ANNUAL REPORT
FOR-2015

COTTON RESEARCH INSTITUTE, KHANPUR (RYK)

COTTON RESEARCH INSTITUTE, KHANPUR (2015).

WEATHER-2015

Month	Period	Temperature (°C)		Mean Relative Humidity (%)	Rain Fall (mm)
		Mean Minimum	Mean Maximum		
JANUARY	**01-15**	9.07	24.47	98.40	-
	16-31	7.80	22.33	91.60	-
FEBRUARY	**01-15**	12.40	27.80	78.00	-
	16-28	15.92	29.15	75.53	-
MARCH	**01-15**	13.80	26.67	90.13	-
	16-31	21.40	36.40	73.80	18.10
APRIL	**01-15**	22.20	35.60	62.00	59.40
	16-30	26.47	43.13	62.20	-
MAY	**01-15**	26.33	41.47	54.40	11.30
	16-31	27.87	44.20	56.47	11.00
JUNE	**01-15**	27.27	40.20	55.87	-
	16-30	29.13	41.20	72.87	0.70
JULY	**01-15**	27.33	39.00	55.20	25.80
	16-31	26.13	36.07	63.93	266.80
AUGUST	**01-15**	25.27	36.40	51.73	-
	16-31	24.87	35.47	51.33	-
SEPTEMBER	**01-15**	25.00	38.60	87.80	-
	16-30	24.00	36.40	88.80	-
OCTOBER	**01-15**	22.87	37.67	97.27	-
	16-31	20.47	34.33	94.40	-
NOVEMBER	**01-15**	17.07	31.13	97.00	**-**
	16-30	13.20	28.47	94.93	**-**
DECEMBER	**01-15**	10.20	27.07	99.00	**-**
	16-31	08.33	25.07	99.00	**-**
				Total	**393.10**

1 BREEDING PHASE

1.1 MAINTENANCE AND ENRICHMENT OF GERMPLASM

One hundred & ninety (190) varieties/strains were planted to maintain the vigor and viability of the seeds for use in hybridization program.

1.2 HYBRIDIZATION PROGRAMME

Ninety (90) new crosses were attempted to develop hybrid vigor in progenies for desirable traits like high yield potential, Bt, CLCV resistance, high ginning out turn (GOT) and desirable fiber traits etc. All the crosses were successfully harvested for growing F1 generation.

