

## **EFFECT OF NITROGEN AND POTASSIUM ON GROWTH, YIELD AND QUALITY OF LOCAL SOBREE BANANA**

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### **Abstract**

The experiment comprised of four levels of nitrogen (350, 450, 550 and 650g urea) and four levels of potassium (300, 400, 500 and 600g MoP) per plant to evaluate the effect of N and K on growth, yield and quality of banana. The growth, yield and quality attributes of banana were significantly influenced by the application of N and K fertilizers. Application of N fertilizer (550g urea) and K fertilizer (500g MoP) per plant significantly increased studied all parameters. Among the different levels of N fertilizer, the highest plant height (308.67 cm) was found from the application of 550g urea per plant and the lowest height (275.92 cm) was observed from 350g urea per plant. Application of different levels of K fertilizer, the longest plant height (305.83cm) was found from 500g MoP per plant while the shortest (276.83cm) was noticed from 300g MoP per plant. In combination of N and K fertilizers, the highest (327.67cm) plant height was found from the application of 550g urea with 500g MoP per plant while the lowest (270.67cm) was observed from 350g urea with 300g MoP. Among the different levels of N fertilizer, the highest yields per plant and per hectare (14.43 kg and 26.57 t/ha) were found from the application of 550g urea per plant and the lowest yields (7.40 kg and 13.58 t/ha) were observed from 350g urea. In case of different levels of K fertilizer, the highest yields per plant and per hectare (13.91 kg and 25.58 t/ha) found from the application of 500g MoP per plant and the lowest yields (7.63 kg and 14.04 t/ha) found from 300g MoP. The treatment combination of 550g urea with 500g MoP produced the highest yield per plant and per hectare (17.27 kg and 31.82 t/ha) while the lowest yield (5.50 kg and 10.12 t/ha) was found from the combination of 350g urea with 300g MoP. Among the different levels of N fertilizer, maximum shelf life (13.07 days) was found from the application of 550g urea per plant and minimum shelf life (12.17 days) was observed from 350g urea. Application of different levels of K fertilizer, maximum shelf life (12.97 days) was found from 500g MoP per plant while minimum shelf life (12.23 days) was noticed from 300g Mop per plant. Application of 550g urea with 500g MoP per plant in combination produced the highest shelf life (13.50 day) while the lowest (12.00) was observed from 350g urea with 300g MoP. Considering the above fact, 550g urea with 500g MoP per plant had more responsible for quality higher yield of banana.

**Key words:** Banana, N and K fertilizers, yield, quality

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### Introduction

Banana (*Musa* sp. L.) is one of the most popular fruits worldwide and has been cropped in most tropical countries. It is an important quick growing fruit of Bangladesh. It is also the cheapest, most plentiful and nourishing of all fruits (Khader *et al.*, 1996). It is one of the fruit which is available throughout the year in Bangladesh and its consumption rate is higher than any other fruits. Banana provides instant energy as they are rich sources of vitamin B<sub>6</sub>, vitamin C and potassium (Hassan *et al.*, 2010). It is one of the economically important fruit crops grown in Bangladesh both at homesteads and commercial farms (Ahmed, 1984). Among the fruits produced in the country, it stands at first position and supplies 42% of the total fruit requirements in the country and also its financial return as a crop is higher compared to other fruits and field crops (Haque, 1988). The present average yield of banana in the country is about 18.23 t/ha that is far below than the average yield 30.63 t/ha in India (FAO, 2013). There are several factors contributing to low production of banana in Bangladesh. Proper assessment of fertilizer doses is one of them. The fruit has high demand for potassium but farmers use more nitrogen and phosphorus resulting nutrient imbalance. Judicious application of manures and fertilizers is very important to increase banana production per unit of land. Koen (1976) reported that optimum fertilization is essential for the growth and yield of banana. It responds greatly to major essential nutrient elements like N, P and K in respect of its yield (Schneider and Scarborough, 1960). Banana takes up more nutrients per unit area than almost any other crops (Martin *et al.*, 1984). Deficient and imbalance of these nutrients result in poor growth and reduction in yield (Khader *et al.*, 1985). A different dose of N along with uniform doses of P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O per plant, increasing N levels resulted in increased vegetative growth, greatest plant height and pseudostem girth (Hazarika *et al.*, 1991) and higher yield (Singh *et al.*, 1992). Application of different fertilizers gave better results compared with the application of only N fertilizer (Saleh, 2001). An optimum supply of K must be essential in maintaining normal growth and development, especially during the later stages of fruit development (Munson, 1985). The increase in the N and K fertilization levels improved the growth parameter of plant and had positive response to higher K application after flowering (Chandrakumar *et al.*, 2001).

