

Growth Response of Cotton Cultivars under Different N P Fertilizer Levels

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Abstract: The study was conducted at Cotton research section, Agriculture research institute Tando Jam, The experimental was in RCBD with three Replications. Treatments comprised of three Cotton cultivars (TH-41/83, TH- 35/83 and Rehmani) and 10 fertilizer levels. The result indicated that the plant height was significantly affected by NP fertilizer level. All NP levels increased plant height over control. The sympodial branches. Were significantly affected by NP fertilizer levels .The combination of NP Levels resulted Greater number of bolls per plant over control.

Key words: NP Fertilizer, Growth, Cotton Cultivars

Introduction

Cotton, *Gossypium hirsutum* is silver fibber of Pakistan (Jamel *et al.*, 1985).

It plays a vital role in national economy building. Pakistan is currently fourth largest cotton producing nation in the world. Cotton production is responsible for 60% export earning and over 40% of domestic edible market (chamber lain *et al.*, 1996). Cotton raw material provide for 1150 giving factories 500 textile mills and 5000 oil expelling units working in the country (Kalwar *et al.*, 1998). About five million people earn bread by working in the factories (Saif *et al.*, 1993). It provides food, fuel and fibber to urban and rural population (Ahmed *et al.*, 1997). Cotton seed is also used in processing of vegetable ghee. This meeting the over all requirement of home consumption lint is used for making cloths and yarn (Tunio *et al.*, 1992). yield per unit area is much lower than other growing countries of the world. Keeping in view the importance of this crop in national economy .The present study was there fore, under taken and note the effect of different fertilizer level on the growth of cotton cultivars.

Materials and Methods

A field experiments was conducted to see the effect of different NP. Fertilizer level on the growth of Cotton cultivars at cotton research section, Agricultural Research Institute Tando Jam during 1996-97. The experiment was laid out in RCBD with Three (03) replication and Ten (10) fertilizer levels. The plot size having 5.4m x 2.4m (12.96m²). The detail of experiments was as under.

Cultivars = 03

C1 = TH-41/83

C2 = TH-35/83

C3 = REHMANI

Treatments = 10

Treatments	N (Nitrogen)	P ₂ O ₅ Kg/ha
F1	0	0
F2	100	0
F3	100	50
F4	100	75
F5	150	0
F6	150	50
F7	150	75
F8	200	0
F9	200	50
F10	200	75

The sowing was done in lines with single counter drill. Phosphorous was applied at first irrigation and full dose of Nitrogen applied at flowering time. All cultural practices were done as usual.

Results and Discussion

The data shows that Cotton cultivar Rehmani produced greater plant height 124.13cm followed by TH-35/83 and TH- 41/83 with 119.64 and 119.20cm. Results indicated that all N P fertilizer applications increased plant height on Individual basis plant height also increased with Nitrogen level up to 150-0, There after slightly decreased the combine application of N and P indicated in greater plant height than nitrogen levels. The fertilizer application shows that maximum plant height 128.49cm was recorded on 100-75 NP kg/ha, follows by 200-50, and 150- 75 NP kg/ha. The maximum number of sympodial branches 21.77 per plant were recorded in 150-50 NP kg/ha, instead of 21.33 branches per plant in 200- 0 NP kg/ha. Where as lowest number of sympodial branches 15.66 per plant in control. Sympodial branches increase with increase in nitrogen level. The combination of NP levels branches was in consistent, the application of 150-50 and 200-0 NP kg/ha gave. Significantly greater number of sympodial branches. Cotton cultivar Rehmani produce greater number of sympodial branches 19.13 per plant followed by 18.86 per plant in cultivar TH-35/83 me lowest number of branches recorded in cultivar TH-41/83 was 18.32 per plant. Cultivar TH-35/83 displays maximum number of bolls 46.52 per plant compared with cultivar TH-41/83 with 40.73 bolls per plant. Where as minimum number of boll 34.43 per plant was recorded in Rehmani. The result show that cultivars TH-35/83 and TH-41/83 gave significantly greater number bolls per plant than Rehmani. Fertilizer application 250-50 NP kg/ha produce greater number of bolls 53.99 per plant. While lowest number of bolls 25.44 per plant was recorded in control. The findings are supported by Satao *et al.* (1984) reported that increasing nitrogen rates from 0 -150 kg / ha cotton cultivars, increased plant height number of sympodial branches and root development was significantly superior. Qayyum *et al.*, (1985). conducted experiment on nitrogen increase rate

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at 0-112 kg/ha. They found that the plant height and number of bolls per plant were highly correlated. EL-Kassay and Kandil (1986) indicates that significantly positive number of bolls/plant were obtained will be the applicants of fertilizer rate 0-120 kg/ha. Husseni *et al.* (1986) applied nitrogen at the rate of 30, 60 or 90 kg / feddan. Results indicated that the nitrogen increased the number of bolls and plant height.