Table 1.2 LIST OF CROSSES ATTEMPTED DURING 2015 AT CRI, KHANPUR

S.#.	Parentage	S.#.	Parentage	S.#.	Parentage
1	FH-142 x FH-Lalazar	37	CIM-598 x FH-142	73	RH-656 x FH-142
2	FH-142x CIM-599	38	CIM-598 xFH-Lalazar	74	RH-656 xFH-Lalazar
3	FH-142 x CIM-616	39	CIM-598 x CIM-599	75	RH-656 x CIM-599
4	FH-142 x CIM-598	40	CIM-598 x CIM-616	76	RH-656 x CIM-616
5	FH-142 x LS-62	41	CIM-598 x LS-62	77	RH-656 x CIM-598
6	FH-142 x RH-651	42	CIM-598 x RH-651	78	RH-656 x LS-62
7	FH-142 x RH-655	43	CIM-598 x RH-655	79	RH-656 x RH-651
8	FH-142 x RH-656	44	CIM-598 x RH-656	80	RH-656 x RH-655
9	FH-142 x RH-657	45	CIM-598 x RH-657	81	RH-656 x RH-657
10	FH-Lalazar x FH-142	46	LS-62 x FH-142	82	RH-657 x FH-142
11	FH-Lalazar x CIM-599	47	LS-62 xFH-Lalazar	83	RH-657 xFH-Lalazar
12	FH-Lalazar x CIM-616	48	LS-62 x CIM-599	84	RH-657 x CIM-599
13	FH-Lalazar x CIM-598	49	LS-62 x CIM-616	85	RH-657 x CIM-616
14	FH-Lalazar x LS-62	50	LS-62 x CIM-598	86	RH-657 x CIM-598
15	FH-Lalazar x RH-651	51	LS-62 x RH-651	87	RH-657 x LS-62
16	FH-Lalazar x RH-655	52	LS-62 x RH-655	88	RH-657 x RH-651
17	FH-Lalazar x RH-656	53	LS-62 x RH-656	89	RH-657 x RH-655
18	FH-Lalazar x RH-657	54	LS-62 x RH-657	90	RH-657 x RH-656
19	CIM-599 x FH-142	55	RH-651 x FH-142		
20	CIM-599 xFH-Lalazar	56	RH-651 xFH-Lalazar		
21	CIM-599 x CIM-616	57	RH-651 x CIM-599		
22	CIM-599 x CIM-598	58	RH-651 x CIM-616		
23	CIM-599 x LS-62	59	RH-651 x CIM-598		
24	CIM-599 x RH-651	60	RH-651 x LS-62		
25	CIM-599 x RH-655	61	RH-651 x RH-655		
26	CIM-599 x RH-656	62	RH-651 x RH-656		
27	CIM-599 x RH-657	63	RH-651 x RH-657		
28	CIM-616 x FH-142	64	RH-655 x FH-142		
29	CIM-616 xFH-Lalazar	65	RH-655 xFH-Lalazar		
30	CIM-616 x CIM-599	66	RH-655 x CIM-599		
31	CIM-616 x CIM-598	67	RH-655 x CIM-616		
32	CIM-616 x LS-62	68	RH-655 x CIM-598		
33	CIM-616 x RH-651	69	RH-655 x LS-62		
34	CIM-616 x RH-655	70	RH-655 x RH-651		
35	CIM-616 x RH-656	71	RH-655 x RH-656		
36	CIM-616 x RH-657	72	RH-655 x RH-657		

1.3 STUDY OF FILIAL GENERATIONS

The generations were planted according to the availability of seed in different plot size. The detail of the generations studied and selected is as under:

Table 1.3 BREEDING MATERIAL STUDIED DURING THE YEAR 2015-16

Sr. No.	Generation	Studied	Selected
		Crosses/Progenies	Crosses/Plants/Progenies
1	F_1	75 Crosses	500 Hybrids
2	F_2	317 Plants	664 Plants
3	F_3	36 Plants	34 Plants
4	F_4	71 Plants	47 Plants

5	F_5	24 Progenies	22 Progenies
6	F_6	14 Progenies	10 Progenies selected for MVT

2. EVALUATION PHASE

2.1 PRELIMINARY YIELD TRIALS

Preliminary Yield Trials (PYT) was conducted for yield tests of the superior lines. These lines are selected from different generations keeping in view several features like disease resistances, better performance in adverse conditions, insect and CLCV resistance. The process of PYT is necessary feature of any breeding program. 22 unique lines were tested at Cotton Research Institute, Khanpur during the year 2015-16. These top yielding lines will be sown in Advance Yield Trails (AYT). The detail of the results is as under:-

Table 2.1.1 SUMMARIZED RESULTS OF PRELIMINARY YIELD TRIAL-1

Sr. No.	Varieties	P.P/ha	Yield (kg/ha)	GOT %
1	RH-661	40280	3518	36.1
2	RH-660	37888	3420	34.9
3	02/15	40758	3209	34.3
4	RH-659	39801	3173	38.1
5	RH-670	38462	3018	32.1
6	04/15	38175	2909	36.0
7	FH-142*	38079	2816	36.5
8	RH-662	40184	2811	35.9
9	RH-658	36453	2735	32.1
10	03/15	35496	2599	34.8
11	01//15	39227	2537	34.6
12	30/14	42193	2449	35.2
	LSD (0.05)	**5221**	**339**	

As observed in above mentioned table six strains gave more yield as compared to standard FH-142 and new strain RH-661 remained on top with 3518 kg/ha seed cotton yield.