Banana production is limited in coastal region of Bangladesh due to salinity, inundate, lack of update technology and proper doses of fertilizers application. To ensure better production, it is necessary to manipulate the cultivation technique and select the proper doses of fertilizers. So, the study was undertaken to evaluate the growth, yield and quality contributing factors of Sobree banana as influenced by different levels of N and K fertilizers.

### Materials and Methods

The experiment was conducted at Germplasm Centre, Department of Horticulture, Patuakhali Science and Technology University, Patuakhali during January 2016 to March 2017. It comprised of four levels of nitrogen fertilizer (350, 450, 550 and 650g urea) and four levels of potassium fertilizer (300, 400, 500 and 600g MoP) per plant. The suckers

of 2 months age local *Sobree* banana were used as planting materials which collected from local growers. It was selected due to easily survive of this inundate area and fruit price is very high than other ones. The two-factor experiment consisting 16 treatments and was laid out in Randomized Complete Block Design with three replications. In each block the land was divided into 16 plots for 16 treatments. The pits of 60cm × 60cm × 60cm were prepared by digging the soil with spade at three weeks before planting. Fertilizers were applied as per Fertilizer Recommendation Guide (BARC, 2012): Mustard Oil Cake @ 500g per plant, TSP @ 150g per plant, gypsum @ 200g per plant, boric acid @ 1g per plant, zinc oxide @ 3g per plant were applied in the pit and mixed well with pit soil before 10 days of planting. Urea and MoP were applied as per treatment. Half of the MoP was applied in the pit during pit preparation. The rest half of MoP and all urea were divided into 3 installments and applied by making ring around the plant after 120 days, 160 days and at the commencement of flowering. As a preventive measure against insect pests Malathion 57 EC was applied @ 2 ml per litre of water both at vegetative and reproductive stage. Bunches were harvested when the fingers were full rounded. The harvesting was started in January 2017 and continued till March 2017. Twenty fingers of each treatment were selected from the middle part of bunch. Individual banana fingers were kept on the Farm laboratory room at ambient atmospheric conditions for observations of quality attributes of fruits. Data were recorded on plant height, number of leaves, base girth, days to shooting, days to bunch maturity, crop duration, number of hands per bunch, number of fingers per hand, yield per plant (kg), yield per hectare (ton), pulp to peel ratio, total soluble solids (TSS) and shelf life. The collected data were statistically analysed using the MSTATc program. The significance of difference between pair of means was performed by LSD test (Gomez and Gomez, 1984).

## Results and Discussion

### Effect of nitrogen fertilizer on growth, yield and quality of banana

The variation was highly significant due to the application of different levels of N fertilizer. The tallest (308.67 cm) plant was observed from 550g urea per plant treatment while the shortest (275.92 cm) from 350g urea per plant (Table 1). Naresh-Babu *et al.* (2004) reported that the highest plant height from application of N at 240g per plant. Maximum number of leaves per plant (8.88) was observed from 550g urea treatment while minimum (6.89) from the 350g urea per plant (Table 1). Maximum base girth (58.13 cm) was recorded from 550g urea treatment which was statistically significant with 450g urea per plant treatment while the minimum (48.73 cm) girth was found from the 350g urea per plant (Table 1). Variation in days to shooting of banana was found to be statistically highly significant due to the effect of different levels of N fertilizer. The longest days to shooting (257.58 days) was obtained from the application of 550g urea treatment which was statistically different with 450g urea application while the shortest (246.83 days) was found from 350g urea (Table 1). The highest days to bunch maturity

