

SUNFLOWER:**A. SPRING, 2017**

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|----------------------------|---|-----------------|------|----------------|------|-----------|--------------|-----------------------|--------------|---------------|-------|------------|----------------------|-------------|---------------------------------------|
| 1. TITLE | MAINTENANCE OF SUNFLOWER INBRED LINES | | | | | | | | | | | | | | |
| OBJECTIVES | To maintain the genetic stock for their utilization in synthesis of new sunflower hybrids. | | | | | | | | | | | | | | |
| RESEARCH WORKERS | Fida Hussain, Muhammad Aslam,
Rizwana Qamar, Maria Ghias and Dr. Sajida Habib | | | | | | | | | | | | | | |
| PROJECT DURATION | Continuous | | | | | | | | | | | | | | |
| LOCATIONS | Faisalabad | | | | | | | | | | | | | | |
| TREATMENTS/
METHODOLOGY | <table border="0"> <tr> <td>“A” & “B” lines</td> <td>= 94</td> </tr> <tr> <td>Restorer lines</td> <td>= 76</td> </tr> <tr> <td>Plot Size</td> <td>4 m x 3.00 m</td> </tr> <tr> <td>Plot Size (Restorers)</td> <td>4 m x 0.75 m</td> </tr> <tr> <td>Plant spacing</td> <td>23 cm</td> </tr> <tr> <td>Fertilizer</td> <td>148: 99:62 NPK kg/ha</td> </tr> <tr> <td>Sowing date</td> <td>Ist fortnight of Feb.2017</td> </tr> </table> <p>“A” lines will be maintained by crossing with their respective “B” lines. “B” & “R” lines will be maintained through selfing.</p> | “A” & “B” lines | = 94 | Restorer lines | = 76 | Plot Size | 4 m x 3.00 m | Plot Size (Restorers) | 4 m x 0.75 m | Plant spacing | 23 cm | Fertilizer | 148: 99:62 NPK kg/ha | Sowing date | I st fortnight of Feb.2017 |
| “A” & “B” lines | = 94 | | | | | | | | | | | | | | |
| Restorer lines | = 76 | | | | | | | | | | | | | | |
| Plot Size | 4 m x 3.00 m | | | | | | | | | | | | | | |
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| Plant spacing | 23 cm | | | | | | | | | | | | | | |
| Fertilizer | 148: 99:62 NPK kg/ha | | | | | | | | | | | | | | |
| Sowing date | I st fortnight of Feb.2017 | | | | | | | | | | | | | | |
| PREVIOUS YEAR'S RESULTS | 94 “A & B” lines and 76 “R” lines were harvested during spring, 2016 and seed was collected. | | | | | | | | | | | | | | |
| 2. TITLE | DEVELOPMENT OF NEW SUNFLOWER INBRED LINES | | | | | | | | | | | | | | |
| OBJECTIVES | To develop new sunflower inbred lines resilient to climate change. | | | | | | | | | | | | | | |
| RESEARCH WORKERS | Rizwana Qamar, Muhammad Aslam, Fida Hussain and Dr. Sajida Habib | | | | | | | | | | | | | | |
| PROJECT DURATION | Continuous | | | | | | | | | | | | | | |
| LOCATIONS | Faisalabad | | | | | | | | | | | | | | |

TREATMENTS/
METHODOLOGY

- Source population
- $S_0=32$

300 Plants with desirable traits will be selected and selfed from source population.

32 progeny to rows from the seeds of S_0 will be planted to grow S_1 generation. 4 to 5 plants from amongst the best progenies with desirable traits will be selected for S_2 plantation.

PREVIOUS YEAR'S
RESULTS

32 plant were selected and selfed for further inbred line development. S_0 seed was harvested.

3. TITLE

SEED INCREASE OF SUNFLOWER ELITE PARENTS

OBJECTIVES

To produce the seed of promising parents for further use in sunflower hybrid development programme.

RESEARCH WORKERS

Muhammad Aslam, Fida Hussain
and Dr. Sajida Habib

PROJECT DURATION

Continuous

LOCATIONS
TREATMENTS/
METHODOLOGY

Faisalabad
12 A & B lines
ORI-63, ORI-65, ORI-69, ORI-72, ORI-73, ORI-74,
ORI-81, ORI-84, ORI-92, ORI-95, ORI-99, ORI-106

12 Restorer lines
RL-18, RL-39, RL-46, RL-82, RL-101, RL-107,
RL-109, RL-110, RL-111, RL-112, RL-114, RL-214.

Plot size (A & B Line) 4 m x 3.00 m

Plot size (R-Lines)

4 m x 1.50 m

Row spacing 75 cm

Plant spacing 23 cm

Fertilizer 148: 99:62 NPK kg/ha

Sowing date 1st fortnight of Feb.2017

Seed of "A" lines will be produced by using the pollen of its counterpart "B" line. B" & "R" lines will be selfed for seed production.

PREVIOUS YEAR'S
RESULTS

10 "A & B" lines and 10 "R" lines were harvested and seed was collected during spring, 2016.

4. TITLE	DEVELOPMENT OF NEW SUNFLOWER HYBRIDS
OBJECTIVES	To produce seed of different hybrids for evaluation of yield and insect pest /disease resistance.
RESEARCH WORKERS	Muhammad Aslam, Fida Hussain and Dr. Sajida Habib,
PROJECT DURATION	Continuous
LOCATIONS	Faisalabad
TREATMENTS/ METHODOLOGY	A lines = 15 R lines = 11 New combinations = 21 New hybrid combinations viz; <ol style="list-style-type: none"> 1. ORI-75 x RL-108 2. ORI-92 x RL-108 3. ORI-75 x RL-110 4. ORI-92 x RL-25 5. ORI-46 x RL-67 6. ORI-47 x RL-67 7. ORI-99 x RL-67 8. ORI-42 x RL-86 9. ORI-92 x RL-86 10. ORI-108 x RL-86 11. ORI-28 x RL-29 12. ORI-30 x RL-29 13. ORI-84 x RL-29 14. ORI-35 x RL-38 15. ORI-89 x RL-38 16. ORI-42 x RL-95 17. ORI-92 x RL-95 18. ORI-99 x RL-66 19. ORI-106 x RL-96 20. ORI- 73 x RL-58 21. ORI- 72 x RL-58 Row spacing 75 cm Plant spacing 23 cm Fertilizer 148: 99:62 NPK kg/ha Sowing date 1 st fortnight of Feb.2017 “A” lines will be pollinated with the specific “R” lines.
PREVIOUS YEAR'S RESULTS	27 new hybrids were harvested and seed of each hybrid was collected during the Year, 2016.
5. TITLE	SEED PRODUCTION OF SUNFLOWER ELITE HYBRIDS
OBJECTIVES	To produce the seed of promising hybrids for further testing in Micro and national uniform yield trials.
RESEARCH WORKERS	Maria Ghias, Fida Hussain and Dr. Sajida Habib
PROJECT DURATION	Continuous
LOCATIONS	Faisalabad, Jaranwala, Chak Jhumra, Khan pur and Sahiwal
TREATMENTS/ METHODOLOGY	A-lines =07 R-lines =08

1.	ORI-42 x RL-114	6.	ORI-106 x RL-110
2.	ORI-42 x RL-V-214	7.	ORI- 99 x RL-08
3.	ORI-44 x RL-86	8.	ORI- 20 x RL-101
4.	ORI-92 x RL-112	9.	ORI- 20 x RL-39
5.	ORI-95 x RL-112		

Row spacing 75 cm
 Plant spacing 23 cm
 Fertilizer 148: 99:62 NPK kg/ha
 Sowing date 1st fortnight of Feb.2017
 Every "A" lines will be pollinated with the specific "R" lines.
 Seed of FH-331, FH-572, FH-654, FH-688 and FH-689 were increased.

PREVIOUS YEAR RESULTS

6. TITLE

STUDY OF NEW SUNFLOWER HYBRIDS

OBJECTIVE

To test the performance of newly developed sunflower hybrid

RESEARCH WORKERS

Muhammad Rafiq, Fida Hussain, Muhammad Aslam and Dr. Sajida Habib

PROJECT DURATION

2017-18

LOCATION

Faisalabad

TREATMENTS/
 METHODOLOGY

40 hybrids will be evaluated in two trials at ORI, Faisalabad. Each comprising of 20 hybrids.

