

SUNFLOWER:**A. SPRING, 2016**

- | | | | | | | | | | | | | | | | |
|----------------------------|--|-----------------|------|----------------|------|-----------|------------|--------------------|-------|---------------|-------|------------|----------------------|-------------|-----------------------|
| 1. TITLE | MAINTENANCE OF SUNFLOWER INBRED LINES | | | | | | | | | | | | | | |
| OBJECTIVES | To maintain the genetic stock for their utilization in synthesis of new sunflower hybrids. | | | | | | | | | | | | | | |
| RESEARCH WORKERS | M. Aslam, Fida Hussain and Zahid Mahmood | | | | | | | | | | | | | | |
| 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>5m x 1.5 m</td> </tr> <tr> <td>Row to row spacing</td> <td>75 cm</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.</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 | 5m x 1.5 m | Row to row spacing | 75 cm | Plant spacing | 23 cm | Fertilizer | 148: 99:62 NPK kg/ha | Sowing date | Ist fortnight of Feb. |
| “A” & “B” lines | = 94 | | | | | | | | | | | | | | |
| Restorer lines | = 76 | | | | | | | | | | | | | | |
| Plot size | 5m x 1.5 m | | | | | | | | | | | | | | |
| Row to row spacing | 75 cm | | | | | | | | | | | | | | |
| Plant spacing | 23 cm | | | | | | | | | | | | | | |
| Fertilizer | 148: 99:62 NPK kg/ha | | | | | | | | | | | | | | |
| Sowing date | Ist fortnight of Feb. | | | | | | | | | | | | | | |
| PREVIOUS YEAR’S RESULTS | 94 “A & B” lines and 76 “R” lines were harvested during spring, 2015 and seed was collected. | | | | | | | | | | | | | | |
| 2. 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 | Zahid Mehmood, M. Aslam and Fida Hussain | | | | | | | | | | | | | | |
| PROJECT DURATION | Continuous | | | | | | | | | | | | | | |
| LOCATIONS | Faisalabad, Sahiwal, Mianwali, Bhakkar, Muzaffar Garh. | | | | | | | | | | | | | | |

TREATMENTS/
METHODOLOGY

25 A&B lines
ORI-6, ORI-7, ORI- 8, ORI-20, ORI-30, ORI-37, ORI-38, ORI-41, ORI-42, ORI-47, ORI-48, ORI-57, ORI-62, ORI- 69, ORI-75, ORI-76, ORI-78, ORI-79, ORI-81, ORI-88, ORI-89, ORI-92, ORI-102, ORI-105, ORI-106.

30 Restorer lines
RL-6, RL-11, RL-12, RL-16, RL-23, RL-35, RL-38, RL-41, RL-44, RL-47, RL-48, RL-58, RL-60, RL-61, RL-66, RL-67, RL-68, RL-70, RL-72, RL-86, RL-92, RL-93, RL-99, RL-101, RL-102, RL-107, RL-108, RL-109, RL-114, V-214.

| | |
|------------------------|-------------------------|
| Plot size (R-Lines) | 5 m x 1.5 m |
| Plot size (A & B Line) | 5 m x 3.0 m |
| Row spacing | 75 cm |
| Plant spacing | 23 cm |
| Fertilizer | 148: 99:62 NPK kg/ha |
| Sowing date | Ist fortnight of Feb.16 |

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

PREVIOUS YEAR’S
RESULTS

10 “A & B” lines and 10 “R” lines were harvested during spring, 2015 and seed was collected.

3. TITLE

**DEVELOPMENT OF NEW SUNFLOWER
HYBRIDS**

OBJECTIVES

To produce seed of different sunflower hybrids for evaluation of yield and other characters.

RESEARCH WORKERS

Zahid Mahmood, M.Asam and
Fida Hussain

PROJECT DURATION

Continuous

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

Hybrid Seed Production

New combinations = 36

- i) **Short duration inbred lines** = ORI-1, ORI-4, ORI-6, ORI-10, ORI-19, ORI-22, ORI-26, ORI-27, ORI-37, ORI-63, ORI-64, ORI-65, ORI-66, ORI-100, ORI-101, ORI-105.
- ii) **Medium duration inbred lines** = ORI-20, ORI-34, ORI-41, ORI-44, ORI-46, ORI-50, ORI-51, ORI-67, ORI-68, ORI-74, ORI-90, ORI-99, ORI-103.
- iii) **Long duration inbred lines** = ORI-73, ORI-92.