(100.42 days) was obtained from 550g urea treatment which was statistically identical with 350g urea per plant. The lowest time (93.25 days) was observed from 350g urea per plant (Table 1). The highest crop duration (356.00 days) was recorded from 550g urea per plant treatment while the lowest duration (343.92 days) was obtained from 350g urea treatment (Table 1). Hands per bunch also varied significantly with the application of different levels of N fertilizer. The hands per bunch were recorded to be the highest (9.50) in plants raised with 550g urea per plant while the lowest hands per bunch (6.67) were obtained from 350g urea per plant (Table 3). Highly significant variation was found in respect of fingers per hand by different levels of N fertilizer. The highest fingers per hand (14.17) was found from the treatment of 550g urea per plant while the lowest (10.42) fingers per hand was found from the 350g urea treatment (Table 3). The highest yield per plant and per hectare (14.43 kg and 26.57 t/ha) was obtained from the application of 550g urea per plant treatment which was significantly varied with 450g urea per plant while the lowest yield (7.40 kg and 13.58 t/ha) was obtained from 350g urea treatment (Table 3 and Figure 1).

**Table 1. Effect of different levels of nitrogen and potassium fertilizers on growth of Banana**

Treatments	Plant height (cm)	No. of leaves	Base girth (cm)	Days to shooting	Days to bunch maturity	Crop duration
<b>Nitrogen</b>						
N <sub>1</sub>	275.92	6.89	48.73	246.83	93.25	343.92
N <sub>2</sub>	298.25	8.32	55.29	253.58	98.75	349.58
N <sub>3</sub>	308.67	8.88	58.13	257.58	100.42	356.00
N <sub>4</sub>	291.08	8.12	52.08	250.92	98.00	350.58
LSD at 1%	7.72	0.56	3.74	3.35	3.73	3.51
Level of significance	**	**	**	**	**	**
<b>Potassium</b>						
K <sub>1</sub>	276.83	7.08	49.28	247.33	93.25	345.50
K <sub>2</sub>	299.75	8.27	55.34	254.42	99.58	351.58
K <sub>3</sub>	305.83	8.78	57.38	256.58	100.58	353.42
K <sub>4</sub>	291.50	8.09	52.23	250.58	97.00	349.58
LSD at 1%	7.72	0.56	3.74	3.35	3.73	3.51
Level of significance	**	**	**	**	**	**
CV (%)	2.40	6.29	6.36	1.21	3.48	1.92

\*\* = 1% levels of probability; CV = Coefficient of variation N<sub>1</sub> = 350g urea/ plant, N<sub>2</sub> = 450g urea/plant, N<sub>3</sub> = 550g urea/plant, N<sub>4</sub> = 650g urea/plant; K<sub>1</sub> = 300g MoP/plant, K<sub>2</sub> = 400g MoP/plant, K<sub>3</sub> = 500g MoP/plant, K<sub>4</sub> = 600g MoP/plant

