval from germination until harvest. At 15, 30, 45, and 60 DAS. The pre and post analysis of soil was recorded of experimental fields. The observed data 12 treatment were statistically examined using analysis of variance (ANOVA) in relation to randomize block design (Gomez and Gomez, 1984) [6].

Climate and Weather condition

Prayagraj belongs to sub-tropical and semi-arid climatic condition, with both extremes of temperature, *i.e.*, winter and summer. It receives southwest monsoon rains which commence in the month of July and withdraws by the end of September. The metrological data recoded during the growing period of experiment including the weekly average of maximum and minimum temperature, relative humidity and rainfall recorded at the Agro-Meteorological observatory unit, School of Forestry and Environment Sciences, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj. The soil samples were collected randomly from 0 to 15 cm depth from 5 locations of the experimental field before the layout of the experimental area. A representative homogeneous sample was made by mixing all the samples together, which was analysed to determine the physio-chemical properties of soil.

Table 1: Physical characteristics of experimental field soil (Before sowing of 1st and 2nd year crop)

Mineral fraction	2024	2025	Method	References
Sand (%)	58.50%	58.5%	International Pipette Method	Piper, 1966
Silt (%)	28.10%	27.10%	International Pipette Method	Piper, 1966
Clay (%)	14.40%	14.40%	Bouyoucos Hydrometer method	Bouyoucos, 1962
Textural class	Sandy Loam	Sandy Loam	USDA Triangle	Soil Survey, 1975

Table 2: Chemical Characteristics of experiment field soil (Before sowing of 1st and 2nd year crop)

Parameter	Result(unit) 2024		Result (unit) 2025		Method	Reference
	Pre-Analysis	Post-Analysis	Pre-Analysis	Post-Analysis		
Organic carbon	0.5%	0.45%	0.5%	0.5%	Walkley and Black Method	Jackson, 1973
Available N	225 kg/ha	223 kg/ha	221 kg/ha	220 kg/ha	Alkaline Permanganate Method	Subbaiah and Asija, 1956
Available P	38.2 kg/ha	36.5 kg/ha	36.23kg/ha	35.5kg/ha	Olsen's colorimetric method	Olsen et al., 1954 ^[12, 13]
Available K	240.7 kg/ha	238.6 kg/ha	237.6kg/ha	235.7 kg/ha	Flame photometer method	Toth and Prince, 1949
PH	6.0	7.0	7.8	7.7	Glass electrode PH meter	Jackson, 1973
EC	0.56(ds/m)	0.55(ds/m)	0.52 (ds/m)	0.51(ds/m)	Method No. 4 USDA Hand Book, No. 60	Rechards, 1954

Result and Discussion

2024

Yield Attributes

Number of Cobs/plant

The results revealed that there was significant difference between the treatments and maximum number of cob /plant (2.0 plant-1) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea and (T₄), Flat bed method + 50% N through Goat manure + 50% N through Urea and (T₆), Ridge method + 100 % RDN through Urea were statically at par with treatment 8. The data regarding the number of cobs per plant are presented in table 4.3, which indicated that application of nitrogen through Urea and Goat manure partly affected the number of cobs per plant. It seems that number of cobs per plant is basically a genetic character and not too much influenced by crop nutrition. These results are in line with the finding of (Naveen *et al.*, 2020).

The results revealed that there was significant difference between the treatments and maximum number of cob /plant (2.17 plant-1) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea and (T₄), Flat bed method + 50% N through Goat manure + 50% N through Urea and (T₆), Ridge method + 100 % RDN through Urea were statically at par with treatment 8. The data regarding the number of cobs per plant are presented in table 4.3, which indicated that application of nitrogen through Urea and Goat manure partly affected the number of cobs per plant. It seems that number of cobs per plant is basically a genetic character and not too much influenced by crop nutrition. These results are in line with the finding of (Naveen *et al.*, 2020).