Design RCB
 Replication 3
 Plot size 5.0 m x 3.0 m
 Row to Row spacing 75 cm
 Plant spacing 23 cm
 Fertilizer 148- 99- 62 NPK kg/ha
 Sowing date First fortnight of Feb,2017

Data on seed yield and its contributing parameters will be recorded following standard procedures.

PREVIOUS YEAR RESULTS:	<u>Rank</u>	<u>Hybrids</u>	<u>Yield kg/ha</u>
Set-1	1	FH-624	3273
	2	FH-632	2563
	3	FH-652	2169
	4	FH-331 (C)	2127
	5	Hysun-33 (C)	2123
	6	FH-633	2103
Set-11	19	FH-625	1005
		LSD at 5%	172
	<u>Rank</u>	<u>Hybrids</u>	<u>Yield kg/ha</u>
	1	FH-648	2660
	2	FH-646	2431
	3	FH-635	2282
4	Hysun-33-(C)	2173	
5	FH-331(C)	2137	
6	FH-647	1975	
18	FH-637	881	
	LSD at 5%	189	

7. TITLE	MICRO SEED YIELD TRIAL OF SUNFLOWER
OBJECTIVES	To evaluate performance of newly developed promising hybrids under different agro ecological zones of Punjab.
RESEARCH WORKERS	Fida Hussain, Muhammad Aslam, and Dr. Sajida Habib
PROJECT DURATION	Continuous
LOCATIONS	7 viz; Faisalabad, Mianwali, Muzaffar garh, Layyah, Bourewala, Bahawalpur and Rajanpur,
	Replications 03
	Plant spacing 23 cm
	Row spacing 75 cm
	Plot size 9 m x 3 m
	Sowing date 2 nd fortnight of Feb.2017
TREATMENTS/ METHODOLOGY	14 hybrids viz; FH-331, FH-558, FH-572, FH-585, FH-629, FH-633, FH-648, FH- 666, FH-670, FH-674, FH-686, FH-687, FH-690 and Hysun-33 will be planted using standard agronomic and plant protection practices at different locations of Punjab.
PREVIOUS YEAR'S RESULTS	1 st year

8. TITLE	NATIONAL UNIFORM SUNFLOWER YIELD TRIAL
OBJECTIVES	To test the performance of different hybrids under Faisalabad condition.
RESEARCH WORKERS	Muhammad Rafiq, Dr. Sajida Habib
PROJECT DURATION	Continuous
LOCATIONS	Faisalabad
TREATMENTS/ METHODOLOGY	13 Hybrids received from NARC, Islamabad. Design RCB Replication 3 Plot size 5.0 m x 3.0 m Row to Row spacing 75 cm Plant spacing 23 cm Fertilizer 148- 99- 62 NPK kg/ ha Sowing date First fortnight of Feb,2017

PREVIOUS YEAR
RESULTS:

Sr. No.	Hybrid	NARC, ISB	RARI, BWP	ORI, F/Abad	Syng-Multan	Average
1	S-3950	2817	3071	3140	2541	2892
2	NK-S-278 (C)	2744	3613	2041	2719	2779
3	Armoni Gold	3013	2936	2029	2589	2642
4	SMH-0926	3029	2460	2415	2457	2590
5	NK-Ferti	2760	2724	1920	2806	2553
6	S-2216	2411	2578	2536	2614	2535
7	KQS-HSF-1	2670	2487	2331	2424	2478
8	FH-593	3319	2271	1884	2281	2439
9	ESFH-3391	2727	2309	1787	2630	2363
10	L-121-TC	2928	1645	2403	2372	2337
11	Hysun-33 (C)	2281	2553	1884	2593	2328
12	L-126-T	2594	2240	1932	2538	2326
13	KSF-2815	3152	2060	1570	2478	2315
14	FMC-3	2289	2166	2029	2634	2280
15	FMC-2	2461	2125	1691	2428	2176
16	SMH-0917	2508	1751	1812	2547	2155
17	SMH-0927	2255	1773	1957	2322	2077
18	ESFH-3590	2303	1891	1498	2406	2025

9. TITLE**FERTILIZER TRIAL ON SUNFLOWER HYBRID****OBJECTIVES**

To test the performance of FH-593 at different doses of nitrogen and phosphorus.

RESEARCH WORKERS

Muhammad Rafiq, Dr. Sajida Habib

LOCATIONS

Faisalabad

**TREATMENTS/
METHODOLOGY**

Design split plot
Repeats 3
Hybrid FH-593
Plot size 5.0 m x 3.0 m
Fertilizer A = P₂O₅ (Main plot)

**A- Phosphorus
(Main plots):**

P₁= P₂O₅@ 50 kg/ha
P₂= P₂O₅@ 99 kg/ha (Standard)
P₃= P₂O₅@ 129 kg/ha (99+ 30% of it=99+30 =129)
P₄ = P₂O₅ @ 144 kg/ha (99 +45 % of it= 99+ 45= 144)

**B- Nitrogen
(Sub plots):**

N₁= 74 kg/ha
N₂= 148 kg/ha
N₃=170 kg/ha (148+15% of it =148+22=170)
N₄=192 kg/ha (148+30% of it =148+44=192)

**PREVIOUS YEAR'S
RESULTS**

	N1= 74	N2= 148	N3= 170	N4= 192	N5= 215	N6= 237	Mean
P ₁ =50	467	885	1100	1700	1400	233	1130
P ₂ = 99	980	2512	2584	2813	2342	2166	2232
P ₃ =129	1035	2717	3278	3124	2750	2746	2608
P ₄ =144	1177	2773	3030	2940	2770	2678	2561
P ₅ =159	1188	2318	2647	2206	2193	1866	2069
Mean	969	2241	2527	2556	2291	2137	
LSD of interaction at 0.05=207							

AUTUMN,2017**10. TITLE****DEVELOPMENT OF NEW SUNFLOWER
INBRED LINES**

OBJECTIVES

To develop new sunflower inbred lines resilient to climate change.

RESEARCH WORKERS

Rizwana Qamar, Muhammad Aslam, Fida Hussain, Maria Ghias and Dr. Sajida Habib.

PROJECT DURATION

Continuous

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

- Source population
- S_1 = Plants selected from source population spring 2017
- S_2 = Plants selected from S_1 generation of spring 2017

200 Plants with desirable traits will be selected and selfed from source population.

50 progeny to rows from the seeds of S_0 will be planted to grow S_1 generation. 4 to 5 plants from amongst the best progenies with desirable traits will be selected for S_2 plantation.

Out of S_2 generation further selection will be done among progenies and between lines to obtain S_3 generation.

Plot size 5 m x 0.75 m

Row to row spacing 75 cm

Plant spacing 23 cm

Fertilizer 148: 99:62 NPK kg/ha

Sowing date 1st fortnight of Aug.17

Plant with desirable traits will be selected and selfed from each progeny row population.

PREVIOUS YEAR'S
RESULTS

Plants with desirable traits were selected, selfed and seed harvested to advance the generation.

11. TITLE**SEED INCREASE OF SUNFLOWER ELITE
PARENTS**

OBJECTIVES

To produce the seed of selected parents for further use in sunflower hybrid development programme.

RESEARCH WORKERS

Fida Hussain, Muhammad Aslam and Dr. Sajida Habib,

PROJECT DURATION
LOCATIONS
TREATMENTS/
METHODOLOGY

Continuous
Faisalabad.
12 “A” & “B” lines
10 “R” lines
Seed of 12 A,B and 10 R lines will be produced based on the results of spring, 2017.

Plot size 5 m x 3 m
Row spacing 75 cm
Plant spacing 23 cm
Fertilizer 148: 99:62 NPK kg/ha
Sowing date 2nd fortnight of August, 2017

Seed of “A” lines will be produced by using the pollen of its counterpart “B” lines. “B” and “R” lines will be selfed for seed production.

PREVIOUS YEAR’S
RESULTS

Seed of 6 A, B and 11 “R” lines were harvested and seed was collected.

12. TITLE

DEVELOPMENT OF NEW SUNFLOWER HYBRIDS

OBJECTIVES

To produce seed of different hybrids for evaluation of yield and insect pest / disease resistance.