**Table 2. Combined effect of different levels of nitrogen and potassium fertilizers on growth of Banana**

Treatments (N x K)	Plant height (cm)	No. of leaves	Base girth (cm)	Days to shooting	Days to bunch maturity	Crop duration
N <sub>1</sub> K <sub>1</sub>	270.67	6.03	48.10	245.33	90.33	340.00
N <sub>1</sub> K <sub>2</sub>	276.33	6.97	48.43	248.33	93.67	343.67
N <sub>1</sub> K <sub>3</sub>	279.67	7.50	49.00	246.33	94.67	346.33
N <sub>1</sub> K <sub>4</sub>	277.00	7.07	49.37	247.33	94.33	345.67
N <sub>2</sub> K <sub>1</sub>	271.33	6.70	48.57	246.33	92.33	342.00
N <sub>2</sub> K <sub>2</sub>	311.67	9.03	58.70	257.67	101.67	354.00
N <sub>2</sub> K <sub>3</sub>	314.67	9.13	61.13	260.00	102.67	354.67
N <sub>2</sub> K <sub>4</sub>	295.33	8.40	52.77	250.33	98.33	347.67
N <sub>3</sub> K <sub>1</sub>	280.33	7.53	50.17	249.00	94.67	351.67
N <sub>3</sub> K <sub>2</sub>	319.33	9.03	61.77	262.00	104.33	357.67
N <sub>3</sub> K <sub>3</sub>	327.67	10.00	65.00	265.00	104.67	360.00
N <sub>3</sub> K <sub>4</sub>	307.33	8.97	55.60	254.33	98.00	354.67
N <sub>4</sub> K <sub>1</sub>	285.00	8.03	50.30	248.67	95.67	348.33
N <sub>4</sub> K <sub>2</sub>	291.67	8.03	52.47	249.67	98.67	351.00
N <sub>4</sub> K <sub>3</sub>	301.33	8.47	54.37	255.00	100.33	352.67
N <sub>4</sub> K <sub>4</sub>	286.33	7.93	51.20	250.33	90.33	350.33
LSD at 1%	15.44	1.11	7.47	6.69	7.45	7.03
Level of significance	**	**	**	**	**	**
CV (%)	2.40	6.29	6.36	1.21	3.48	1.92

\*\* = 1% levels of probability; CV = Coefficient of variation N<sub>1</sub> = 350g urea/plant, N<sub>2</sub> = 450g urea/plant, N<sub>3</sub> = 550g urea/plant, N<sub>4</sub> = 650g urea/plant; K<sub>1</sub> = 300g MoP/plant, K<sub>2</sub> = 400g MoP/plant, K<sub>3</sub> = 500g MoP/plant, K<sub>4</sub> = 600g MoP/plant

**Table 3. Effect of different levels of nitrogen and potassium fertilizers on yield and quality of Banana**

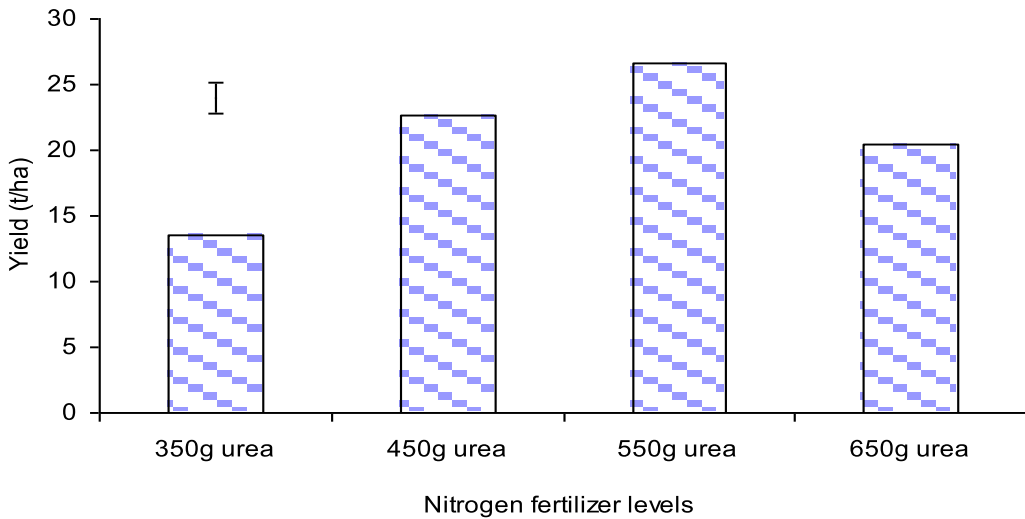
Treatments	Hands/ bunch	Fingers /hand	Yield/ plant (kg)	Pulp: peel ratio	TSS	Shelf life
Nitrogen						
N <sub>1</sub>	6.67	10.42	7.40	7.25	15.54	12.17
N <sub>2</sub>	8.92	13.17	12.32	8.30	16.37	12.80
N <sub>3</sub>	9.50	14.17	14.43	8.82	16.70	13.07
N <sub>4</sub>	8.58	12.58	11.15	7.84	16.18	12.58
LSD at 1%	0.59	0.68	0.44	0.18	0.27	0.20
Level of significance	**	**	**	**	**	**
Potassium						
K <sub>1</sub>	6.92	10.92	7.63	7.30	15.66	12.23
K <sub>2</sub>	8.75	13.17	12.62	8.37	16.39	12.83
K <sub>3</sub>	9.33	13.67	13.91	8.52	16.65	12.97
K <sub>4</sub>	8.67	12.58	11.14	8.00	16.08	12.58
LSD at 1%	0.59	0.68	0.44	0.18	0.27	0.20
Level of significance	**	**	**	**	**	**
CV (%)	6.40	4.95	3.52	2.04	1.52	1.43