The results revealed that there was the highest significant difference between the treatments and maximum number of cob /plant (2.08 plant-1) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea the data regarding the number of cobs per plant are presented in table 4.4, which indicated that application of nitrogen through Urea and Goat manure partly affected the number of cobs per plant. It seems that number of cobs per plant is basically a genetic character and not too much influenced by crop nutrition. These results are in line with the finding of (Naveen *et al.*, 2020).

Cob length (cm)

The results revealed that there was significant difference between the treatments and maximum Cob length (20.09 cm) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea and, (T₄), Flat bed method + 50% N through Goat manure + 50% N through Urea (T₆), Ridge method + 100 % RDN through Urea and (T₁₂) FIRB method + 50% N through Goat manure + 50% N through Urea. were statically at par with treatment (T₈), Ridge method + 50% N through Goat manure + 50% N through Urea.

This result was in accordance with the data recorded by (M. J. Singh, Anil Khokhar, A. Yousuf *et al.* (2022)^[27]). recorded that the Plant height, cob length, cob girth, grains per cob and 1000 grain weight in maize crop were higher in ridge sowing, bed planting and deep tillage than flat sowing That the presence of sufficient moisture and good drainage conditions might have resulted in the better growth and yield attributes of maize.

The results revealed that there was significant difference between the treatments and maximum Cob length (20.86 cm) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea and, (T₄), Flat bed method + 50% N through Goat manure + 50% N through Urea (T₆), Ridge method + 100 % RDN through Urea and (T₁₂) FIRB method + 50% N through Goat manure + 50% N through Urea. were statically at par with treatment (T₈), Ridge method + 50% N through Goat manure + 50% N through Urea.

This result was in accordance with the data recorded by (M. J. Singh, Anil Khokhar, A. Yousuf *et al.* (2022)^[27]). recorded that the Plant height, cob length, cob girth, grains per cob and 1000 grain weight in maize crop were higher in ridge sowing, bed planting and deep tillage than flat sowing That the presence of sufficient moisture and good drainage conditions might have resulted in the better growth and yield attributes of maize.

The results revealed that there was the highest significant difference between the treatments and maximum Cob length (20.47 cm) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea. This result was in accordance with the data recorded by (M. J. Singh, Anil Khokhar, A. Yousuf *et al.* (2022)^[27]). recorded that the Plant height, cob length, cob girth, grains per cob and 1000 grain weight in maize crop were higher in ridge sowing, bed planting and deep tillage than flat sowing That the presence of sufficient moisture and good drainage conditions might have resulted in the better growth and yield attributes of maize.

Cob weight with husk (g/cob)

The results revealed that there was significant difference between the treatments and maximum Cob weight (44.04 g) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, and (T₄), Flat bed method + 50% N through Goat manure + 50% N through Urea (T₆), Ridge method + 100 % RDN through Urea and (T₁₂), FIRB method + 50% N through Goat manure + 50% N through Urea were statically at par with treatment 8. (table 4.3)

Individual cob weight with husk in Goat manure and Urea with Ridge method sowing in received plots could be due to better interception, absorption and utilization of radiation energy leading to higher photosynthetic rate and finally more accumulation. The overall improvement reflected into better sourcesink relationship, which in turn enhanced the yield and yield attributes (Madhavi *et al.*, 1995).

The results revealed that there was significant difference between the treatments and maximum Cob weight (41.89 g) was observed by the application of T₈: Ridge method + 50% N

through Goat manure + 50% N through Urea, and (T₄), Flat bed method + 50% N through Goat manure + 50% N through Urea (T₆), Ridge method + 100 % RDN through Urea and (T₁₂), FIRB method + 50% N through Goat manure + 50% N through Urea were statically at par with treatment 8. (table 4.3)

Individual cob weight with husk in Goat manure and Urea with Ridge method sowing in received plots could be due to better interception, absorption and utilization of radiation energy leading to higher photosynthetic rate and finally more accumulation. The overall improvement reflected into better sourcesink relationship, which in turn enhanced the yield and yield attributes (Madhavi *et al.*, 1995).