RESEARCH WORKERS

M. Aslam, Fida Hussain, Maria Ghias and Dr. Sajida Habib,

PROJECT DURATION

Continuous

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

“A” lines = 5 “ R ” lines = 6

05 A lines: viz.

ORI-65, ORI-69, ORI-72, ORI-95, ORI-99

06 Restorer lines: viz.

RL-40, RL-82, RL-95, RL-107, RL-108, RL-109

Row spacing 75 cm
Plant spacing 23 cm
Fertilizer 148: 99:62 NPK kg/ha
Sowing date 2nd fortnight of August, 2017

15 new combinations will be made from these inbred lines. “A” lines will be pollinated with the specific “R” lines.

PREVIOUS YEAR’S
RESULTS

Seed of 13 Sunflower hybrids were produced during autumn 2016.

SESAME:

13. TITLE	MAINTENANCE AND EVALUATION OF SESAME GENE POOL																				
OBJECTIVES	To maintain and evaluate the sesame germplasm for utilization in breeding programme.																				
RESEARCH WORKERS	Muhammad Anwar and Muhammad Aftab																				
PROJECT DURATION	Continuous nature																				
LOCATIONS	Faisalabad																				
TREATMENTS/ METHODOLOGY	<p>Entries = 80</p> <table border="0"> <tr> <td>Repeats</td> <td>Non-replicated</td> </tr> <tr> <td>Plot size</td> <td>5 m x 0.45 m</td> </tr> <tr> <td>Fertilizer</td> <td>60 : 60 NP kg/ha</td> </tr> <tr> <td>Sowing date</td> <td>June, 2017</td> </tr> </table>	Repeats	Non-replicated	Plot size	5 m x 0.45 m	Fertilizer	60 : 60 NP kg/ha	Sowing date	June, 2017												
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Plot size	5 m x 0.45 m																				
Fertilizer	60 : 60 NP kg/ha																				
Sowing date	June, 2017																				
PREVIOUS YEAR'S RESULTS	78 entries were evaluated and seed was collected for further studies.																				
14. TITLE	SESAME HYBRIDIZATION PROGRAMME																				
OBJECTIVES	To create new recombinants for the development of high yielding sesame varieties.																				
RESEARCH WORKERS	Muhammad Anwar and Muhammad Aftab																				
PROJECT DURATION	Continuous nature																				
LOCATIONS	Faisalabad																				
TREATMENTS/ METHODOLOGY	<table border="0"> <thead> <tr> <th>Parents:</th> <th>Characteristics</th> </tr> </thead> <tbody> <tr> <td>16001</td> <td>Single stem, cluster bearing</td> </tr> <tr> <td>TH-6</td> <td>High yielding, single stem</td> </tr> <tr> <td>50022</td> <td>Branched and profuse pod bearing and disease tolerance.</td> </tr> <tr> <td>92001</td> <td>Single stem and cluster bearing</td> </tr> <tr> <td>86001</td> <td>Branched and high yielding.</td> </tr> <tr> <td>40009</td> <td>Branched and high yielding.</td> </tr> <tr> <td>50009</td> <td>Branched and high yielding.</td> </tr> <tr> <td>ML 6-8/12</td> <td>More locules, single stem</td> </tr> <tr> <td>Korea-1</td> <td>Branched and disease tolerant</td> </tr> </tbody> </table>	Parents:	Characteristics	16001	Single stem, cluster bearing	TH-6	High yielding, single stem	50022	Branched and profuse pod bearing and disease tolerance.	92001	Single stem and cluster bearing	86001	Branched and high yielding.	40009	Branched and high yielding.	50009	Branched and high yielding.	ML 6-8/12	More locules, single stem	Korea-1	Branched and disease tolerant
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ML 6-8/12	More locules, single stem																				
Korea-1	Branched and disease tolerant																				

Following crosses will be made:

1. 16001 x 50022
2. TH-6 x 16001
3. 92001 x 50022
4. 50022 x M.L.6-8/12
5. 40009 x 92001
6. 50009 x 16001
7. 40009 x 96019
8. 50022 x M.L.6-8/12
9. TH-6 x 92001
10. M.L.6-8/12 x 92001
11. 50022 x Korea-1
12. TH-6 x Korea-1

Repeats Non-replicated
 Plot size 5 m x 0.45 m
 Fertilizer 60 : 60 NP kg/ha
 Row spacing 45 cm
 Sowing date June, 2017

PREVIOUS YEAR'S
RESULTS

seed of eight successful crosses was collected for further studies.

15. TITLE

STUDY OF SESAME FILIAL GENERATIONS

OBJECTIVES

To evolve new sesame varieties with better yield and tolerance against diseases.

RESEARCH WORKERS

Muhammad Anwar and Muhammad Aftab

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

F₁ = 08 crosses F₂ = 08 crosses
 F₃ = 02 crosses F₄ = 09 crosses
 F₅ = 03 crosses F₆ = single plant selection
 Repeats Non-replicated
 Plot size 5 m x 3.60 m
 Fertilizer 60 : 60 NP kg/ha
 Sowing date June, 2017

The filial generations will be studied for yield performance and tolerance against insects and diseases.

PREVIOUS YEAR'S
RESULTS

The following crosses/segregating generations were studied and evaluated for selection.

F₁ = 08 crosses F₂ = 02 crosses
 F₃ = 09 crosses F₄ = 03 crosses
 F₅ = 04 crosses F₆ = 24 progenies

16. TITLE	SESAME PRELIMINARY SEED YIELD TRIAL																																				
OBJECTIVES	To study the yield performance of newly developed sesame lines.																																				
RESEARCH WORKERS	Muhammad Anwar and Muhammad Aftab																																				
PROJECT DURATION	Continuous nature																																				
LOCATIONS	Faisalabad																																				
TREATMENTS/ METHODOLOGY	<p>Entries:15 viz; 17001, 17002, 17003, 17004, 17005, 17006, 16002,16003, 16004, 16005, 87005, 50007,86003, TH-6 and TS-5 (check)</p> <p>Design R.C.B. Repeats 3 Plot size 5 x 1.35 m Row spacing 45 cm Fertilizer 60: 60 NP kg/ha Sowing date June, 2017</p> <p>Data on yield and yield components i.e. Plant height, branches/plant, capsules/plant and 1000 seed weight will be recorded. Regular plant protection measures will be provided.</p>																																				
PREVIOUS YEAR'S RESULTS	<table border="0"> <thead> <tr> <th><u>Rank</u></th> <th><u>Line</u></th> <th><u>Seed Yield (kg/ha)</u></th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>16001</td> <td>1816</td> </tr> <tr> <td>2.</td> <td>86001</td> <td>1339</td> </tr> <tr> <td>3.</td> <td>87006</td> <td>1239</td> </tr> <tr> <td>4.</td> <td>M.L.6-8/12</td> <td>1216</td> </tr> <tr> <td>5.</td> <td>77011</td> <td>1209</td> </tr> <tr> <td>6.</td> <td>87005</td> <td>1141</td> </tr> <tr> <td>7.</td> <td>TS-5 (C)</td> <td>915</td> </tr> <tr> <td>8.</td> <td>TH-6 (C)</td> <td>809</td> </tr> <tr> <td>.</td> <td>.</td> <td>.</td> </tr> <tr> <td>14.</td> <td>16005</td> <td>448</td> </tr> <tr> <td></td> <td>LSD at 5%</td> <td>88</td> </tr> </tbody> </table>	<u>Rank</u>	<u>Line</u>	<u>Seed Yield (kg/ha)</u>	1.	16001	1816	2.	86001	1339	3.	87006	1239	4.	M.L.6-8/12	1216	5.	77011	1209	6.	87005	1141	7.	TS-5 (C)	915	8.	TH-6 (C)	809	.	.	.	14.	16005	448		LSD at 5%	88
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17. TITLE	SESAME ADVANCED YIELD TRIAL																																				
OBJECTIVES	To evaluate promising sesame lines for their seed yield and oil content.																																				
RESEARCH WORKERS	Muhammad Anwar and Muhammad Aftab																																				