Table2.1.2 SUMMARIZED RESULTS OF PRELIMINARY YIELD TRIAL-2

Sr. No.	Varieties	P.P/ha	Yield (Kg/ha)	GOT %
1	05/13	40184	3044	33.1
2	RH-665	41141	3042	36.3
3	RH-663	37505	3030	33.3
4	RH-664	40471	3000	34.1
5	FH-142*	39993	2831	35.1
6	01/13	39801	2754	32.9
7	06/14	41332	2727	34.2
8	11/13	40758	2489	32.9
9	19/13	35687	2477	33.9
10	RH-666	37123	2326	35.0
11	02/14	41332	2211	36.9
12	08/14	40089	2054	35.1
	LSD (0.05)	**5535**	**290**	

As seen in above table four strains gave more yields as compared to standard FH-142. The highest yield 3044 kg/ha was given by new strain 05/13.

Table 2.2.1 SUMMARIZED RESULTS OF ADVANCED YIELD TRIAL-1

Sr. No.	Varieties	P.P/ha	Yield (kg/ha)	GOT %
1	14/11	44203	3495	**31.1**
2	14/12	39897	2785	31.8
3	06/13	43724	2769	33.6
4	12/12	42193	2749	34.8
5	RH-647	40471	2639	37.1
6	FH-142*	43820	2621	37.8
7	08/13	39706	2585	34.9
8	02/13	40567	2488	36.2
9	22/11	40758	2461	34.8
10	09/12	40758	2447	30.9
11	31/13	41811	2428	31.9
12	RH-651	43629	2366	35.5
	LSD (0.05)	**4860**	**303**	

As shown in above given table, five strains gave more yields as compared to standard. The highest yield was given by new line 14/11 (3495 Kg/ha).

Table 2.2.2 SUMMARIZED RESULTS OF ADVANCED YIELD TRIAL-2

Sr. No.	Varieties	P.P/ha	Yield (kg/ha)	GOT %
1	08/11	38653	2769	36.1
2	10/13	40376	2500	32.9
3	17/13	38271	2412	32.7
4	24/14	41141	2327	33.1
5	13/13	38079	2315	33.1
6	RH-655	34539	2264	35.6
7	FH-142*	37123	2206	36.6
8	10/14	38558	2186	33.3
9	16/14	40089	2067	33.1
10	RH-652	37601	2043	32.8
11	01/12	39514	1849	32.2
12	16/13	40089	1694	32.0
	LSD (0.05)	**6234**	**373**	

As observed in above table six strains gave more yields as compared to standard FH-142. Strain 08/11 remained on top with 2769 kg/ha of seed cotton yield.

2.3 PROVINCIAL COORDINATED COTTON TRIALS

Three trials comprising of 49 coded entries were received from Director, CRI, Faisalabad to test under agro climatic conditions of Southern Punjab at CRI, Khanpur. The detail of the results of these trials is as under:-

Table 2.3.1 SUMMARIZED RESULTS OF ENTRIES INCLUDED IN PCCT -1

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	GOT %
1	PCCT-12	MNH-992	40328	3574	36.0
2	PCCT-10	VH-327	41189	3544	33.0
3	PCCT-19	MNH-886	26407	3283	35.0
4	PCCT-20	Cyto-178	37888	3117	38.0
5	PCCT-22	FH-326	41333	3026	32.0
6	PCCT-14	RH-651	40902	2982	38.0
7	PCCT-16	NIAB-878B	38462	2876	38.0
8	PCCT-21	VH-363	37888	2744	38.0
9	PCCT-4	BH-185	42481	2476	40.0
10	PCCT-2	RH-647	40758	2372	37.0
11	PCCT-15	FH-312	26694	2350	40.0
12	PCCT-9	IUB-65	31286	2329	37.0
13	PCCT-17	FH-444	35448	2329	34.0
14	PCCT-13	NIAB-1101/4B	37171	2312	40.0
15	PCCT-6	IR-NIBGE-8	22532	2236	38.0
16	PCCT-23	NIAB-Bt-2	42772	2212	36.0
17	PCCT-8	FH-142	21671	2193	38.0
18	PCCT-11	FH-Noor	28416	2182	37.0
19	PCCT-5	FH-Kehkishan	29277	2134	34.0
20	PCCT-7	NIAB-874	31430	2096	43.0
21	PCCT-24	IUB-63	30282	2030	34.0
22	PCCT-18	IR-NIBFE-7	34444	1895	38.0
23	PCCT-1	SLH-12	42194	1891	36.0
24	PCCT-3	CIM-602	39036	1654	38.0
	LSD (0.05)		**8860**	**651**	

As shown in the above table the twenty four newly developed strains gave the better yield as compare to standard.