The results revealed that there was non-significant difference between the treatments and maximum Cob weight (42.96 g) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, and It was found to be Non-Significant.

Individual cob weight with husk in Goat manure and Urea with Ridge method sowing in received plots could be due to better interception, absorption and utilization of radiation energy leading to higher photosynthetic rate and finally more accumulation. The overall improvement reflected into better sourcesink relationship, which in turn enhanced the yield and yield attributes (Madhavi *et al.*, 1995).

Cob weight without husk (g/cob)

The results revealed that there was significant difference between the treatments and maximum Cob weight (13.29 g) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, and (T₄), Flat bed method + 50% N through Goat manure + 50% N through Urea (T₆) Ridge method + 100 % RDN through Urea and (T₁₂) FIRB method + 50% N through Goat manure + 50% N through Urea were statically at par with treatment 8. (table 4.3)

Individual cob weight with husk in Goat manure and Urea with Ridge method sowing in received plots could be due to better interception, absorption and utilization of radiation energy leading to higher photosynthetic rate and finally more accumulation. The overall improvement reflected into better sourcesink relationship, which in turn enhanced the yield and yield attributes (Madhavi *et al.*, 1995).

The results revealed that there was significant difference between the treatments and maximum Cob weight (12.53 g) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, and (T₄), Flat bed method + 50% N through Goat manure + 50% N through Urea (T₆) Ridge method + 100 % RDN through Urea and (T₁₂) FIRB method + 50% N through Goat manure + 50% N through Urea were statically at par with treatment 8. (table 4.3)

Individual cob weight with husk in Goat manure and Urea with Ridge method sowing in received plots could be due to better interception, absorption and utilization of radiation energy leading to higher photosynthetic rate and finally more accumulation. The overall improvement reflected into better sourcesink relationship, which in turn enhanced the yield and yield attributes (Madhavi *et al.*, 1995).

The results revealed that there was significant difference between the treatments and maximum Cob weight (12.91 g) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, and (T₁₂) FIRB method + 50% N through Goat manure + 50% N through Urea

were found to be statistically at par with (T₈), Ridge method + 50% N through Goat manure + 50% N through Urea.

Individual cob weight with husk in Goat manure and Urea with Ridge method sowing in received plots could be due to better interception, absorption and utilization of radiation energy leading to higher photosynthetic rate and finally more accumulation. The overall improvement reflected into better sourcesink relationship, which in turn enhanced the yield and yield attributes (Madhavi *et al.*, 1995).

Cob yield (t/ha)

The results revealed that there was significant difference between the treatments and maximum cob yield (11.89 t/ha) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea and (T₄), Flat bed method + 50% N through Goat manure + 50% N through Urea (T₆) Ridge method + 100 % RDN through Urea and (T₁₂): FIRB method + 50% N through Goat manure + 50% N through Urea was found to be statistically at par T₈ (table 4.4)

Onasanya *et al.*, (2009) reported that the cob yield were significantly influenced by establishment methods and nitrogen management, Significantly the highest cob yield (11.89 t/ha) The increase in cob yield might be due to remarkable improvement in yield attributes. This might be due to better growth with higher nutrient supply by Urea and goat manure with ridge method of sowing and also provided nutrients for longer period and readily to use form with growth promoting substances which improve overall growth and reflected in yield. The results revealed that there was significant difference between the treatments and maximum cob yield (11.12 t/ha) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea and (T₄), Flat bed method + 50% N through Goat manure + 50% N through Urea (T₆) Ridge method + 100 % RDN through Urea and (T₁₂): FIRB method + 50% N through Goat manure + 50% N through Urea was found to be statistically at par T₈ (table 4.4)