PROJECT DURATION	Continuous nature
LOCATIONS	Faisalabad
TREATMENTS/ METHODOLOGY	<p>Entries: 10 viz; 70002, 70005, 16001, 86001, 87006, M.L6-8/12, 77011, 87005 TH-6 and TS-5 (check).</p> <p>Design R.C.B. Repeats 3 Plot size 5 x 1.8 m Row spacing 45 cm Fertilizer 60 : 60 NP kg/ha Sowing date June, 2017</p> <p>Data on yield and yield components i.e. Plant height, branches/plant, capsules/plant and 1000 seed weight will be recorded.</p>

PREVIOUS YEAR'S RESULTS

<u>Rank</u>	<u>Line</u>	<u>Seed Yield (kg/ha)</u>
1.	50022	951
2.	40009	941
3.	50009	871
4.	TS-5 (C)	699
.	.	.
9.	87002	457
LSD at 5%		113

18. TITLE

SESAME ZONAL YIELD TRIAL

OBJECTIVES	To test the performance of promising sesame strains under different agro ecological zones of the Punjab
RESEARCH WORKERS	Muhammad Anwar, Muhammad Aftab
PROJECT DURATION	2017
LOCATIONS	Five viz; Faisalabad, Sahiwal, Khanpur, Karor and Piplan
TREATMENTS/ METHODOLOGY	<p>Entries = 10 viz 40009, 50009, 50022, 40004, 10003, Black Til, 50011, 16001, TH-6 (check) and TS-5 (check).</p> <p>Design R.C.B. Repeats 3 Plot size 5m x 1.8 m Row spacing 45 cm Fertilizer 60 : 60 NP kg/ha Sowing date June, 2017</p>

PREVIOUS YEAR'S
RESULTS

S. No.	Lines/strains	Seed Yield (kg/ha)					Average
		FS D	Mandi Baha-ud-Din	Piplan	Bahawal Pur	Khan pur	
1.	10003	857	652	794	563	463	666
2.	50022	841	716	361	666	470	611
3.	Black Til	808	685	536	344	311	537
4.	50011	819	736	296	381	396	526
5.	40004	810	603	444	463	211	506
6.	TS-5 (C)	779	610	241	566	287	497
7.	70004	646	549	241	536	380	470
8.	40021	636	518	269	655	270	470
9.	87008	774	488	361	407	311	468
10.	40012	557	492	250	503	425	445
	LSD 5%	122	142	53	267	72	

19. TITLE

NATIONAL UNIFORM SESAME YIELD TRIAL

OBJECTIVES

To test the performance of the strains received from PARC, Islamabad.

RESEARCH WORKERS

Muhammad Anwar and Muhammad Aftab

PROJECT DURATION

2017

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

Entries to be received from PARC, Islamabad.

Lay out will be done according to the instructions received with the material.

PREVIOUS YEAR'S
RESULTS

<u>Sr. No.</u>	<u>Entry No.</u>	<u>Yield (kg/ha)</u>
1.	50011	1178
2.	TS-5 (C)	1036
3.	SG-45	993
4.	50022	919
5.	NS-260	714
6.	SG-30	705
7.	SG-71	660
8.	J-015	623
9.	NS-44-SP-1	608
10.	SS-101	255

SOYBEAN:

20. TITLE	MAINTENANCE AND EVALUATION OF SOYBEAN GENEPOOL
OBJECTIVES	To maintain and evaluate soybean germplasm for utilization in breeding programme.
RESEARCH WORKERS	Sehrish Sarwar, Abdul Qayyum and Muhammad Aftab
PROJECT DURATION	Continuous nature
LOCATIONS	Faisalabad
TREATMENTS/ METHODOLOGY	<p>Entries = 190</p> <p>Repeats Non-replicated</p> <p>Plot size 5m x 0.6 m</p> <p>Row spacing 30 cm</p> <p>Fertilizer 60 : 100 NP kg/ha</p> <p>Sowing time 1st week of August 2017</p> <p>Data on days to flowering, plant height, No. of branches, No. of Pods/plant, No. of seeds/pod, 100 seed weight, seed yield/plant, seed yield/plot, days to maturity and resistance against insects/diseases will be recorded.</p>
PREVIOUS YEAR'S RESULTS	190 entries were evaluated and maintained.

Seed Yield data of germplasm (kg/ha) :		
Sr. No.	No. of Entries	Range
1.	25	1500-2000 kg/ha
2.	59	1000-1500 kg/ha
3.	66	500-1000 kg/ha
4.	40	Below 500 kg/ha

21. TITLE	SOYBEAN HYBRIDIZATION PROGRAMME
OBJECTIVE	To create genetic variability by making crosses among the elite lines possessing desirable traits.
RESEARCH WORKERS	Sehrish Sarwar, Abdul Qayyum and Muhammad Aftab
PROJECT DURATION	Continuous nature
LOCATIONS	Faisalabad

TREATMENTS/ METHODOLOGY	<p>Parents = 05</p> <p>Sparks, RX(48-52-1) & Lakota (High Yielder) FS-10 and 95-1-14 (Disease tolerant)</p> <p>Following crosses will be made:</p> <ol style="list-style-type: none"> 1. Sparks X FS-10 2. RX(48-52-1) X FS-10 3. Lakota X FS-10 4. Lakota X 95-1-14 5. FS-10 X RX (48-52-1) 6. 95-1-14 X RX (48-52-1) <p>Repeats Non-replicated Plot size 5m x 0.6 m Fertilizer 60: 100 NP kg/ha Row spacing 30 cm Sowing date 1st week of August 2017</p>														
PREVIOUS YEAR'S RESULTS	Seed of 2 successful crosses was harvested.														
22. TITLE	STUDY OF SOYBEAN FILIAL GENERATIONS														
OBJECTIVES	To explore genetic variability for the selection of recombinants with desirable traits.														
RESEARCH WORKERS	Sehrish Sarwar, Abdul Qayyum and Muhammad Aftab														
PROJECT DURATION	Continuous nature														
LOCATIONS	Faisalabad														
TREATMENTS/ METHODOLOGY	<p>Following filial generations will be studied.</p> <table border="0"> <tr> <td>Generation</td> <td>Crosses</td> </tr> <tr> <td>F1</td> <td>2</td> </tr> <tr> <td>F2</td> <td>4</td> </tr> <tr> <td>Repeats</td> <td>Non-replicated</td> </tr> <tr> <td>Row spacing</td> <td>30 cm</td> </tr> <tr> <td>Fertilizer</td> <td>60: 100 NP kg/ha</td> </tr> <tr> <td>Sowing time</td> <td>1st week of August, 2017</td> </tr> </table> <p>In F1, whole material will be studied while in F2 selections on the basis of plant health and seed yield will be made.</p>	Generation	Crosses	F1	2	F2	4	Repeats	Non-replicated	Row spacing	30 cm	Fertilizer	60: 100 NP kg/ha	Sowing time	1 st week of August, 2017
Generation	Crosses														
F1	2														
F2	4														
Repeats	Non-replicated														
Row spacing	30 cm														
Fertilizer	60: 100 NP kg/ha														
Sowing time	1 st week of August, 2017														
PREVIOUS YEAR'S RESULTS	4 crosses of F ₁ generation were studied and seed was harvested to study the next generation.														

23. TITLE **PRELIMINARY SEED YIELD TRIAL OF PROMISING SOYBEAN LINES**

OBJECTIVES To evaluate yield performance of elite soybean lines

RESEARCH WORKERS Sehrish Sarwar, Abdul Qayyum and Muhammad Aftab

PROJECT DURATION Continuous nature

LOCATIONS Faisalabad

TREATMENTS/Entries: 08
METHODOLOGY L-16, Kwangyo, 95-2, Duglas, E-1092, HM-8468, Faisal Soybean(C) and Ajmeri(C).

Design R.C.B.
Repeats 3
Plot size 5m x 0.9 m
Row spacing 30 cm
Fertilizer 60: 100 NP kg/ha
Sowing time 1st week of August, 2017

Data on Plant height, branches/plant, pods/plant, 100 seed weight and seed yield will be recorded. Regular plant protection measures will be adopted.

