

ANNUAL REPORT FOR-2016-17

**COTTON RESEARCH INSTITUTE,
KHANPUR (RYK)**

COTTON RESEARCH INSTITUTE, KHANPUR (2016)

WEATHER-2016

Month	Period	Temperature (°C)		Rain Fall (mm)
		Mean Minimum	Mean Maximum	
JANUARY	01-15	9.30	26.33	-
	16-31	5.75	21.34	-
FEBRUARY	01-15	6.71	28.00	-
	16-28	10.21	29.71	-
MARCH	01-15	16.40	31.00	52.00
	16-31	18.00	35.50	29.25
APRIL	01-15	20.85	37.90	7.00
	16-30	22.76	42.32	-
MAY	01-15	26.46	44.93	3.00
	16-31	28.25	46.37	-
JUNE	01-15	28.50	45.76	-
	16-30	30.06	44.00	44.00
JULY	01-15	25.03	43.60	-
	16-31	27.56	41.59	7.00
AUGUST	01-15	28.93	40.56	49.00
	16-31	28.15	40.81	17.00
SEPTEMBER	01-15	26.13	39.13	-
	16-30	25.36	41.00	-
OCTOBER	01-15	22.83	40.10	-
	16-31	16.59	35.93	-
NOVEMBER	01-15	13.40	33.90	-
	16-30	12.60	31.10	-
DECEMBER	01-15	10.95	31.51	-
	16-31	8.62	28.98	-
Total				208.25

1 BREEDING PHASE

1.1 MAINTENANCE AND ENRICHMENT OF GERMLASM

One hundred & ninety five (195) varieties/strains were planted to maintain the vigor and viability of the seeds for use in hybridization program.

1.2 HYBRIDIZATION PROGRAMME

Thirty (30) 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 2016 AT CRI, KHANPUR

S.#.	Parentage	S.#.	Parentage
1	FH-142x RH-660	16	FH-Kehkashan x45/14
2	FH-142x RH-661	17	RH-660x324/15
3	FH-142x RH-662	18	RH-661x324/15
4	FH-142xRH-667	19	RH-662x324/15
5	FH-142x RH-668	20	RH-667x324/15
6	FH-142x RH-670	21	RH-668x324/15
7	FH-Kehkashan x RH-660	22	RH-670x324/15
8	FH-Kehkashan x RH-661	23	324/15x RH-660
9	FH-Kehkashan x RH-662	24	324/15x RH-661
10	FH-Kehkashan x RH-667	25	324/15x RH-662
11	FH-Kehkashan x RH-668	26	324/15x RH-667
12	FH-Kehkashan x RH-670	27	324/15x RH-668
13	FH-Kehkashan x34/14	28	324/15x34/14
14	FH-Kehkashan x35/14	29	324/15x35/14
15	FH-Kehkashan x36/14	30	324/15x36/14

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 2016

Sr. No.	Generation	Studied	Selected
		Crosses/Progenies	Crosses/Plants/Progenies
1	F ₁	52 Crosses	500 Hybrids
2	F ₂	500 Plants	453 Plants
3	F ₃	664 Plants	230 Plants
4	F ₄	34 Plants	119 Plants
5	F ₅	47 Progenies	22 Progenies
6	F ₆	22 Progenies	11 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 superior lines were tested at Cotton Research Institute, Khanpur during the year 2016-17. 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 %	SL (mm)
1	35/14	42338	3860	40.9	29.4
2	36/14	41621	3679	41	29.7
3	34/14	41262	3593	37.9	28.8
4	32/14	36956	3268	39.4	29.5
5	FH-142	42697	3265	38.7	29
6	31/14	38392	3198	34.3	30.6
7	24/14	40903	3068	33.4	30.1
8	30/14	42338	2853	35.3	30.6
9	33/14	39468	2682	38.4	29.5
10	16/14	41262	2560	37.5	30.5
11	38/14	43056	1933	33.8	29.2
12	37/14	42338	987	34.5	29.7
	LSD (0.05)		506		

As observed in above mentioned table four new strains gave more yield as compared to standard FH-142 and new strain 35/14 remained on top with 3860 kg/ha seed cotton yield.