Onasanya *et al.*, (2009) reported that the cob yield were significantly influenced by establishment methods and nitrogen management, Significantly the highest cob yield (11.89 t/ha) The increase in cob yield might be due to remarkable improvement in yield attributes. This might be due to better growth with higher nutrient supply by Urea and goat manure with ridge method of sowing and also provided nutrients for longer period and readily to use form with growth promoting substances which improve overall growth and reflected in yield. The results revealed that there was significant difference between the treatments and maximum cob yield (11.50 t/ha) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea and (T₄), Flat-bed method + 50% N through Goat manure + 50% N through Urea, (T₆) Ridge method + 100 % RDN through Urea was found to be statistically at par (T₈) Ridge method + 50% N through Goat manure + 50% N through Urea (Table 4.4).

Significantly the highest cob yield (11.89 t/ha) was increase in Ridge method and 50% N through Goat manure along with 50 % N through Urea might be due to remarkable improvement in yield attributes. This might be due to better growth with higher nutrient supply by Urea and goat manure with ridge method of sowing and also provided nutrients for longer period and readily to use form with growth promoting substances which improve overall growth and reflected in yield which was similar to Onasanya *et al.*, (2009)

Green fodder (t/ha)

The results revealed that there was maximum green fodder yield (32.27 t/ha) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea and (T₄), Flatbed method + 50% N through Goat manure + 50% N through Urea (T₆) Ridge method + 100 % RDN through Urea and (T₁₂): FIRB method + 50% N through Goat manure + 50% N through Urea were found to be statistically at par with (T₈), which was proved significantly superior over the application of FYM, poultry manure and sheep manure (table 4.4). This result was in accordance with the data recorded by Madhavi *et al.*, 1995. Higher rate of nitrogen and establishment method had beneficial effect on physiological processes, plant metabolism, dry matter production, growth etc. there by leading to higher green fodder.

The results revealed that there was maximum green fodder yield (30.77 t/ha) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea and (T₄), Flatbed method + 50% N through Goat manure + 50% N through Urea (T₆) Ridge method + 100 % RDN through Urea and (T₁₂): FIRB method + 50% N through Goat manure + 50% N through Urea were found to be statistically at par with (T₈), which was proved significantly superior over the application of FYM, poultry manure and sheep manure (table 4.4). This result was in accordance with the data recorded by (Madhavi *et al.* , , 1995). Higher rate of nitrogen and establishment method had beneficial effect on physiological processes, plant metabolism, dry matter production, growth etc. there by leading to higher green fodder.

Harvest Index (%)

The results revealed that there was maximum Harvest Index (26.92) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, and It was found to be Non-Significant.

2025

The results revealed that there was maximum Harvest Index (26.54) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, and It was found to be Non-Significant.

The results revealed that there was maximum Harvest Index (26.73) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea (T₁), Flat bed method + 100 % N through Goat manure (T₃) Flat-bed method+ 25% N through Goat manure + 75% N through Urea and (T₄), Flat-bed method + 50% N through Goat manure + 50% N through Urea (T₆), Ridge method + 100 % RDN through Urea and (T₁₀), FIRB method + 100 % RDN through Urea were found to be statistically at par with (T₈), Ridge method + 50% N through Goat manure + 50% N through Urea which was proved significantly superior over the application of FYM, poultry manure and sheep manure (table 4.4). This result was in accordance with the data recorded by Shrestha *et al.*, (2018). Higher rate of nitrogen and establishment method had beneficial effect on physiological processes, plant metabolism, dry matter production, growth etc. there by leading to higher green fodder. This study suggested that maize production can be maximized by cultivating maize with the use of 200 kg N/ha and maintaining the plant density of 66666 plants/ha.