PREVIOUS YEAR'S RESULTS

Seed Yield Data of different lines		
Rank	Name of Line/Variety	Seed Yield (kg/ha)
1	95-1-14	2362
2	Sparks	1901
3	MS-4	1885
4	Faisal Soybean (C)	1664
11	Ajmeri (C)	670
13	SS-183	405
	LSD at 5%	230

24. TITLE **ADVANCED YIELD TRIAL OF PROMISING SOYBEAN LINES**

OBJECTIVES To evaluate yield performance of elite soybean lines

RESEARCH WORKERS Sehrish Sarwar, Abdul Qayyum and Muhammad Aftab

PROJECT DURATION Continuous nature

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

Entries: 07
MS-4, Sparks, 95-1-14, FS-60, R-315,
Faisal Soybean(C) and Ajmeri (C).

Design R.C.B
Repeats 3
Plot size 5m x 1.2 m
Row spacing 30 cm
Fertilizer 60: 100 NP kg/ha
Sowing time 1st week of August 2017.

Data on Plant height, branches/plant, pods/plant, 100 seed weight and seed yield will be recorded. Regular plant protection measures will be adopted.

PREVIOUS YEAR'S
RESULTS

Seed Yield Data of different lines		
Rank	Name of Line/Variety	Seed Yield (kg/ha)
1	FS-10	2179
2	FS-60	1668
3	RX (48-52-1)	1543
4	Faisal Soybean (C)	1513
9	Ajmeri (C)	625
10	E-402	500
	LSD at 5%	212

25. TITLE**SOYBEAN MICRO YIELD TRIAL**

OBJECTIVES

To evaluate yield performance of elite lines in different agro-climatic conditions of Punjab

RESEARCH WORKERS

Sehrish Sarwar, Abdul Qayyum
and Muhammad Aftab

PROJECT DURATION

Continuous nature

LOCATIONS

3 viz; (Faisalabad, Piplan and Bahawalpur)

TREATMENTS/
METHODOLOGY

Entries: 06 (04 lines with 2 checks)
95-1-14, FS-10, FS-60, E-1092, Faisal Soybean (C)
and Ajmeri (C).

Design	R.C.B.
Repeats	4
Plot size	5m x 1.2 m
Row spacing	30 cm
Fertilizer	60: 100 NP kg/ha
Sowing time	1 st week of August 2017.

Data on Plant height, branches/plant, pods/plant, 100 seed weight and seed yield will be recorded. Regular plant protection measures will be adopted.

PREVIOUS YEAR'S
RESULTS

First Year

- Sowing Method
1. Flat sowing
 2. Ridge sowing.

Seed of heat tolerant plants of previous year will be sown on three different sowing dates during high temperature period. Seed of survived heat tolerant plants will be collected for further evaluation.

PREVIOUS YEAR'S RESULTS

Seed of heat tolerant plants sown on sowing date 1st July and 15th July germinated but could not survive due to high temperature. Whereas seed of 1st August sowing was collected for further improvement.

CASTOR BEAN:

28. TITLE	DEVELOPMENT OF CASTORBEAN INBRED LINES																									
OBJECTIVE	To develop short duration synthetic castor bean varieties for better adaptability and high seed yield.																									
RESEARCH WORKER (S)	Zeeshan Hafeez Syed Arif Hussain Shah																									
PROJECT DURATION	Continuous nature																									
LOCATION	Bahawalpur																									
TREATMENTS	<table border="0"> <thead> <tr> <th><u>S.No.</u></th> <th><u>Selfed generation</u></th> <th><u>No. of progenies</u></th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>S₁</td> <td>55</td> </tr> <tr> <td>2.</td> <td>S₂</td> <td>50</td> </tr> <tr> <td>3.</td> <td>S₃</td> <td>40</td> </tr> <tr> <td>4.</td> <td>S₄</td> <td>54</td> </tr> <tr> <td>5.</td> <td>S₅</td> <td>35</td> </tr> <tr> <td>6.</td> <td>S₆</td> <td>13</td> </tr> <tr> <td>7.</td> <td>S₇</td> <td>06 (lines)</td> </tr> </tbody> </table>		<u>S.No.</u>	<u>Selfed generation</u>	<u>No. of progenies</u>	1.	S ₁	55	2.	S ₂	50	3.	S ₃	40	4.	S ₄	54	5.	S ₅	35	6.	S ₆	13	7.	S ₇	06 (lines)
<u>S.No.</u>	<u>Selfed generation</u>	<u>No. of progenies</u>																								
1.	S ₁	55																								
2.	S ₂	50																								
3.	S ₃	40																								
4.	S ₄	54																								
5.	S ₅	35																								
6.	S ₆	13																								
7.	S ₇	06 (lines)																								
METHODOLOGY	<table border="0"> <tr> <td>Repeats</td> <td>Non-replicated</td> </tr> <tr> <td>Plot size</td> <td>5 m x 1 m</td> </tr> <tr> <td>Row to row spacing</td> <td>1 m</td> </tr> <tr> <td>Plant to plant spacing</td> <td>1 m</td> </tr> <tr> <td>Fertilizer</td> <td>60 : 60 NP kg/ha</td> </tr> <tr> <td>Sowing date</td> <td>Mid June, 2017</td> </tr> </table> <p>The progenies will be selfed by bagging the primary raceme. 3–4 desirable plants will be selfed in each entry.</p>		Repeats	Non-replicated	Plot size	5 m x 1 m	Row to row spacing	1 m	Plant to plant spacing	1 m	Fertilizer	60 : 60 NP kg/ha	Sowing date	Mid June, 2017												
Repeats	Non-replicated																									
Plot size	5 m x 1 m																									
Row to row spacing	1 m																									
Plant to plant spacing	1 m																									
Fertilizer	60 : 60 NP kg/ha																									
Sowing date	Mid June, 2017																									
PREVIOUS YEAR'S RESULTS	Selfed seed of different selfing generations was collected for further studies.																									
29. TITLE	MAINTENANCE OF CASTORBEAN INBRED LINES																									
OBJECTIVE	To maintain the available genetic stock for their utilization in breeding programme.																									
RESEARCH WORKER (S)	Zeeshan Hafeez Syed Arif Hussain Shah																									
PROJECT DURATION	Continuous nature																									

LOCATION	Bahawalpur
TREATMENTS	Entries = 08
METHODOLOGY	Repeats Non-replicated Plot size 5 x 1 m Fertilizer 60 : 60 NP kg/ha Sowing date Mid June, 2017 The inbred lines will be selfed by bagging the primary racemes. 4-5 plats will be selfed in each entry.
PREVIOUS YEAR'S RESULTS	Selfed seed of 8 inbred lines was collected.
30. TITLE	CASTORBEAN MICRO YIELD TRIAL
OBJECTIVE	To evaluate the yield performance and suitability of advanced lines of castor bean in different agro-ecological zones of Punjab.
RESEARCH WORKER(S)	Zeeshan Hafeez Syed Arif Hussain Shah
PROJECT DURATION	Continuous
LOCATION	Faisalabad, Bahawalpur and Khanpur
TREATMENTS	Entries = 08 viz; S-4, S-15, S-29, KR-20, KR-30, FS-90, FS-2000 & DS-30 (check)
METHODOLOGY	Design R.C.B. Repeats 4 Plot size 5 x 4 m Row spacing 1 m Plant spacing 1 m Fertilizer 60 : 60 NP kg/ha Sowing date Mid June, 2017
PREVIOUS YEAR'S RESULTS	Crop is in the field. Harvesting and threshing of trial is yet to be done.