Table 2.3.2 SUMMARIZED RESULTS OF ENTRIES INCLUDED IN PCCT -2

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	GOT %
1	PCCT-8	GCH-1	43485	3732	33.0
2	PCCT-2	AGC-Nazeer-1	40758	3623	38.0
3	PCCT-5	BPC-10(Bt-09)	37314	3346	42.0
4	PCCT-6	FH-142	28703	3317	39.0
5	PCCT-18	Shahkar	40902	3301	38.0
6	PCCT-4	BPC-11	30282	3292	42.0
7	PCCT-19	Crystal-2	38606	3168	36.0
8	PCCT-13	EC-003	40184	3122	38.0
9	PCCT-11	SH-Buraq	37601	3088	37.0
10	PCCT-9	BS-70	35592	2984	37.0
11	PCCT-21	Crystal-1	45494	2945	39.0
12	PCCT-1	EC-002	37745	2898	37.0
13	PCCT-3	NS-181 GMO	35879	2881	35.0
14	PCCT-14	Weal-AG-Gold	36022	2807	39.0

15	PCCT-20	SAIM-32	41907	2806	37.0
16	PCCT-16	GCH-2	44203	2680	35.0
17	PCCT-15	ADAN-11	34444	2611	39.0
18	PCCT-7	Hamalia-1	38175	2536	40.0
19	PCCT-10	Silkee-3 Bt	38032	2530	37.0
20	PCCT-17	Sahara-150	29995	2464	37.0
21	PCCT-12	MNH-886	23824	2335	37.0
	LSD (0.05)		**9279**	**559**	

As shown in the above table the three newly developed strains gave the better yield as compared to standard.

Table 2.3.3 SUMMARIZED RESULTS OF ENTRIES INCLUDED IN PCCT -3

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	GOT %
1	PCCT-1	RH-652	40184	2422	37.0
2	PCCT-2	FH-942	34300	2085	33.0
3	PCCT-4	NIAB-414	38462	2006	33.0
4	PCCT-3	FH-442	34874	1819	33.0
	LSD (0.05)		**4864**	**614**	

2.4 NATIONAL COORDINATED VARIETAL TRIAL (NCVT)

Two trials, Set-C and Set-D comprising of 41 coded entries were received from Coordinator, NCVT, PCCC, Karachi to test under agro climatic conductions of Southern Punjab at CRI, Khanpur. The detail of the results is as under:-

Table 2.4.1 SUMMARIZED RESULTS OF ENTRIES INCLUDED IN NCVT (SET-C) DURING 2015-16

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	GOT %
1	C-9	MNH-992	44203	3931	37.0
2	C-8	GH-Mubarak	39610	3798	40.0
3	C-12	BH-363	46356	3717	40.0
4	C-14	NIAB-8788	42194	3506	39.0
5	C-18	Zakariya-1	45351	3420	39.0
6	C-3	Adan-11	37027	3304	38.0
7	C-7	Cyto-179	40041	3277	39.0
8	C-5	FH-142	39036	3132	40.0
9	C-2	Suncrop-4	36884	3040	40.0
10	C-13	RH-651	41189	3036	38.0
11	C-10	Fh-326	40758	2988	39.0
12	C-16	FH-Kehkishan	41333	2924	38.0
13	C-17	CEMB-88	41620	2721	39.0
14	C-1	Tahufuz-5	33152	2687	37.0
15	C-20	NIAB-85	41763	2595	36.0
16	C-19	QM-IUB-65	39036	2486	39.0
17	C-11	SLH-12	41333	2473	38.0
18	C-22	SAU-1	44633	2348	37.0
19	C-4	CIM-602	40902	2293	39.0
20	C-6	CIM-625	44059	2289	37.0
21	C-15	IR-NIBGE-8	14065	1669	37.0
22	C-21	NIAB-86	40471	1669	36.0
	LSD (0.05)		**7794**	**447**	

As shown in the above table the five newly developed strains gave the better yield as compare to standard.