Table 2.1.2 SUMMARIZED RESULTS OF PRELIMINARY YIELD TRIAL-2

Sr. No.	Varieties	P.P/ha	Yield (Kg/ha)	GOT %	SL (mm)
1	4/15	38392	2939	33.8	30
2	FH-142	40903	2929	38.7	29
3	39/14	38392	2623	37.5	29.6
4	43/14	28704	2451	39.4	29.8
5	3/15	38750	2397	34.5	30.3
6	44/14	40186	2363	38.4	30.1
7	1/15	39109	2201	40.9	29.5
8	42/14	38392	2163	34.3	30.6
9	45/14	39827	2008	37.9	31.1
10	40/14	38392	2007	33.4	30.2
11	2/15	40186	1978	41	30.4
12	41/14	38392	1959	35.3	30.8
	LSD (0.05)		627		

As shown in above table new strain 4/15 gave more yield of 2939-Kg/ha as compare to standard.

Table 2.2.1 SUMMARIZED RESULTS OF ADVANCED YIELD TRIAL-1

Sr. No.	Varieties	P.P/ha	Yield (kg/ha)	GOT %	SL (mm)	Mic.
1	14/11	39586	3392	37	30.5	4.5
2	RH-670	39586	3167	41	30.9	4.3
3	19/13	38271	3162	39	29.9	4.4
4	8/11	33965	2962	41	29.7	4.3
5	FH-142*	38271	2931	39	29	4.6
6	14/12	36955	2895	38	30.3	5.3
7	10/14	36118	2878	37	30.2	4.3
8	13/11	42098	2832	40	31.6	4.7
9	6/14	40184	2781	39	29.3	4.7
10	8/13	34803	2687	39	29.9	4.6
11	31/13	39228	2655	38	30.1	4.3
12	1/12	38271	2646	37	29.5	4.1
	LSD (0.05)		777			

As shown in above given table, four new strains gave more yield as compare to standard. The highest yield was obtained by new line 14/11 (3392 Kg/ha).

Table 2.2.2 SUMMARIZED RESULTS OF ADVANCED YIELD TRIAL-2

Sr. No.	Varieties	P.P/ha	Yield (kg/ha)	GOT %	SL (mm)	Mic.
1	RH-661	33487	3958	40	29.3	4.9
2	RH-658	35759	3957	34	30.6	4.6
3	RH-668	38032	3676	34	29.8	4.8
4	RH-672	39228	3552	32	29.2	4.7
5	RH-662	36238	3193	40	30.5	5.1
6	FH-142	40065	3052	40	29	4.6
7	RH-660	35759	2715	38	29.5	5.1
8	RH-669	34205	2649	40	28.1	4.5
9	RH-671	33487	2585	40	29.5	4.9
10	RH-664	32291	2572	41	28.8	4.9
11	RH-655	35879	2520	41	29.9	5.1
12	RH-667	32769	2409	38	28.8	5.2
	LSD (0.05)		671			

As observed in above table five strains gave more yield as compare to standard FH-142. New Strain of this Station RH-661 remained on top with 3958 kg/ha of seed cotton yield.

2.3 PROVINCIAL COORDINATED COTTON TRIALS

Three trials comprising of 40 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 (2016)