OIL SEEDS PATHOLOGY:

31. TITLE	EVALUATION OF SUNFLOWER LOCAL HYBRIDS AGAINST CHARCOAL ROT DISEASE
OBJECTIVES	The identification of relative tolerance of sunflower local germplasm against charcoal rot disease (<i>Marcophomina phaseolina</i>)
RESEARCH WORKERS	Ahsan Mohyo-U-din Qamar Anser Tufail Khan Dr. Muhammad Rizwan Bashir
PROJECT DURATION	Continuous nature
LOCATIONS	Faisalabad
TREATMENTS\ METHODOLOGY	22 hybrids Design: R.C.B. Replicates: 3 Plot size: 4.6 m x .75 m Plant spacing: 22 cm Row Spacing: 75 cm Fertilizer: 148: 99:62 NPK kg/ha Sowing date: 1 st fortnight of February, 2017 ➤ Inoculation of charcoal rot disease will be done by tooth pick method at flowering initial stage ➤ Data will be recorded on the basis of A to D rating scale measuring the disease spread after the harvest of crop by splitting stem vertically into two halves.
PREVIOUS YEAR'S RESULTS	In 2016, 16 hybrids provided by Sunflower Botanist were tested against charcoal rot disease

Score	Conditions	Remarks	Hybrids	No. of Hybrids
A	After inoculation with toothpick method, infection covered the stem length 1-10 cm only	Highly Resistant (HR)	0	0
B	Infection covered the stem length 11-20 cm	Resistant (R)	FH-583 FH-610, FH-624, FH-626,	09

			FH-628, FH-629, FH-630, FH-645, FH-646, Hysun-33 (C)	
C	Infection covered the stem length 21-30 cm	Moderately Resistant (MR)	FH-623, FH-631, FH-633, FH-647,	04
D	Infection covered the stem length 31cm or above	Susceptible	FH-627, FH-632, FH-648	03
			Total	16

32. TITLE	EVALUATION OF SUNFLOWER NUYT HYBRIDS AGAINST CHARCOAL ROT DISEASE
OBJECTIVES	The identification of relative tolerance of sunflower genetic material NUYT against charcoal rot disease (<i>Marcophomina phaseolina</i>)
RESEARCH WORKERS	Qamar Anser Tufail Khan Ahsan Mohyo-U-din Dr. Muhammad Rizwan Bashir
PROJECT DURATION	Continuous nature
LOCATIONS	Faisalabad
TREATMENTS\ METHODOLOGY	12 hybrids provided by NARC. Design: R.C.B. Repeats: 3 Plot size: 4.6 m x .75 m Plant spacing: 22 cm Row Spacing: 75 cm Fertilizer: 148: 99:62 NPK kg/ha Sowing date: 1 st fortnight of February, 2017 ➤ Inoculation of charcoal rot disease will be done by tooth pick method at flowering initial stage ➤ Data will be recorded on the basis of A to D rating scale measuring the disease spread after the harvest of crop by splitting stem vertically into two halves
PREVIOUS YEAR'S RESULTS	In 2016, 18 hybrid provided by Sunflower Botanist were tested against charcoal rot disease

Score	Conditions	Remarks	Hybrids	No. of hybrids
A	After inoculation with toothpick method, infection covered the stem length 1-10 cm only	Highly Resistant (HR)	0	0
B	Infection covered the stem length 11-20 cm	Resistant (R)	NK-Ferti, SMH-0926, FMC-3, NK-S-278, Hysun-33(C)	05
C	Infection covered the stem length 21-30 cm	Moderately Resistant (MR)	S-2216, S-3950, L-126-T, ESFH-3391, Armoni Gold, ESFH-3590, FH-593, KSF-2815, L-121-TC, SMH-0927, KQS-HSF-1, FMC-2	12
D	Infection covered the stem length 31cm or above	Susceptible (S)	SMH-0917	01
			Total	18

33. TITLE**SCREENING OF SUNFLOWER LOCAL HYBRIDS AGAINST HEAD ROT DISEASE****OBJECTIVES**

To workout relative tolerance of sunflower local hybrids against head rot disease (*Rhizopus arrhizus*)

RESEARCH WORKERS

Ahsan Mohyo-U-din
Qamar Anser Tufail Khan
Dr. Muhammad Rizwan Bashir

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad

**TREATMENTS\
METHODOLOGY**

22 hybrids

Design: R.C.B.

Plot size: 4.5 m x 3 m

Replicates: 3

Plant spacing: 22 cm

Row Spacing: 75 cm

Fertilizer: 148: 99:62 NPK kg/ha

Sowing date: 1st fortnight of February, 2017

➤ Inoculation of head rot disease will be done on the backside of head by producing injury at soft dough stage

- Data of incidence of disease will be recorded on the basis of diseased and healthy plants.

PREVIOUS YEAR'S RESULTS

Score	Conditions	Remarks	Hybrids	No. of Hybrids
0	No disease	Immune	0	0
1	1 % or less head rotten	Highly Resistant (HR)	0	0
3	1-10 % head rotten	Resistant (R)	0	0
5	11-25 % head rotten	Moderately Susceptible (MS)	0	0
7	26-50 % head rotten	Susceptible (S)	0	0
9	51 % above	Highly Susceptible	FH-583, FH-610, FH-623, FH-624, FH-626, FH-627, FH-628, FH-629, FH-630, FH-631, FH-632, FH-633, FH-645, FH-646, FH-647, FH-648, Hysun-33(C)	16
			Total	16

34. TITLE

SCREENING OF SUNFLOWER NUYT HYBRIDS AGAINST HEAD ROT DISEASE

OBJECTIVES

To work out relative tolerance of sunflower NUYT germplasm against head rot disease (*Rhizopus arrhizus*)

RESEARCH WORKERS

Ahsan Mohyo-U-din
Qamar Anser Tufail Khan
Dr. Muhammad Rizwan Bashir

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad

TREATMENTS\ METHODOLOGY

12 hybrids provided by NARC.

Design: R.C.B.
Plot size: 4.5 m x 3 m
Repeats: 3

- Plant spacing: 22 cm
 Row Spacing: 75 cm
 Fertilizer: 148: 99:62 NPK kg/ha
 Sowing date: 1st fortnight of February, 2017
- Inoculation of head rot disease will be done on the backside of head by producing injury.
 - Data of incidence of disease will be recorded on the basis of diseased and healthy plants

PREVIOUS YEAR'S RESULTS

Score	Conditions	Remarks	Hybrids	No. of Hybrids
0	No disease	Immune	0	0
1	1 % or less head rotten	Highly Resistant (HR)	0	0
3	1-10 % head rotten	Resistant (R)	0	0
5	11-25 % head rotten	Moderately Susceptible (MS)	0	0
7	26-50 % head rotten	Susceptible (S)	0	0
9	51 % above	Highly Susceptible	NK-Ferti, S-2216, S-3950, L-126-T, ESFH-3391, Armoni Gold, ESFH-3590, FH-593, SMH-0917, KSF-2815, L-121-TC, SMH-0927, KQS-HSF-1, SMH-0926, FMC-3, FMC-2, NK-S-278, Hysun-33 (C)	18
			Total	18

35. TITLE

SCREENING OF SESAME GERmplasm AGAINST CHARCOAL ROT DISEASE

OBJECTIVES

To observe relative tolerance/susceptibility of sesame germplasm against root rot disease (*Macrophomina phaseolina*)

RESEARCH WORKERS

Ahsan Mohyo-U-Din
 Qamar Anser Tufail Khan
 Dr. Muhammad Rizwan Bashir

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad, Shorkot, Bahawalpur, Piplan, Bhakkar, M.B.Din

TREATMENTS\ METHODOLOGY

12 entries/lines.

Design: R.C.B.
 Plot size: 5 m x 1.5 m
 Repeats: 3
 Row Spacing: 45 cm
 Fertilizer: 60 : 60 NP kg/ha
 Sowing date: Last week of June 2017

- At Faisalabad Sesame material will be sown in sick field.
- Percentage of the disease will be recorded on the basis of diseased/healthy plants among the population of each entry.