Table 2.4.2 SUMMARIZED RESULTS OF ENTRIES INCLUDED IN NCVT (SET-D) DURING 2015-16

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	GOT%
1	D-4	CRYSTAL-12	46643	3802	37.0
2	D-2	Weal-AG-Shahkar	47647	3797	38.0
3	D-19	Eagle-1	48652	3716	38.0
4	D-1	Weal-AG-Gold	46356	3589	39.0
5	D-5	BS-15	42768	3587	37.0
6	D-3	SAHARA-Buraq	43055	3511	38.0
7	D-18	Sahara-120	45925	3444	37.0
8	D-15	FH-142	37745	3371	39.0
9	D-9	NS-181	40902	3280	36.0
10	D-13	Suncrop Hyb-1	50518	3258	38.0
11	D-7	Saim-32	38893	3116	37.0
12	D-12	BPC-11	43629	3078	41.0
13	D-10	Hamalia-1	38893	2936	38.0
14	D-6	Tassco-1000	47360	2817	38.0
15	D-14	CIM-602	42337	2707	38.0
16	D-17	Tarzan-4	49943	2641	37.0
17	D-8	Sitara-15	35735	2616	39.0
18	D-11	BPC-10	37745	2549	41.0
19	D-16	Bt-Hybrid-33	12486	1302	40.0
	LSD (0.05)		**7974**	**543**	

As shown in the above table the three newly developed strains gave the better yield as compared to standard.

3 AGRONOMIC PHASE

3.1 VARIETAL BEHAVIOUR UNDER DIFFERENT SOWING DATES

To determine the optimum time of sowing for cotton strains under Southern Punjab, an experiment was laid out. In this trial, three strains (RH-647, RH-651 & FH-142) were tested, on nine different sowing dates i.e. 16-Feb, 1-Mar, 16-Mar, 1-Apr, 16-Apr, 1-May, 16-May, 1-June and 16-June. Both the strains (RH-647 & RH-651) in sowing date D5 (16/4) recorded the maximum seed cotton yield i.e. 2009 Kg/ha and 1966 kg/ha, respectively.

Table 3.1 PERFORMANCE OF VARIETIES IN SOWING DATE TRIAL

S. No.	Treatments	Plant population/ha			Yield kg/ha			
		FH-142	RH-647	RH-651	FH-142	RH-647	RH-651	Mean
1	16-2-	44633	44633	44203	1091	1062	1134	1095.3

	2015							
2	1-3-2015	44203	44777	44777	1134	1177	1177	1162.6
3	16-3-2015	44333	44777	44777	1478	1450	1493	1473.6
4	1-4-2015	44333	44777	44777	1636	1536	1780	1650.3
5	**16-4-2015**	44333	44633	44777	2095	2009	**1966**	**2023.7**
6	1-5-2015	44777	44777	44777	2081	**2052**	1765	1966.2
7	16-5-2015	44777	44346	44633	**2124**	1765	1880	1923.0
8	1-6-2015	44777	44633	44777	1177	1119	1234	1176.8
9	16-6-2015	44777	44777	44777	1119	1005	1076	1066.7
LSD: (0.05)								**137**

3.2 EFFECT OF PLANTING SPACING ON THE PRODUCTIVITY OF NEW PROMISING STRAINS

The experiment was laid out to determine out the effect of plant spacing on the yield and quality traits of the cotton crop. Following data suggests that the highest seed cotton yield was obtained i.e. 2512 Kg/ha in Treatment S_3=15.0 x 75cm.