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	CLCV %	GOT%
1	PCCT-13	N IAB-878B	41022	3590	3.3	43.5
2	PCCT-17	RH-668	40304	3560	2.3	35.7
3	PCCT-18	RH-662	36955	3549	4.7	40.6
4	PCCT-3	BAHAR-07	40902	3470	3.7	42.3
5	PCCT-9	NIAB-545	42935	3354	3	42.9
6	PCCT-10	FH-444	37793	3343	4	43.8
7	PCCT-29	Wheal AG Gold	36357	3333	2.7	40.9
8	PCCT-8	NIAB-1011/48	39826	3323	4	42.2
9	PCCT-31	THAKAR-808	34803	3256	5.3	40.7
10	PCCT-21	CYTO-179	31095	3251	4	40.7
11	PCCT-33	BS-80	30976	3100	2.3	35.9
12	PCCT-15	Wheal AG 1606	37912	3096	3.3	40.7
13	PCCT-2	FH-152	38391	3093	2	37.8
14	PCCT-32	BS-15	32530	3048	6.7	40.3
15	PCCT-16	NS-181	36238	2996	5.3	38
16	PCCT-28	MNH-1016	33248	2963	7.7	39.8
17	PCCT-20	IR-NIBGE-9	28703	2872	5.3	40.3
18	PCCT-27	BH-201	25594	2859	8.7	39.1
19	PCCT-30	VH-Gulzar	29421	2773	3.7	42.4
20	PCCT-14	MNH-992	35640	2770	3.7	39.1
21	PCCT-25	SILKY-3	37673	2752	4.7	38.2
22	PCCT-4	CEMB-55(S)	44729	2742	2	41.2
23	PCCT-5	Sitara-15	42218	2720	4	41.9
24	PCCT-23	FH-142*	26311	2696	3.7	41.1
25	PCCT-26	IUB-65	32530	2686	5.3	39.6
26	PCCT-6	Sitara-14	40663	2576	4	40.8
27	PCCT-22	VH-363	36238	2536	6	40.9
28	PCCT-7	SH- Buraq	43533	2499	1.7	40.7
29	PCCT-1	CIM-622	34444	2363	5.3	38.3
30	PCCT-24	FH- KEHKISHAN	37075	2323	9.3	38.4
31	PCCT-11	Wheal AG Shahkar	40543	2271	4.7	40.1
32	PCCT-12	SLH-12	29421	1740	4.7	39.9
33	PCCT-19	IR-NIBGE-8	4784	1064	0.7	37.4
		LSD (0.05)		930		

As shown in the above table the twenty three newly developed strains gave the better yield as compare to standard FH-142. New strains of this Station RH-668 and RH-662 stood 2nd & 3rd with the yield 3560 and 3549-Kg/ha respectively.

Table 2.3.2 SUMMARIZED RESULTS OF ENTRIES INCLUDED IN PCCT -2 (2016)

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	CLCuV %	GOT %
1	PCCT-2	VR-THAKAR	43414	4841	5.3	40
2	PCCT-1	NIAB-444	42457	4162	6	41
3	PCCT-4	RH-667	41022	4127	5.6	41
4	PCCT-3	MNH-786*	43414	3654	7.4	38
		LSD (0.05)		638.65		

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 (2016)

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	CLCuV %	GOT %
1	PCCT-1	BPC-11	34683	4482	5.7	42.8
2	PCCT-2	FH-142*	40782	4102	6	40.7
3	PCCT-3	BPC-10	30976	3988	5.3	43.6
	LSD (0.05)					

As shown in the above table new strain BPC-11 gave the better yield as compared to standard.

2.4 NATIONAL COORDINATED VARIETAL TRIAL (NCVT)

Four trials, Set-A, Sed-B, Set-C and Set-D comprising of 75 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-A) DURING 2016-17

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	CLCuV %	GOT %
1	A-3	Thakkar-214	44012	3651	0	37.9
2	A-16	CRIS-543	42099	3418	0.8	38.6
3	A-9	NIAB-444	42577	3389	2.8	39.9
4	A-13	GS-Ali-1	42218	3361	2.6	36.1
5	A-2	Tipu-2	43654	3275	2.8	33.6
6	A-1	CIM-573 (S)	42218	3273	1.3	36.1
7	A-15	CIM-610	37793	3109	1	41
8	A-8	PB-896	42219	3081	3.4	37.2
9	A-4	TH-20	42816	2891	76	38.7
10	A-14	GS-Hammad	42697	2851	3.9	35.5
11	A-6	Tahafuz-7	38989	2700	4.5	37.8
12	A-7	RH-667	40544	2661	2.9	35.7
13	A-11	MPS-29	28465	2612	4	35.5
14	A-12	GS-Ali-5	39827	2603	2.1	41.5
15	A-10	Mps-61	24637	2478	7.4	36.1
16	A-5	TH-17	43295	379	24.6	39.7
	LSD (0.05)			827.68		