**PREVIOUS YEAR'S Faisalabad (sick field)
RESULTS**

Score	Conditions	Remarks	Varieties/lines	No. of varieties/lines
0	No symptoms on plants	Immune	-	-
1	1 % or less plants mortality	Highly Resistant (HR)	-	-
3	1-10 % mortality	Resistant (R)	-	-
5	11-25 % mortality	Moderately resistant (MR)	50011, 50022,	02
7	26-50 % mortality	Susceptible(S)	40012,40004, 40021, Black Till, 70004, 87008, TS-5, TH-6(C),	08
9	51 % or more mortality	Highly Susceptible (HS)	10003,	01
			Total	11

PREVIOUS YEAR'S RESULTS

BEHAVIOUR OF DIFFERENT LINES/VARIETIES OF SESAME AGAINST CHARCOAL ROT DISEASE % AT DIFFERENT LOCATIONS

Sr. No.	Line/Varieties	Faisalabad (sick field)		Bahawalpur		Piplan		Bhakkar		M.B.Din	
		Dis. %	Remarks	Dis. %	Remarks	Dis. %	Remarks	Dis. %	Remarks	Dis. %	Remarks
1.	50011	14.74	MR	4.61	R	10	R	5	R	8	R
2.	50022	16.23	MR	3.10	R	11.5	R	10	R	10	R
3.	Black Till	27	S	2.60	R	16	MR	12	MR	18	MR
4.	87008	37.52	S	3.37	R	17.5	MR	17	MR	16	MR
5.	40021	39.58	S	4.34	R	19	MR	8	R	14	MR
6.	TS-5	42.89	S	6.93	R	22.5	MR	25	MR	24	MR
7.	40004	44.66	S	5.62	R	18	MR	7	R	18	MR
8.	70004	46.89	S	5.30	R	23	MR	14	MR	18	MR
9.	40012	47.72	S	4	R	24	MR	11	MR	12	MR
10.	TH-6 (C)	48.19	S	6.66	R	33	S	18	MR	28	S
11.	10003	56.43	HS	7.87	R	29.5	S	11.5	MR	18	MR

YIELD DATA OF LINES/VARIETIES OF SESAME AT DIFFERENT LOCATIONS IN SCREENING TRIAL AGAINST CHARCOAL ROT DISEASE (Kg/ha).

Sr. No.	Line/Varieties	Faisalabad (sick field)	Bahawalpur	Piplan	Bhakkar	M.B.Din	Mean
1.	50011	1386	1451	1536	1749	1575	1539
2.	Black Till	1167	1570	1438	1578	1415	1440
3.	50022	968	1515	1320	1596	1402	1360
4.	40021	1082	1621	1016	1164	1076	1194
5.	40012	701	1578	1053	1192	1148	1575
6.	87008	821	1099	1082	1061	986	1108
7.	40004	735	1320	1136	1259	1082	1107
8.	TS-5	756	1673	1030	993	978	1086
9.	10003	596	1431	973	1219	1097	1063
10.	70004	675	1585	1004	1073	936	1054
11.	TH-6 (C)	720	1363	820	973	821	940

36. TITLE	SCREENING OF SESAME GERMPLASM AGAINST PHYLLODY DISEASE
OBJECTIVES	To observe relative tolerance/susceptibility of sesame germplasm against Phyllody disease
RESEARCH WORKERS	Qamar Anser Tufail Khan Ahsan Mohyo-U-Din
PROJECT DURATION	Continuous nature
LOCATIONS	Faisalabad, Shorkot, Bahawalpur, Piplan, Bhakkar, M.B.Din
TREATMENTS\ METHODOLOGY	12 entries/lines Design: R.C.B. Plot size: 5 m x 1.5 m Repeats: 3 Row Spacing: 45 cm Fertilizer: 60 : 60 NP kg/ha Sowing date: Last week of June 2017 ➤ Plant protection measure will not be applied to encourage the vector activity. ➤ Percentage of the disease will be recorded on the basis of disease/healthy plants among the population of each entry under natural condition.

PREVIOUS YEAR'S RESULTS

BEHAVIOUR OF DIFFERENT LINES/VARIETIES OF SESAME AGAINST PHYLLODY DISEASE % AT DIFFERENT LOCATIONS

Sr. No.	Line/ Varieties	Faisalabad Disease %	Bahawalpur Disease %	Piplan Disease %	Bhakkar Disease %	M.B.Din Disease %	Avg. Disease %	Reaction
1.	TS-5	13	0	0	11	8	6.4	R
2.	50011	10	4	8	9.3	6.9	7.64	R
3.	40012	8	6	8	11	6	7.8	R
4.	50022	12	6	10	8.0	7	8.6	R
5.	40004	8	8	10	14.6	8.6	9.84	

6.	Black Till	14	8	10	13.6	6.6	10.44	MR
7.	87008	18	11	12	11.33	3.3	11.12	MR
8.	70004	14	10	12	10	10	11.2	MR
9.	10003	10	12	14	8	12	11.2	MR
10.	40021	16	10	14	12	6.3	11.66	MR
11.	TH-6 (C)	18	14	14	13	16	15	MR

OILSEED ENTOMOLOGY:

37. TITLE	SCREENING OF PROMISING STRAINS OF SUNFLOWER FOR THEIR BEHAVIOUR AGAINST INSECT PESTS.												
OBJECTIVES	To find out relative response in different hybrids of sunflower against insect pests.												
RESEARCH WORKERS	Sikandar Ali Cheema												
PROJECT DURATION	Kharif-2017												
LOCATIONS	Faisalabad												
TREATMENT/ METHODOLOGY	<p>Entries = 19 FH-655, FH-657, FH-658, FH-659, FH-661, FH-663, FH-666, FH-670, FH-671, FH-674, FH-675, FH-676, FH-677, FH-678, FH-680, FH-681, FH-682, FH-684, FH-685</p> <table border="0"> <tr> <td>Design</td> <td>R.C.B.</td> </tr> <tr> <td>Repeats</td> <td>3</td> </tr> <tr> <td>Plot size</td> <td>5 m x 1.5m</td> </tr> <tr> <td>Row spacing</td> <td>75 cm</td> </tr> <tr> <td>Fertilizer</td> <td>148 : 99 : 62 NPK kg/ha</td> </tr> <tr> <td>Sowing date</td> <td>1st fort night of February</td> </tr> </table> <p>The data regarding head moth caterpillars will be recorded from heads of 5 randomly selected plants in each treatment. Similarly data regarding Jassid and Whitefly will be recorded from three leaves of 5 plants per plot.</p>	Design	R.C.B.	Repeats	3	Plot size	5 m x 1.5m	Row spacing	75 cm	Fertilizer	148 : 99 : 62 NPK kg/ha	Sowing date	1 st fort night of February
Design	R.C.B.												
Repeats	3												
Plot size	5 m x 1.5m												
Row spacing	75 cm												
Fertilizer	148 : 99 : 62 NPK kg/ha												
Sowing date	1 st fort night of February												

PREVIOUS YEAR'S RESULTS:			
Sr. No.	Varieties/Hybrids	Jassid/leaf	Head moth larval Pop./Plant
1.	FH-606	5.17	0.58
2.	FH-607	5.57	0.46
3.	FH-608	4.53	0.27
4.	FH-609	5.33	0.41
5.	FH-610	5.93	0.29
6.	FH-611	5.61	0.36
7.	FH-612	5.53	0.49
8.	FH-613	6.21	0.38
9.	FH-614	5.37	0.38
10.	FH-615	8.97	0.47
11.	FH-616	5.13	0.45

12.	FH-618	7.47	0.41
13.	FH-619	5.71	0.39
14.	FH-620	9.21	0.33
15.	FH-621	6.07	0.42
16.	FH-622	3.77	0.35
LSD 5%		0.4981	0.1376

38. TITLE	DEVELOPMENT OF SUNFLOWER INBRED LINES FOR RESISTANCE AGAINST HEAD MOTH LARVAE (<i>Helicoverpa armigera</i>)
OBJECTIVES	To find out resistance against Sunflower head moth larvae in existing germplasm of sunflower
RESEARCH WORKERS	Sikandar Ali Cheema
PROJECT DURATION	Kharif-2017
LOCATIONS	Faisalabad
TREATMENT/ METHODOLOGY	<p>Twenty inbred lines viz; ORI-81, ORI-82, ORI-83, ORI-84, ORI-85, ORI-86, ORI-87, ORI-88, ORI-89, ORI-90, ORI-91, ORI-92, ORI-93, ORI-94, ORI-95, ORI-96, ORI-97, ORI-98, ORI-99, ORI-100,</p> <p>Repeats Non-replicated Fertilizer 148 : 99 : 62 NPK kg/ha Sowing date 1st fort night of February</p> <p>Above sunflower germplasm would be tested for resistance against Head moth larvae. The head moth larvae would be collected from the field and released on ten heads randomly selected from each inbred line. The same will be bagged and selfed. At the time of harvesting, undamaged plants would be selected for evaluation. The plants, so selected will be sown as single plant progeny during next season.</p>
PREVIOUS YEAR'S RESULTS	15 undamaged heads were collected