Pooled**Green fodder Yield (t/ha)**

The results revealed that there was maximum green fodder yield (31.52 t/ha) was observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea and (T₄), Flatbed method + 50% N through Goat manure + 50% N through Urea (T₆) Ridge method + 100 % RDN through Urea and (T₁₂): FIRB method + 50% N through Goat manure + 50% N through Urea were found to be statistically at par with (T₈), which was proved significantly superior over the application of FYM, poultry manure and sheep manure (table 4.4). This result was in accordance with the data recorded by (Madhavi *et al.*, 1995). Higher rate of nitrogen and establishment method had beneficial effect on physiological processes, plant metabolism, dry matter production, growth etc. there by leading to higher green fodder.

Economics of different treatment combinations.**2024**

The highest gross return (INR 239850.00 /ha), net return (INR 156470.00 /ha) and benefit cost ratio (1.88) were observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea. Respectively. 1st Year 2024.

Gross return (/ha)

Maximum gross return (239850.00 /ha) was recorded in treatment T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, respectively.

Maximum gross return (228340.00 /ha) was recorded in treatment T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, respectively.

Maximum gross return (234020.00/ha) was recorded in treatment T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, respectively.

Net return (/ha)

Maximum net return (156470.00/ha) was recorded in treatment T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, respectively.

Maximum net return (144960.00 /ha) was recorded in treatment T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, respectively.

Maximum net return (150640.00/ha) was recorded in treatment T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, respectively.

Benefit cost ratio (B:C)

Maximum benefit cost ratio (1.88) was recorded in treatment 8: Ridge method + 50% N through Goat manure + 50% N through Urea, respectively.

Maximum benefit cost ratio (1.74) was recorded in treatment 8: Ridge method + 50% N through Goat manure + 50% N through Urea, respectively.

Maximum benefit cost ratio (1.81) was recorded in treatment 8: Ridge method + 50% N through Goat manure + 50% N through Urea, respectively.

Table 3: Effect of Establishment method & Nitrogen management on Yield and yield attribute of Baby corn in both the year 2024-2025

Treat. No.	No. of cobs/plant			Length of cobs/plant (cm)			Cob weight with husk (g/cob)			Cob weight without husk (g/cob)		
	2024	2025	Pooled	2024	2025	Pooled	2024	2025	Pooled	2024	2025	Pooled
T ₁	1.60	1.10	1.35	16.85	18.66	17.74	40.29	38.62	39.45	11.31	11.16	11.23
T ₂	1.49	1.63	1.56	17.90	18.84	18.37	40.61	39.32	39.96	11.64	10.65	11.14
T ₃	1.53	1.54	1.75	18.14	17.86	18.00	39.40	38.11	38.75	12.13	10.98	11.55
T ₄	1.73	1.82	1.77	18.79	19.59	19.19	43.41	40.88	42.15	12.38	11.18	11.78
T ₅	1.51	1.70	1.60	17.87	18.59	18.23	40.15	37.86	39	12.08	11.03	11.55
T ₆	1.76	1.93	1.84	18.75	19.59	19.17	43.03	40.33	41.68	12.19	11.47	11.83
T ₇	1.66	1.69	1.67	17.84	19.23	18.53	40.44	39.26	39.85	10.93	11.15	10.77
T ₈	2.0	2.17	2.08	20.09	20.86	20.47	44.04	41.89	42.96	13.29	12.53	12.91
T ₉	1.52	1.61	1.56	18.52	18.15	18.33	40.35	39.27	39.8	11.59	11.14	11.36
T ₁₀	1.65	1.80	1.72	18.56	19.11	19.04	38.62	39.05	38.83	12.10	10.72	11.41
T ₁₁	1.65	1.53	1.59	18.28	19.25	18.77	40.63	39.47	40.22	11.68	10.01	10.85
T ₁₂	1.66	1.73	1.69	18.97	19.58	19.27	41.32	40.47	40.89	12.59	11.67	12.13
F Test	S	S	S	S	S	S	S	S	NS	S	S	S
S.Em (±)	0.11	0.12	0.07	0.46	0.44	0.31	1.09	0.80	0.42	0.39	0.46	0.29
CD (P=0.05)	0.33	0.35	0.21	1.35	1.28	0.91	3.19	2.34	2.41	1.13	1.36	0.85