\*\* = 1% levels of probability; CV = Coefficient of variation N<sub>1</sub> = 350g urea/plant, N<sub>2</sub> = 450g urea/plant, N<sub>3</sub> = 550g urea/plant, N<sub>4</sub> = 650g urea/plant; K<sub>1</sub> = 300g MoP/plant, K<sub>2</sub> = 400g MoP/plant, K<sub>3</sub> = 500g MoP/plant, K<sub>4</sub> = 600g MoP/plant

**Table 4. Combined effect of different levels of nitrogen and potassium fertilizers on yield and quality of Banana**

Treatments (N x K)	Hands/ bunch	Fingers /hand	Yield/ plant (kg)	Pulp: peel ratio	TSS	Shelf life
N <sub>1</sub> K <sub>1</sub>	5.33	9.67	5.50	7.00	15.50	12.00
N <sub>1</sub> K <sub>2</sub>	6.67	10.33	7.03	7.25	15.40	12.20
N <sub>1</sub> K <sub>3</sub>	7.33	11.00	9.03	7.38	15.70	12.30
N <sub>1</sub> K <sub>4</sub>	7.33	10.67	8.03	7.35	15.57	12.17
N <sub>2</sub> K <sub>1</sub>	6.33	10.33	6.03	7.15	15.47	12.13
N <sub>2</sub> K <sub>2</sub>	9.67	14.33	15.23	8.84	16.73	13.10
N <sub>2</sub> K <sub>3</sub>	10.33	14.67	15.50	9.05	17.00	13.27
N <sub>2</sub> K <sub>4</sub>	9.33	13.33	12.50	8.15	16.27	12.70
N <sub>3</sub> K <sub>1</sub>	7.67	11.67	9.50	7.57	15.77	12.40
N <sub>3</sub> K <sub>2</sub>	10.33	15.33	16.97	9.40	17.23	13.40
N <sub>3</sub> K <sub>3</sub>	10.67	15.67	17.27	9.55	17.40	13.50
N <sub>3</sub> K <sub>4</sub>	9.33	14.00	14.00	8.77	16.40	12.97
N <sub>4</sub> K <sub>1</sub>	8.33	12.00	9.50	7.49	15.90	12.40
N <sub>4</sub> K <sub>2</sub>	8.33	12.67	11.23	8.01	16.20	12.60
N <sub>4</sub> K <sub>3</sub>	9.00	13.33	13.83	8.11	16.50	12.80
N <sub>4</sub> K <sub>4</sub>	8.67	12.33	10.03	7.74	16.10	12.50
LSD at 1%	1.18	1.37	0.88	0.36	0.54	0.40
Level of significance	**	**	**	**	**	**
CV (%)	6.40	4.95	3.52	2.04	1.52	1.43