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-B) DURING 2015-16

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	CLCuV %	GOT %
1	B-16	BPC-11	44850	4126	2.38	43.7
2	B-20	Bahar-07	37674	4039	1.23	41.5
3	B-17	BPC-10	44252	4027	1.84	42.4
4	B-9	Crystal-12	44132	3887	2.46	40
5	B-3	FH-326	45208	3811	2.70	36.4
6	B-19	Bakhtawar-1	36956	3738	1.52	37.7
7	B-11	CEMB-88	45328	3687	1.00	39.6
8	B-14	CIM-632	38750	3660	0.00	40.6
9	B-6	Deebal	42817	3578	2.81	41.8
10	B-1	FH-142	38152	3574	1.02	39.4
11	B-4	FH-152	45926	3539	2.08	36
12	B-7	Cyto-313	38511	3538	1.21	39
13	B-8	Cyto-179	44132	3510	0.81	39
14	B-15	BS-15	36956	3481	1.55	40.2
15	B-5	Eagle-2	38869	3447	1.21	38

16	B-2	CIM-602	37913	3316	3.43	37.9
17	B-18	BH-201	26790	3120	1.39	39.7
18	B-12	CEMB-55-S	44850	3061	1.88	40.8
19	B-10	CIM-625	30139	1995	5.77	40.1
20	B-13	CRIS-600	44013	1844	6.5	39
	LSD (0.05)			441		

Nine newly developed strains gave the better yield as compare to standard.

Table 2.4.3 SUMMARIZED RESULTS OF ENTRIES INCLUDED IN NCVT (SET-C) DURING 2015-16

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	CLCuV %	GOT %
1	C-5	Sahara-Buraq	45807	4631	0	40.3
2	C-18	IR-NIBGE-8	45328	4386	2.01	39.3
3	C-16	MNH-1016	43295	4208	1.67	40.1
4	C-15	MNH-992	39827	4204	1.35	37.9
5	C-7	RH-662	44730	4082	0	39.2
6	C-17	IR-NIBGE-9	40664	4065	0.29	40.3
7	C-6	RH-668	45328	4014	0	36.3
8	C-2	CIM-602	42338	3940	0	38.8
9	C-11	NIAB-878-B	44730	3821	1.66	42.3
10	C-12	NIAB-545	44610	3820	3.07	41.9
11	C-13	NIAB-1048	43295	3785	1.13	40.4
12	C-4	Saim-32	43654	3494	0	36.8
13	C-9	NS-181	40903	3493	2.66	37.6
14	C-1	FH-142*	35162	3445	0	40.9
15	C-14	NIA-86	42936	3400	3.86	34.4
16	C-8	QM-IUB-65	40903	3395	3.39	39.8
17	C-3	SAU-1	44371	2781	0	40.5
18	C-19	GH-Mubarak	42936	1906	6.39	37.9
19	C-10	NIAB-Bt-2	37315	1895	2.14	40
20	C-20	FH-KehKashan	44132	3487	7.63	36.5
	LSD (0.05)			624		

As shown in the above table the thirteen newly developed strains gave the better yield as compare to standard FH-142. At Sr. No.5 and Sr. No.7 new strains of this Station RH-662 & RH-668 give the batter yield of 4082 & 4014-kg/ha respectively.

Table 2.4.4 SUMMARIZED RESULTS OF ENTRIES INCLUDED IN NCVT (SET-D) DURING 2015-16

Sr. No.	Code	Name of variety	PP/ha	Yield (kg/ha)	CLCuV %	GOT %
1	D-1	Thakkar-808	45328	4252	0.54	40.8
2	D-7	VH-Gulzaar	41859	3974	1.38	42
3	D-15	Zakariya-1	43534	3919	2.22	40.1
4	D-3	Tipu-1	39229	3856	0	38.3
5	D-10	Suncrop-4	42577	3845	0	40.2
6	D-2	Shaheen-1	40783	3830	0	39
7	D-19	FH-142	46285	3654	2.12	41
8	D-16	Tarzan-5	43414	3604	3.05	37.3
9	D-11	Weal-AG-Gold	40185	3528	0.69	41
10	D-9	Weal-AG-1606	45806	3519	0.62	41.9
11	D-13	Weal-AG-Shahkar	46644	3367	2.23	39.3
12	D-8	SLH-12	39827	3337	1.62	40
13	D-12	Suncrop-Hybrid-1	31694	3281	1.21	45.3
14	D-14	Tahafuz-5	48557	3239	2.19	39.9
15	D-6	Sitara-15	44730	3214	0	39.5