Nikolov, (1986) conducted studies on cotton combination of N P with different rate.

The N P fertilizer increased plant height and more ratios of sympodial branches especially. Nuriddinova and Karimova, (1986) observed that the greater number of

bolls was provided by high nitrogen rate up to 240 kg/ha. Sawan, (1986) applied combination of different N P levels /ha. He formed that increasing nitrogen rate increased number of bolls plant. Thirumurugan *et al.*, (1986) indicated that the fertilizer rate 0-160 kg/ha increased number of bolls / plant. Khan *et al.* (1993) applied nitrogen levels 0-224 kg N/ha and proved that plant height and bolls /plant was significant increase. Hosny *et al.* (1994) was gave 30, 60, 90, kg N / feddan, result plant height, bolls/plant was increased. We also conducted that the plant height, sympodial branches and boll/plant increased with increasing nitrogen levels.

Table: 1 Plant Height (cm) of Cotton Cultivars Under Different N P Fertilizer Levels

N P Fertilizer levels	Cultivars			
	TH-41/83	TH-35/83	REHMANI	MEAN
F1= 0 - 0	103.66	116.26	120.66	111.52
F2= 100 - 0	123.23	104.33	113.83	113.79
F3= 100 - 50	116.10	129.46	124.66	123.40
F4= 100 - 75	126.36	125.16	133.96	120.49
F5= 150 - 0	113.70	117.96	118.80	118.15
F6= 150 - 50	117.23	122.23	133.73	124.39
F7= 150 - 75	119.36	131.83	122.66	124.61
F8= 200 - 0	119.23	114.26	116.76	116.75
F9= 200 - 50	126.66	124.70	127.76	126.37
F10=200- 75	123.33	116.23	128.50	122.62
MEAN	119.28	119.64	124.13	

Table 2: Number of Sympodial Branches of Cotton Cultivars under Different N P Fertilizer Levels

N P Fertilizer levels	Cultivars			
	TH-41/83	TH-35/83	REHMANI	MEAN
F1= 0 - 0	15.33	15.66	16.00	15.66
F2= 100 - 0	18.33	16.00	14.33	16.44
F3= 100 - 50	17.66	22.33	18.00	19.33
F4= 100 - 75	19.66	19.00	21.00	19.82
F5= 150 - 0	15.66	19.33	19.33	18.10
F6= 150 - 50	20.33	21.66	23.33	21.77
F7= 150 - 75	18.66	18.66	16.66	17.99
F8= 200 - 0	21.66	19.00	23.33	21.33
F9= 200 - 50	16.66	20.00	17.66	18.10
F10=200- 75	19.33	16.33	21.66	19.10
MEAN	18.32	1886	19.13	

Table 3: Number of Bolls per Plant of Cotton Cultivars under Different N P Fertilizer Levels

N P Fertilizer levels	Cultivars			
	TH-41/83	TH-35/83	REHMANI	MEAN
F1 = 0 - 0	24.00	28.66	23.66	25.44
F2 = 100 - 0	31.66	51.33	28.00	36.99
F3 = 100 - 50	42.66	51.33	36.00	43.33
F4 = 100 - 75	36.00	45.00	35.00	38.66
F5 = 150 - 0	41.33	35.00	38.66	38.33
F6 = 150 - 50	49.00	49.66	34.00	44.22
F7 = 150 - 75	38.00	52.33	28.66	39.66
F8 = 200 - 0	40.33	43.66	46.00	43.33
F9 = 200 - 50	60.00	62.66	39.33	53.99
F10=200 - 75	44.33	45.66	35.00	41.66
MEAN	40.73	46.52	34.43	

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