\*\* = 1% levels of probability; CV = Coefficient of variation N<sub>1</sub> = 350g urea/plant, N<sub>2</sub> = 450g urea/plant, N<sub>3</sub> = 550g urea/plant, N<sub>4</sub> = 650g urea/plant; K<sub>1</sub> = 300g MoP/plant, K<sub>2</sub> = 400g MoP/plant, K<sub>3</sub> = 500g MoP/plant, K<sub>4</sub> = 600g MoP/plant



**Figure 1.** Effect of different levels of nitrogen fertilizer on yield of banana. Vertical bar represents LSD at 1% levels of probability

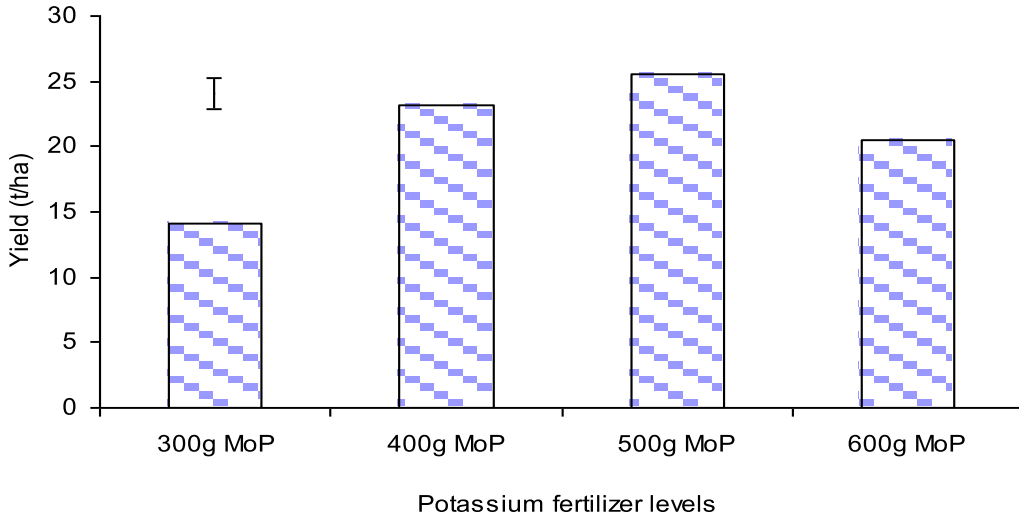
Chattopadhyay *et al.* (1980) was recorded 31 t/ha yield on Giant governor banana which gave the conformity of the findings. The highest pulp and peel ratio (8.82:1) was found from the treatment of 550g urea treatment while the lowest (7.25:1) pulp and peel ratio was found from 350g urea per plant (Table 3). Highly significant variation was found in respect of TSS by different levels of N fertilizer. The highest TSS (16.70) was found from the treatment of 550g urea per plant while the lowest (15.54) TSS was recorded from the 350g urea (Table 3). Shelf life also varied significantly with the application of different levels of N fertilizer. The shelf life was recorded to be the highest (13.07) in plants raised with 550g urea per plant treatment while the lowest shelf life (12.17) was obtained from 350g urea per plant treatment (Table 3).

### Effect of potassium fertilizer on growth, yield and quality of banana

The variation was highly significant due to the application of different levels of K fertilizer. The tallest (305.83 cm) plant was observed from 500g MoP per plant while the shortest (276.83 cm) from 300g MoP treatment (Table 1). Maximum number of leaves per plant (8.78) was observed from 500g MoP per plant while minimum (7.08) from the 300g MoP (Table 1). The maximum base girth (57.38 cm) was recorded from 500g MoP treatment which was statistically similar with 400g urea per plant while the minimum (49.28 cm) girth was found from the 300g MoP (Table 1). Variation in days to shooting of banana was found to be statistically highly significant due to the effect of different levels of K fertilizer. The longest days to shooting (256.58 days) was obtained from the application of 500g MoP per plant which was statistically identical with 400g MoP while the shortest (247.33 days) was from 300g MoP treatment (Table 1). The highest days to bunch maturity (100.58 days) was obtained from 500g MoP treatment which was