16	D-17	CIM-602*	39587	3188	2.72	38.5
17	D-4	Sitara-14	43893	3139	0	39.9
18	D-5	VH-363	36837	2640	0.88	39.5
19	D-18	Tassco-1000	45926	1521	1.54	36.7
	LSD (0.05)			928.91		

As shown in the above table the six newly developed strains gave the better yield as compare to standard FH-142. Similarly fifteen strains surpassed the 2nd standard CIM-602.

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-661, RH-662 & 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. The highest mean seed cotton yield was obtained in D₁ (16-2-2016) i.e. 5835 Kg/ha.

Table 3.1 PERFORMANCE OF VARIETIES IN SOWING DATE TRIAL-2016

S. No.	Treatments	Plant population/ha			Yield kg/ha			
		RH-661	RH-662	FH-142	RH-661	RH-662	FH-142	Average
1	16-2-2016	53675	35305	50804	6706	4349	6476	5835
2	1-3-2016	52383	50374	54392	6074	5938	5113	5708
3	16-3-2016	49082	42768	42911	5482	5457	5482	5474
4	1-4-2016	44203	43629	46786	4600	4155	4528	4428
5	16-4-2016	45064	42481	42337	4033	4704	3258	3998
6	1-5-2016	43342	47934	47647	3491	3545	3692	3576
7	16-5-2016	34731	32435	35161	2232	2228	2512	2324
8	1-6-2016	43772	42624	51235	1970	2264	2522	2252
9	16-6-2016	52383	51092	54105	1023	1127	1191	1114
LSD: (0.05)								952

3.2 EFFECT OF PLANT SPACING ON THE PRODUCTIVITY OF NEW PROMISING STRAIN.

The experiment was laid out to determine 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. 4381 Kg/ha in Treatment S₁(22.5 x 75cm).

3.2 EFFECT OF PLANT SPACING ON THE PRODUCTIVITY OF NEW PROMISING STRAIN RH-668.

Treatments		PP/ha	Plant Height (cm)	No. of Bolls/Plant	Boll Weight (gms)	CLC V (%age)	Yield (Kg/ha)
S ₁ =	22.5 x 75 cm	48975	153.7	46.0	3.03	1.53	4381
S ₂ =	30.0 x 75 cm	41979	151.2	53.9	3.04	1.78	4214
S ₃ =	37.5 x 75 cm	29277	140.9	53.0	3.11	3.32	3695
S ₄ =	45.0 x 75 cm	26156	149.5	61.9	3.03	4.07	3291
LSD (0.05)		2849	14.39	16.55	0.32	2.33	551

3.3 RESPONSE OF COTTON TO VARIOUS LEVELS AND TIME OF POTASH APPLICATION ON NEW PROMISING STRAIN (RH-668)

The experiment was conducted to find out the best level and time of potash (K₂O) application in cotton crop. The highest yield (3025 Kg/ha) was obtained from F₃ (62 Kg/ha K₂O) when applied full at the time of 35 days after sowing.

Table 3.3 RESPONSE OF VARIOUS LEVELS AND TIME OF POTASH APPLICATION ON NEW PROMISING STRAIN RH-668.