39. TITLE	SCREENING OF PROMISING STRAINS OF SESAME FOR THEIR BEHAVIOUR AGAINST INSECT PESTS.												
OBJECTIVES	To find out relative response in different lines of sesame against insect pests.												
RESEARCH WORKERS	Sikandar Ali Cheema												
PROJECT DURATION	Kharif-2017												
LOCATIONS	Faisalabad												
TREATMENTS/ METHODOLOGY	<p>Entries provided will be tested</p> <table border="0"> <tr> <td>Design</td> <td>R.C.B.</td> </tr> <tr> <td>Repeats</td> <td>3</td> </tr> <tr> <td>Plot size</td> <td>5m x 0.9 m</td> </tr> <tr> <td>Row spacing</td> <td>30 cm</td> </tr> <tr> <td>Fertilizer</td> <td>60 : 60 NP kg/ha</td> </tr> <tr> <td>Sowing date</td> <td>1st week of July.</td> </tr> </table> <p>The data regarding leaf Webber infestation will be recorded from 5 randomly selected plants in each treatment at weekly interval. Myrid bug population will be recorded from 5 terminal shoots of randomly selected plants at weekly interval. Whereas, jassid and whitefly population will be recorded from upper, lower and middle leaves of 5 randomly selected plants in each treatment.</p>	Design	R.C.B.	Repeats	3	Plot size	5m x 0.9 m	Row spacing	30 cm	Fertilizer	60 : 60 NP kg/ha	Sowing date	1 st week of July.
Design	R.C.B.												
Repeats	3												
Plot size	5m x 0.9 m												
Row spacing	30 cm												
Fertilizer	60 : 60 NP kg/ha												
Sowing date	1 st week of July.												
PREVIOUS YEAR'S RESULTS:	The trial was destroyed due to heavy rains .												

40. TITLE	EFFECT OF DIFFERENT DOSES OF NEONICOTINOID ON WHITEFLY MORTALITY IN SOYBEAN.
OBJECTIVES	To find out highly effective dose of neonicotinoid for the control of whitefly.
RESEARCH WORKERS	Sikandar Ali Cheema
PROJECT DURATION	Kharif-2017
LOCATIONS	Faisalabad
TREATMENTS/	6 viz; T ₁ = Acetamiprid 20SP @150 gm/acre. T ₂ = Acetamiprid 20SP @175 gm/acre. T ₃ = Acetamiprid 20SP @200 gm/acre. T ₄ = Acetamiprid 20SP @225 gm/acre. T ₅ = Acetamiprid 20SP @250 gm/acre. T ₆ = Check (Unsprayed)
METHODOLOGY	Design = R.C.B Repeats = 4 Plot size = 5.0 m x 1.5m Row Spacing = 75cm Sowing date = Mid August. The experiment will be sown in RCBD with four replications. Faisal Soybean will be sown. Data regarding whitefly population will be recorded on upper, middle and lower leaves of 5 randomly selected plants in each replication. When the population of whitefly reaches at ETL, the pesticide will be sprayed. Data after application of pesticide will be recorded after 24 hours, 48 hours and 72 hours respectively. The application will be repeated of 7 days interval. The following formula will be used for recording mortality %age.
% Mortality	$\frac{\text{Pre treatment population}-\text{Post treatment population.}}{\text{Pre treatment Population.}}$
PREVIOUS YEAR'S RESULTS:	1 st year.

OIL TECHNOLOGY:**41. TITLE DETERMINATION OF OIL CONTENTS OF SUNFLOWER HYBRIDS**

OBJECTIVES Identification of Sunflower hybrids with high oil contents.

RESEARCH WORKERS Miss Shazia Saeed
Ahmad Nawaz Gill
Muhammad Tahir Ashfaq

PROJECT DURATION Continuous nature

LOCATIONS Faisalabad
TREATMENTS/
METHODOLOGY 60 samples from local Sunflower hybrids (Spring and Autumn) will be evaluated.
Oil content will be determined through Soxhlet apparatus.

PREVIOUS YEAR'S RESULTS

No. of hybrids tested	Total No. of samples Analyzed	Oil Contents (%)	Lines having oil contents > 40 %	
37	111	32 - 47	22	
Trials	No. of Hybrids analyzed	Oil Contents (%)	Hybrid with minimum oil content	Hybrid with maximum oil content
Local Hybrid Set-1	19	32- 47	FH-623	FH-654
Local Hybrid Set-2	18	33-44	FH-583	FH-643
Trials	No. of hybrids analyzed	Oil Content (%)	Hybrid with minimum oil content	Hybrid with maximum oil content
Local Hybrids (autumn)	15	36- 43	FH-634	FH-629

42. TITLE OIL CONTENTS OF SUNFLOWER HYBRID INFLUENCED BY DIFFERENT FERTILIZERS

OBJECTIVES Identification of oil contents of FH-593 Sunflower hybrid at different levels of nitrogen and phosphorus fertilizers.

RESEARCH WORKERS Miss Shazia Saeed
Ahmad Nawaz Gill
Muhammad Tahir Ashfaq

PROJECT DURATION Continuous nature

LOCATIONS Faisalabad
TREATMENTS/METHODOLOGY 30 samples from one Sunflower hybrid sown in Spring and applied with various doses of N and P will be evaluated for their oil contents.
Oil content will be determined through Soxhlet apparatus.

PREVIOUS YEAR'S RESULTS

Levels of Fertilizer	Total No. of samples Analyzed	Minimum Oil Contents (%)	Maximum Oil content (%)
N = 06 P = 05	90	30.75 with (P ₁ N ₁) N @ 74 kg/ha and P @ 50 kg/ha	44.13 with (P ₂ N ₄) N @ 129 kg/ha and P @ 215 kg/ha

43. TITLE **DETERMINATION OF OIL CONTENTS OF SUNFLOWER INBRID LINES**

OBJECTIVES Identification of Sunflower inbred lines with high oil contents.

RESEARCH WORKERS Miss Shazia Saeed
Ahmad Nawaz Gill
Muhammad Tahir Ashfaq

PROJECT DURATION Continuous nature

LOCATIONS Faisalabad
TREATMENTS/METHODOLOGY 30 samples of sunflower inbred lines will be evaluated for their oil contents.
Oil content will be determined through Soxhlet apparatus.

PREVIOUS YEAR'S RESULTS

No. of inbred lines tested	Total No. of samples Analyzed	Oil Contents (%)
31	93	20- 38
Inbred line with maximum oil content (%)		
ORI-62 = 38		

44. TITLE DETERMINATION OF OIL CONTENTS OF SOYBEANS

OBJECTIVES Identification of Soybean lines with high oil contents.

RESEARCH WORKERS Miss Shazia Saeed
Ahmad Nawaz Gill
Muhammad Tahir Ashfaq

PROJECT DURATION Continuous nature

LOCATIONS Faisalabad

**TREATMENTS/
METHODOLOGY** 20 lines of Soybean will be evaluated for their oil contents.
Oil content will be determined through Soxhlet apparatus.

**PREVIOUS YEAR'S
RESULTS**

No. of lines tested	Total No. of samples Analyzed	Oil Contents (%)
14	42	19-22
Line with maximum Oil content (%)		Lines having oil contents > 20 %
FABUL = 22		12

OLIVE:**45. TITLE****ADAPTIABILITY STUDIES OF OLIVE GENOTYPES****OBJECTIVES**

To explore the possibility of olive cultivation in the Central Punjab

RESEARCH WORKERS

Muhammad Anwar
Tariq Mahmood
Muhammad Aftab

PROJECT DURATION

Continuous

LOCATIONS

Faisalabad

**TREATMENTS/
METHODOLOGY**

Olive Genotypes = 10 viz;

1. BARI Zaitoon-I
2. BARI Zaitoon-II
3. Nabali
4. Gemlik
5. Arbequina
6. Koroneiki
7. Arbosana
8. JS-1
9. FS-1
10. LS-1

Plant to Plant Distance 5.4 m

Row to Row Distance 5.4 m

Sowing date 12.04. 2017

Data on plant height, canopy, stem girth, flowering initiation, insect/disease incidence and fruit yield will be recorded.

**PREVIOUS YEAR'S
RESULTS**

First Year