New hybrid combinations viz;

- | | |
|----------------------|----------------------|
| 1. ORI-065 x RL-007 | 19. ORI-044 x RL-050 |
| 2. ORI-099 x RL-008 | 20. ORI-090 x RL-050 |
| 3. ORI-050 x RL-017 | 21. ORI-065 x RL-057 |
| 4. ORI-046 x RL-017 | 22. ORI-065 x RL-066 |
| 5. ORI-004 x RL-021 | 23. ORI-074 x RL-066 |
| 6. ORI-027 x RL-021 | 24. ORI-068 x RL-068 |
| 7. ORI-073 x RL-025 | 25. ORI-066 x RL-068 |
| 8. ORI-006 x RL-036 | 26. ORI-064 x RL-068 |
| 9. ORI-100 x RL-036 | 27. ORI-063 x RL-068 |
| 10. ORI-101 x RL-036 | 28. ORI-092 x RL-069 |
| 11. ORI-105 x RL-036 | 29. ORI-068 x RL-070 |
| 12. ORI-037 x RL-037 | 30. ORI-001 x RL-072 |
| 13. ORI-064 x RL-041 | 31. ORI-010 x RL-072 |
| 14. ORI-051 x RL-046 | 32. ORI-063 x RL-099 |
| 15. ORI-034 x RL-046 | 33. ORI-066 x RL-099 |
| 16. ORI-019 x RL-047 | 34. ORI-022 x RL-100 |
| 17. ORI-026 x RL-047 | 35. ORI-020 x RL-101 |
| 18. ORI-041 x RL-050 | 36. ORI-103 x RL-111 |

Row spacing 75 cm

Plant spacing 23 cm

Fertilizer 148: 99:62NPK kg/ha

Sowing date Ist fortnight of February

“A” lines will be pollinated with the selected “R” lines.

PREVIOUS YEAR'S
RESULTS

22 new hybrids were harvested and seed was collected during spring, 2015.

4. TITLE

**DEVELOPMENT OF NEW SUNFLOWER
INBRED LINES**

OBJECTIVES

To include some more inbred lines in the existing genetic stock for their utilization in synthesis of new sunflower hybrids.

RESEARCH WORKERS

M.Asalam, Fida Hussain and Salahuddin

PROJECT DURATION

Continuous

| | |
|----------------------------|---|
| LOCATIONS | Faisalabad |
| TREATMENTS/ METHODOLOGY | Source population Plot size 30 m x 16.79 m Row to row spacing 75 cm Plant spacing 23 cm Fertilizer 148: 99:62 NPK kg/ha Sowing date 1st fortnight of February Plant with desirable traits will be selected and selfed from source population. |
| PREVIOUS YEAR'S RESULTS | First Year |

5. TITLE STUDY OF NEW SUNFLOWER HYBRIDS

OBJECTIVES To test the performance of newly developed sunflower hybrids.

RESEARCH WORKERS M. Rafiq, Salahuddin and M. Aslam

PROJECT DURATION 2016-17

TREATMENTS/
METHODOLOGY Two trials consisting of 27 hybrids each including two checks will be conducted at ORI, Faisalabad.
Design R.C.B
Repeats 3
Plot size 4.60 m x 2.25 m
Fertilizer 148: 99: 62 NPK kg/ha
Sowing date 1st fortnight of Feb, 2016

PREVIOUS YEAR'S RESULTS Two sets, each of 13 new hybrids were tested at ORI, Faisalabad during Spring, 2015. Results are given below: -

Set-1

| <u>Rank</u> | <u>Hybrids</u> | <u>Yield Kg/ha</u> |
|-------------|----------------|--------------------|
| 1. | Hysun-33 (C) | 2061 |
| 2. | FH-516 | 1916 |
| 3. | FH-610 | 1771 |
| 4. | FH-331 (C) | 1691 |
| 5. | FH-558 | 1417 |
| 13. | FH-425 | 870 |
| | LSD at 5% | 132 |

Set-2

| <u>Rank</u> | <u>Hybrids</u> | <u>Yield Kg/ha</u> |
|-------------|----------------|--------------------|
| 1. | Hysun-33 (C) | 1988 |
| 2. | FH-331 (C) | 1702 |
| 3. | FH-621 | 1594 |
| 4. | FH-616 | 1337 |
| 5. | FH-615 | 1240 |
| 13. | FH-614 | 902 |
| | LSD 5% | 97 |

| | |
|----------------------------|---|
| 6. TITLE | DEMONSTATION TRIAL ON SUNFLOWER HYBRIDS |
| OBJECTIVES | To evaluate performance of newly developed promising hybrids under different agro ecological zones of Punjab. |
| RESEARCH WORKERS | Zahid Mahmood, M. Aslam, Fida Hussain and Salah Uddin. |
| PROJECT DURATION | Four year (2016-20) |
| LOCATIONS | Faisalabad, Mianwali, Muzaffar garh, Bhakkar, Layyah, Khan Pur, Bahawal pur |
| TREATMENTS/ METHODOLOGY | 10 hybrids viz; FH-385, FH-555, FH-572, FH-585, FH-593 and 3 international hybrids Shehnhshah, Gagra-63, GS-30 along with two check Hysun-33 and FH-331 will be planted using standard agronomic and plant protection practices at different locations of Punjab. |
| | Design R.C.B Repeats 3 Plot size according to space available (2 kanal) Fertilizer 148: 99: 62 NPK kg/ha Sowing date 1 st fortnight of Feb, 2016 |
| PREVIOUS YEAR'S RESULTS | 1 st year |
| 7. TITLE | NATIONAL UNIFORM SUNFLOWER YIELD TRIAL |
| OBJECTIVES | To test the performance of different hybrids under different agro-ecological conditions in the county. |
| RESEARCH WORKERS | M.Rafiq and Salahuddin |
| PROJECT DURATION | Continuous |

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

Hybrids received from PARC, Islamabad.