T₁: Flat bed method + 100 % N through Goat manure, T₂: Flat bed method + 100 % RDN through Urea, T₃: Flat bed method+ 25% N through Goat manure + 75% N through Urea, T₄: Flat bed method + 50% N through Goat manure + 50% N through Urea, T₅: Ridge method + 100 % N through Goat manure, T₆: Ridge method + 100 % RDN through Urea, T₇: Ridge method + 25% N through Goat manure + 75% N through Urea, T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, T₉: FIRB method+ 100 % N through Goat manure, T₁₀: FIRB method + 100 % RDN through Urea, T₁₁: FIRB method + 25% N through Goat manure + 75% N through Urea, T₁₂: FIRB method + 50% N through Goat manure + 50% N through Urea.

Table 3: Effect of Establishment method & Nitrogen management on Yield and yield attribute of Baby corn in both the year 2024-2025

Treat. No.	Cob Yield (t/ha)			Green fodder Yield (t/ha)			Harvest Index (%)		
	2024	2025	Pooled	2024	2025	Pooled	2024	2025	Pooled
T ₁	9.68	9.33	9.50	28.73	28.43	28.58	25.20	24.70	24.94
T ₂	8.57	8.78	8.67	28.80	29.17	28.98	22.93	23.13	23.02
T ₃	9.09	9.28	9.18	28.53	27.70	28.11	24.16	25.09	24.62
T ₄	10.65	10.87	10.76	30.57	30.57	30.57	25.83	26.23	26.03
T ₅	9.12	8.87	8.99	29.13	28.77	28.95	23.84	23.56	23.69
T ₆	10.61	10.26	10.43	30.83	30.23	30.53	25.60	25.33	25.46
T ₇	9.32	9.42	9.37	29.50	29.12	29.31	24.01	24.44	24.22
T ₈	11.89	11.12	11.50	32.27	30.77	31.52	26.92	26.54	26.73
T ₉	8.93	9.13	9.03	29.37	29.20	29.28	23.31	23.81	23.57
T ₁₀	9.63	9.11	9.37	25.50	26.87	26.18	27.41	25.31	26.35
T ₁₁	9.12	8.95	9.03	29.43	28.77	29.10	23.65	23.72	23.69
T ₁₂	9.73	9.57	9.65	29.93	30.60	30.27	24.53	23.82	24.17
F Test	S	S	S	S	S	S	NS	NS	S
S.Em (±)	0.75	0.56	0.4	0.93	0.52	0.63	1.40	1.12	0.84
CD (P=0.05)	2.20	1.65	1.17	2.73	1.53	1.85	4.09	3.28	2.45

T₁: Flat bed method + 100 % N through Goat manure, T₂: Flat bed method + 100 % RDN through Urea, T₃: Flat bed method+ 25% N through Goat manure + 75% N through Urea, T₄: Flat bed method + 50% N through Goat manure + 50% N through Urea, T₅: Ridge method + 100 % N through Goat manure, T₆: Ridge method + 100 % RDN through Urea, T₇: Ridge method + 25% N through Goat manure + 75% N through Urea, T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, T₉: FIRB method+ 100 % N through Goat manure, T₁₀: FIRB method + 100 % RDN through Urea, T₁₁: FIRB method + 25% N through Goat manure + 75% N through Urea, T₁₂: FIRB method + 50% N through Goat manure + 50% N through Urea.