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 ₂ O will be applied)	T1=Full at sowing	37888	133.0	44.2	3.12	2616
F1=Control (No K ₂ O will be applied)	T2=Full of 35 DAS	39072	119.6	39.0	3.16	2648
F1=Control (No K ₂ O will be applied)	T3=½ at sowing + ½ at 35 DAS	36381	136.7	52.0	3.34	2519
F1=Control (No K ₂ O will be applied)	T4=½ at 35 DAS + ½ on 7 th August	36381	117.5	39.4	3.26	2486
F2=31.0 kg/ha K ₂ O	T1=Full at sowing	37349	100.9	31.8	3.05	2906
F2=31.0 kg/ha K ₂ O	T2=Full of 35 DAS	37349	130.5	48.8	3.19	2971
F2=31.0 kg/ha K ₂ O	T3=½ at sowing + ½ at 35 DAS	37995	134.1	46.3	3.35	2842
F2=31.0 kg/ha K ₂ O	T4=½ at 35 DAS + ½ on 7 th August	35627	127.4	47.1	3.29	2820
F3=62.0 kg/ha K ₂ O	T1=Full at sowing	38318	122.8	40.0	3.06	2982
F3=62.0 kg/ha K ₂ O	T2=Full of 35 DAS	36165	110.9	32.4	3.14	3025
F3=62.0 kg/ha K ₂ O	T3=½ at sowing + ½ at 35 DAS	37780	116.3	35.7	3.22	2885
F3=62.0 kg/ha K ₂ O	T4=½ at 35 DAS + ½ on 7 th	39179	129.5	42.8	3.24	2874

	August					
F4=98.0 kg/ha K ₂ O	T1=Full at sowing	37134	116.6	42.2	3.15	2971
F4=98.0 kg/ha K ₂ O	T2=Full of 35 DAS	37995	113.6	36.7	3.19	2949
F4=98.0 kg/ha K ₂ O	T3=½ at sowing + ½ at 35 DAS	38210	134.1	48.9	3.18	2766
F4=98.0 kg/ha K ₂ O	T4=½ at 35 DAS + ½ on 7 th August	38533	121.3	38.3	3.33	2777
LSD (0.05)		7118	41.59	25.27	0.71	748

3.4 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 3.4 EFFECT OF NPK IN VARIOUS COMBINATION ON THE YIELD AND QUALITY OF THE NEW COTTON STRAIN RH-668.

Treatments	Plant Population/ha	Plant Height (cm)	No. of Bolls/Plant	Boll Weight (gms)	Yield (Kg/ha)
F1=60:35:25	40579	142.2	52.2	3.03	3541
F2=75:35:25	40687	148.2	70.2	3.10	4015
F3=90:35:25	42086	148.9	55.1	3.12	4144
F4=60:70:25	41548	135.3	45.0	3.16	3724
F5=75:70:25	41979	137.1	55.3	3.16	4209
F6=90:70:25	41118	127.3	51.6	3.15	4058
LSD (0.05)	2415	22.75	19.09	0.26	685

The data revealed that optimum yield i.e. 4209 Kg/ha was obtained from the treatment F₅.

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

Date	Whitefly/leaf			Thrips/ leaf			Jassid/ leaf		
	RH-661	RH-662	FH-142	RH-661	RH-662	FH-142	RH-661	RH-662	FH-142
16.03.16	4.37	4.34	4.47	2.74	2.77	2.89	0.55	0.53	0.47

01.04.16	4.43	4.26	4.14	2.85	2.70	2.89	0.46	0.44	0.42
16.04.16	3.66	3.67	3.61	2.50	2.40	2.57	0.36	0.35	0.34
01.05.16	3.30	3.20	3.17	2.26	2.18	2.23	0.32	0.28	0.32
16.05.16	2.94	3.24	2.94	2.18	2.09	2.16	0.23	0.24	0.22
LSD (0.05)	0.12			0.04			0.03		

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 16.03.2016.

4.2 BIO-SAFETY TRIAL

The experiment was planned to compare the sucking and chewing insect pest pressure on cotton varieties. Data regarding sucking pests (whitefly, thrips, jassid and Dusky cotton bug) and chewing insect pests were recorded weekly.

Table 4.2

Variety	Sucking Insects				Chewing Insects			
	White fly	Thrips	Jassid	Dusky	Armyworm	Spotted BW	Pink BW	American BW
RH-667	3.12	0.74	0.54	1.54	0.08	0.00	0.04	0.00
RH-668	2.60	0.62	0.36	0.04	0.04	0.00	0.06	0.00
RH-662	3.18	0.60	0.28	1.04	0.30	0.00	0.00	0.00
Mean	2.97	0.65	0.39	0.87	0.14	0.00	0.03	0.00

The above table shows that the lowest population of Thrips, Jassid and Pink bollworm were found on RH-662 and Dusky cotton bug and Armyworm were found on RH-668.