3.2 EFFECT OF PLANTING SPACING ON THE PRODUCTIVITY OF NEW PROMISING STRAINS

Treatments		**PP/ha**	**Plant Height (cm)**	**No. of Bolls/ Plant**	**Boll Weight (gms)**	**CLCV (%age)**	**Yield (Kg/ha)**
$S_{1=}$	**15.0 x 75 cm**	187.3	117.6	19.3	2.98	-	2224
$S_{2=}$	**22.5 x 75 cm**	120.7	123.9	20.5	2.93	-	2368
$S_{3=}$	**30.0 x 75 cm**	98.3	130.0	21.5	3.02	-	2512
$S_{4=}$	**37.5 x 75 cm**	83.0	129.7	17.7	3.05	-	2095
$S_{5=}$	**45.0 x 75 cm**	70.7	127.8	16.9	3.04	-	1909
LSD (0.05)							**222**

3.3 ECONOMIC POTENTIAL OF RELAY CROPPING SYSTEM (RAYA, BARSEEM & WHEAT) IN NORMAL SOWN COTTON

The experiment was designed to determine the economic potential of relay cropping when wheat, Barseem and Raya were planted in normal sown cotton. Raya, Wheat and Barseem were sown by broadcast method in the month of October as relay crops. The data regarding plant population, plant height, number of bolls per plant, CLCV and yield were recorded. The highest economic return was obtained when wheat was sown as relay crop in cotton.

Table 3.3 ECONOMIC POTENTIAL OF RELAY CROPPING SYSTEM (RAYA, BARSEEM & WHEAT) IN NORMAL SOWN COTTON

Sr. No.	**Treatments**	**Yield (Kg/ha)**	**Net**

		Cotton	Raya	Wheat	Barseem	profit /ha (Rs.)
1	**Cotton alone**	3627	-	-	-	30072
2	**Cotton + Raya**	3568	1322	-	-	76295
3	**Cotton + wheat**	2471	-	3511	-	105867
4	**Cotton + Barseem**	3721	-	-	25303	80847
	LSD (0.05)					

3.4 RESPONSE OF COTTON TO VARIOUS LEVELS AND TIME OF POTASH APPLICATION

The experiment was conducted to find out the best level and time of potash (K_2O) application in cotton crop. The highest yield (4618 Kg/ha) was obtained from F_4 (98 Kg/ha K_2O) when applied full at the time of sowing or ½ at sowing + ½ at 35 days after sowing which is statistically at par with F_3= 62 Kg/ha K_2O when applied fully at sowing yielded 4596 Kg/ha. Similar results that is 4445 Kg/ha seed cotton yield was obtained from F_2= 31 Kg/ha of K_2O when applied in two split doses half at sowing and half at 35 DAS.

Table 3.4 RESPONSE OF COTTON TO VARIOUS LEVELS AND TIME OF POTASH APPLICATION

Treatment		Plant Population/ha	Plant Height (cm)	No. of Bolls/Plant	Boll weight (gms)	Yield (Kg/ha)
Fertilizer Dose	**Time of Application**					
F1=Control (No K_2O will be applied)	T1=Full at sowing	48465	117.0	18.0	3.0	1808
F1=Control (No K_2O will be applied)	T2=Full of 35 DAS	48594	115.0	18.5	3.0	1880
F1=Control (No K_2O will be applied)	T3=½ at sowing + ½ at 35 DAS	49011	118.4	17.1	3.0	1665
F1=Control (No K_2O will be applied)	T4=½ at 35 DAS + ½ on 7th August	49484	121.4	16.3	3.0	1564
F2=31.0 kg/ha K_2O	T1=Full at sowing	50202	111.3	21.7	3.1	2196
F2=31.0 kg/ha K_2O	T2=Full of 35 DAS	46212	114.1	22.2	3.1	2167
F2=31.0 kg/ha K_2O	T3=½ at sowing + ½ at 35 DAS	47073	122.0	19.5	3.0	2052
F2=31.0 kg/ha K_2O	T4=½ at 35 DAS + ½ on 7th August	47690	115.8	18.8	3.0	2009
F3=62.0 kg/ha K_2O	T1=Full at sowing	48150	105.6	23.9	3.1	2540
F3=62.0 kg/ha K_2O	T2=Full of 35 DAS	48767	104.8	23.1	3.0	2339