statically identical with 400g MoP per plant. The lowest time (93.25 days) was observed from 300g MoP per plant (Table 1). The highest crop duration (353.42 days) was recorded from 500g MoP per plant while the lowest duration (345.50 days) was obtained from 300g MoP treatment (Table 1). Hands per bunch also varied significantly with the application of different levels of K fertilizer. The hands per bunch were recorded to be the highest (9.33) in plants raised with 500g MoP per plant treatment while the lowest hands per bunch (6.92) were obtained from 300g MoP treatment (Table 3). Highly significant variation was found in respect of fingers per hand by different levels of K fertilizer. The highest fingers per hand (13.67) was found from the treatment of 500g MoP per plant while the lowest (10.92) fingers per hand was observed from the 300g MoP treatment (Table 3). The highest yield per plant and per hectare (13.91 kg and 25.58 t/ha) was obtained from the application of 500g MoP per plant which was significantly varied with 400g MoP treatment while the lowest yield (7.63 kg and 14.04 t/ha) was obtained from 300g MoP treatment (Table 3 and Figure 2).

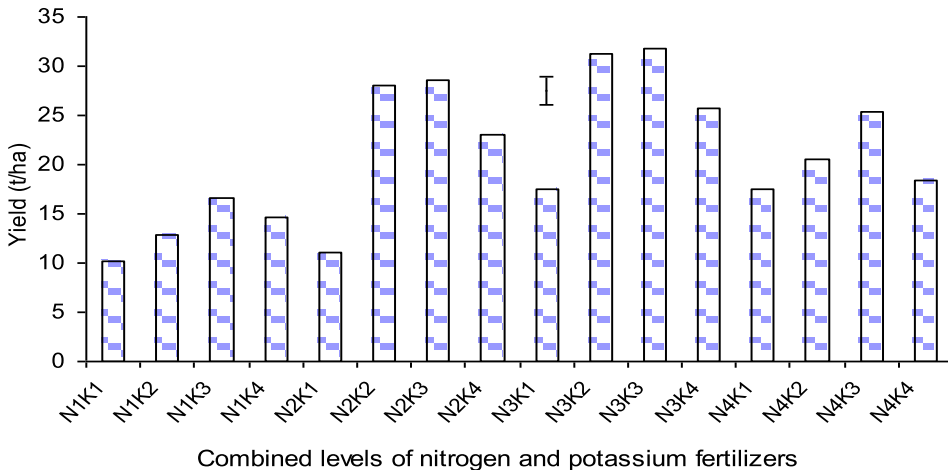


**Figure 2.** Effect of different levels of potassium fertilizer on yield of banana. Vertical bar represents LSD at 1% levels of probability

Baruah and Mohan (2001) found that the yield was highest with 300g K<sub>2</sub>O per plant application give the conformity of the findings. The highest pulp and peel ratio (8.52:1) was found from the treatment of 500g MoP per plant while the lowest (7.30:1) pulp and peel ratio was found from 300g MoP (Table 3). Highly significant variation was found in respect of TSS by different levels of K fertilizer. The highest TSS (16.65) was found from 500g MoP per plant while the lowest (15.66) TSS was recorded from the 300g MoP treatment (Table 3). Shelf life also varied significantly with the application of different levels of K fertilizer. The shelf life was recorded to be the highest (12.97) in plants raised with 500g MoP while the lowest shelf life (12.23) was obtained from 300g MoP per plant treatment (Table 3).