Table 4: Effect of Establishment method & Nitrogen management on Economics of Baby corn in both the year 2024-2025

Treatment	2024	2025	Mean (Rs./ha)	2024	2025	Mean (Rs./ha)	2024	2025	Mean (Rs./ha)	2024	2025	Pooled
	Gross return (Rs./ha)	Gross return (Rs./ha)		Total cost of cultivation (Rs./ha)	Total cost of cultivation (Rs./ha)		Net Returns (Rs./ha)	Net Returns (Rs./ha)		B:C	B:C	
1	201580.00	196810.00	199120.00	88280.00	88280.00	88280.00	113300.00	108530.00	110840.00	1.28	1.23	1.26
2	189270.00	190360.00	189740.00	78480.00	78480.00	78480.00	110790.00	111880.00	111260.00	1.41	1.43	1.42
3	196030.00	200600.00	198240.00	80666.00	80666.00	80666.00	115364.00	119934.00	117574.00	1.43	1.49	1.46
4	214490.00	224190.00	219340.00	83380.00	83380.00	83380.00	131110.00	140810.00	135960.00	1.57	1.69	1.63
5	197240.00	190590.00	193840.00	88280.00	88280.00	88280.00	108960.00	102310.00	105560.00	1.23	1.16	1.20
6	218610.00	214360.00	216410.00	78480.00	78480.00	78480.00	140130.00	135880.00	137930.00	1.79	1.73	1.76
7	200520.00	201160.00	200840.00	80666.00	80666.00	80666.00	119854.00	120494.00	120174.00	1.49	1.49	1.49
8	239850.00	228340.00	234020.00	83380.00	83380.00	83380.00	156470.00	144960.00	150640.00	1.88	1.74	1.81
9	194610.00	196210.00	195410.00	88280.00	88280.00	88280.00	106330.00	107930.00	107130.00	1.20	1.22	1.21
10	203610.00	195850.00	199730.00	78480.00	78480.00	78480.00	125130.00	117370.00	121250.00	1.59	1.50	1.54
11	197960.00	191790.00	194800.00	80666.00	80666.00	80666.00	117294.00	111124.00	114134.00	1.45	1.38	1.41
12	207290.00	204750.00	206020.00	83380.00	83380.00	83380.00	123910.00	121370.00	122640.00	1.49	1.46	1.47

T₁: Flatbed method + 100 % N through Goat manure, T₂: Flatbed method + 100 % RDN through Urea, T₃: Flatbed method+ 25% N through Goat manure + 75% N through Urea, T₄: Flatbed method + 50% N through Goat manure + 50% N through Urea, T₅: Ridge method + 100 % N through Goat manure, T₆: Ridge method + 100 % RDN through Urea, T₇: Ridge method + 25% N through Goat manure + 75% N through Urea, T₈: Ridge method + 50% N through Goat manure + 50% N through Urea, T₉: FIRB method+ 100 % N through Goat manure, T₁₀: FIRB method + 100 % RDN through Urea, T₁₁: FIRB method + 25% N through Goat manure + 75% N through Urea, T₁₂: FIRB method + 50% N through Goat manure + 50% N through Urea.

2025

The highest gross return (INR 228340.00 /ha), net return (INR 144960.00 /ha) and benefit cost ratio (1.74) were observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea. Respectively. 2nd Year 2025.

Pooled Data both the Year 2024-2025

The highest gross return (INR 234020.00/ha), net return (INR 150640.00/ha) and benefit cost ratio (1.81) were observed by the application of T₈: Ridge method + 50% N through Goat manure + 50% N through Urea. Respectively. both the Year 2024-2025.

Conclusion

It is concluded that for obtaining significantly highest yield in baby corn during *Zaid* season 2024- 2025 both year, application of two sources N management and method of sowing as Ridge method + 50% N through Goat manure (1.98 t/ha) + 50% N through Urea (0.13 t/ha), (Treatment 8) recorded more No. of cob/ plant, maximum Cob weight with husk, Cob weight without husk, Cob length, maximum Cob yield, Green fodder yield respectively.

Acknowledgement

The authors express their gratitude to Dr. Biswarup Mehera, Professor and Dean, Department of Agronomy, Naini Agricultural Institute, Prayagraj, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj Uttar Pradesh – 211007. India. For providing the facilities required to carry out the research.

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