F3=62.0 kg/ha K_2O	T3=½ at sowing + ½ at 35 DAS	46887	107.3	22.1	3.1	2282
F3=62.0 kg/ha K_2O	T4=½ at 35 DAS + ½ on 7th August	48652	112.0	23.5	3.1	2325
F4=98.0 kg/ha K_2O	T1=Full at sowing	50718	104.7	25.3	3.0	2569
F4=98.0 kg/ha K_2O	T2=Full of 35 DAS	45753	108.3	24.5	3.1	2526
F4=98.0 kg/ha K_2O	T3=½ at sowing + ½ at 35 DAS	50991	108.2	23.1	3.1	2268
F4=98.0 kg/ha K_2O	T4=½ at 35 DAS + ½ on 7th August	50374	111.2	21.1	3.2	2181
LSD (0.05)						**221**

3.5 EFFECT OF NPK IN VARIOUS COMBINATION ON THE YIELD AND QUALITY OF THE NEW COTTON STRAINS

The experiment was designed to find out the effect of NPK in various combinations on the yield and quality of the new cotton strains.

Table 3.5 EFFECT OF NPK IN VARIOUS COMBINATION ON THE YIELD AND QUALITY OF THE NEW COTTON STRAINS

Treatments	Plant Population/ha	Plant Height (cm)	No. of Bolls/Plant	Boll Weight (gms)	Yield (Kg/ha)
F1=60:35:25	46069	109.5	18.1	2.98	1794
F2=75:35:25	50087	118.7	20.7	3.11	2081
F3=90:35:25	47504	120.1	22.6	3.05	2239
F4=60:70:25	47360	111.6	20.9	2.99	1995
F5=75:70:25	49226	121.9	23.1	3.08	2325
F6=90:70:25	47647	123.9	22.9	3.02	2311
LSD (0.05)	**1818**	**6.64**	**1.57**	**0.10**	**315**

The data revealed that optimum yield i.e. 2325 Kg/ha was obtained from the treatment F_5.

4 ENTOMOLOGICAL PHASE

4.1 EFFECT OF DIFFERENT SOWING TIMES ON POPULATION OF SUCKING INSECTS ON COTTON

The experiment was planned to study the sucking insect pest pressure on cotton sown at different sowing times. Data regarding sucking pests (whitefly, thrips and jassid) was recorded weekly.

Table 4.1 EFFECT OF DIFFERENT SOWING TIMES ON POPULATION OF SUCKING INSECTS ON COTTON

	Whitefly/leaf	Thrips/ leaf	Jassid/ leaf	Plant Population/ ha	Yield (Kg/ha)

Date	FH-142	RH-647	RH-651	FH-142	RH-647	RH-651	FH-142	RH-647	RH-651	FH-142	RH-647	RH-651	FH-142	RH-647	RH-651
16.03.15	3.59	3.35	3.85	5.99	6.26	6.68	0.24	0.33	0.30	39611	40472	39324	1012	1457	812
01.04.15	3.50	3.30	3.53	5.84	6.11	6.23	0.17	0.25	0.23	37458	37027	38175	907	588	832
16.04.15	3.33	3.29	3.45	5.88	6.08	6.24	0.16	0.20	0.19	38175	38319	36597	1491	1450	718
01.05.15	3.31	3.20	3.37	5.70	5.94	6.05	0.14	0.18	0.17	35018	36023	36023	1755	1691	1404
16.05.15	3.17	3.18	3.23	5.18	5.43	5.68	0.09	0.16	0.13	33439	36453	34013	1518	1594	1350
LSD (0.05)	**0.06**			**0.12**			**0.03**			**1752**			**171**		

The above table shows that the sucking insect pest population decreases as we delay the sowing time of cotton. The highest population of all the sucking pests was observed in sowing date 16.03.2015 throughout the season.