### Effect of combined application of N and K fertilizers on growth, yield and quality of banana

A significant interaction was found between application of different levels of N and K fertilizers on plant height. The tallest (327.67 cm) plant was observed from treatment combination of N<sub>3</sub>K<sub>3</sub> (550g urea+500g Mop) per plant while the shortest (270.67 cm) from treatment combination of N<sub>1</sub>K<sub>1</sub> (350g urea+300g Mop) per plant (Table 2). Maximum number of leaves (10.00) was observed from N<sub>3</sub>K<sub>3</sub> treatment while the minimum (6.03) from the N<sub>1</sub>K<sub>1</sub> (Table 2). The maximum base girth (65.00 cm) was recorded from N<sub>3</sub>K<sub>3</sub> while the minimum (48.10 cm) girth from the N<sub>1</sub>K<sub>1</sub> treatment (Table 2). Days to shooting of banana was found to be statistically highly significant due to the effect of different levels of N and K fertilizers. The longest days to shooting (265.00 cm) was obtained from the application of N<sub>3</sub>K<sub>3</sub> while the shortest (245.33 cm) was found from N<sub>1</sub>K<sub>1</sub> (Table 2). The highest days to bunch maturity (104.67 days) was obtained from N<sub>3</sub>K<sub>3</sub>, whereas it was the lowest (90.33 days) from N<sub>1</sub>K<sub>1</sub> (Table 2). The highest crop duration (360.00 days) was recorded from N<sub>3</sub>K<sub>3</sub> while the lowest duration (340.00 days) was obtained from N<sub>1</sub>K<sub>1</sub> (Table 2). Hands per bunch also varied significantly with the application of different levels of N and K fertilizers. The hands per bunch were recorded to be the highest (10.67) in plants raised with N<sub>3</sub>K<sub>3</sub> while the lowest hands per bunch (5.33) were obtained from N<sub>1</sub>K<sub>1</sub> (Table 4). Highly significant variation was found in respect of fingers per hand by different levels of N and K fertilizers. The highest fingers per hand (15.67) was found from the treatment of N<sub>3</sub>K<sub>3</sub> while the lowest (9.67) fingers per hand was found from the N<sub>1</sub>K<sub>1</sub> (Table 4). The highest yield per plant and per hectare (17.27 kg and 31.82 t/ha) was obtained from the application of N<sub>3</sub>K<sub>3</sub> while the lowest yield (5.50 kg and 10.12 t/ha) was found from N<sub>1</sub>K<sub>1</sub> (Table 4 and Figure 3).



**Figure 3.** Effect of different levels of nitrogen and potassium fertilizers on yield of banana. Vertical bar represents LSD at 1% levels of probability

N<sub>1</sub> = Control (no fertilizer), N<sub>2</sub> = 450g urea/plant, N<sub>3</sub> = 550g urea/plant, N<sub>4</sub> = 650g urea/plant; K<sub>1</sub> = Control (no fertilizer), K<sub>2</sub> = 400g MoP/plant, K<sub>3</sub> = 500g MoP/plant, K<sub>4</sub> = 600g MoP/plant

The result is in agreement with Chandrakumar *et al.* (2001) who found that both levels and ratios of N and K fertilization influenced the yield of banana. The highest pulp and peel ratio (9.55:1) was found from the treatment of N<sub>3</sub>K<sub>3</sub> treatment while the lowest (7.00:1) pulp and peel ratio was found from N<sub>1</sub>K<sub>1</sub> (Table 4). Highly significant variation was found in respect of TSS by different levels of N and K fertilizers. The highest TSS (17.40) was recorded from the treatment of N<sub>3</sub>K<sub>3</sub> while the lowest (15.50) TSS was found from the N<sub>1</sub>K<sub>1</sub> treatment (Table 4). Shelf life also varied significantly with the application of different levels of N and K fertilizers. The shelf life was recorded to be the highest (13.50) in plants raised with N<sub>3</sub>K<sub>3</sub> while the lowest shelf life (12.00) was obtained from N<sub>1</sub>K<sub>1</sub> (Table 4). It may be concluded that application of N<sub>3</sub>K<sub>3</sub> (550g urea with 500g Mop) per plant can be used to obtain higher growth, yield and quality of Sobree banana.

### References

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