Layout will be done according to the instructions received with the material. Soil will be analyzed before sowing for its fertility.

PREVIOUS YEAR'S
RESULTS**Seed Yield of Sunflower Hybrids**

| <u>Rank No.</u> | <u>Hybrids</u> | <u>Yield Kg/ha</u> |
|------------------------|-----------------------|---------------------------|
| 1. | SF-15029 | 1957 |
| 2. | SF-15067 | 1860 |
| 3. | SF- 15022 | 1800 |
| 4. | SF-15042 | 1787 |
| 5. | SF-15073 | 1667 |
| 18. | SF-15049 | 1292 |
| | LSD at 5% | 312 |

8. TITLE**SOWING DATE TRIAL ON SUNFLOWER HYBRID**

OBJECTIVES

To find out the best sowing date for sunflower hybrids.

RESEARCH WORKERS

M.Rafiq and Zahid Mahmood

PROJECT DURATION

Two years (Spring 2016 - Spring 2017)

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

Sunflower hybrid FH-331, FH-516.FH-572 and FH-593 will be sown on 11 dates at 1-week interval, w.e.f. 01.01.2016 to 04.3.2016.

Design R.C.B.

Repeats 3

Plot size 4.5m x 12 m

Fertilizer 148: 99:62 NPK, kg/ha

The data on yield and yield contributing parameters will be recorded.

PREVIOUS YEAR'S
RESULTS

| <u>Sowing Date</u> | <u>Seed Yield (kg/ha)</u> |
|---------------------------|----------------------------------|
| 01/01/2015 | 2644 |
| 08/01/2015 | 2789 |
| 15/01/2015 | 1867 |
| 22/01/2015 | 1656 |
| 29/01/2015 | 1889 |
| 05/02/2015 | 1789 |
| 13/02/2015 | 1778 |
| 21/02/2015 | 2133 |
| 28/02/2015 | 1933 |
| 07/03/2015 | 978 |
| LSD at 5% | 80 |

9. TITLE **FERTILIZER USE EFFICIENCY OF NEWLY DEVELOPED SUNFLOWER HYBRID**

OBJECTIVES To test the performance of FH-572 at varying doses of nitrogen and phosphorus under Faisalabad conditions.

RESEARCH WORKERS M.Rafiq and M.Aslam

PROJECT DURATION 2016-17

LOCATIONS Faisalabad

**TEATMENTS/
METHODOLOGY**

Design Split plot
 Repeats 3
 Plot size 1.5 m x 5.0 m
 Fertilizer A = P₂O₅ (Main plot)
 Hybrid = FH-572
 P₀ = No P
 P₁ = 99 kg/ha (standard)
 P₂ = 99 + 30% increase (99+30=129 kg/ha)
 P₃ = 99 + 45% increase (99+45=144 kg/ha)
 P₄ = 99 + 60% increase (99+60=159 kg/ha)
 B = Nitrogen (subplots)
 N₀ = No N
 N₁ = 148 kg/ha (standard)
 N₂ = 148 + 15% increase (148+22=170 kg/ha)
 N₃ = 148 + 30% increase (148+44=192 kg/ha)
 N₄ = 148 + 45% increase (148+67=215 kg/ha)
 N₅ = 148 + 60% increase (148+89=237 kg/ha)
 Potash will be applied as per recommendations @ 62 kg/ha.
 Whole of the P₂O₅ and K₂O will be applied at seed bed preparation. Nitrogen will be applied in 3 equal splits i.e., at seed bed preparation, with second irrigation and at flowering.
 The data on yield and yield contributing Parameters will be recorded using standard procedures.
 NOTE: soil analysis will be done before and after the conducting of the experiment.

PREVIOUS YEAR'S RESULTS

| P levels | Nitrogen Levels | | | | | Mean |
|----------|-----------------|-------------|-------------|-------------|-------------|-------------|
| | N1 | N2 | N3 | N4 | N5 | |
| P1 | 2674 | 2598 | 1607 | 1683 | 1607 | 2033 |
| P2 | 2261 | 1829 | 1982 | 2287 | 2769 | 2225 |
| P3 | 2591 | 2261 | 1956 | 1905 | 3023 | 2347 |
| P4 | 1702 | 1905 | 2668 | 2718 | 1956 | 2189 |
| Mean | 2307 | 2148 | 2053 | 2148 | 2339 | |

LSD at 5% for Interaction = 78

$P_1 = 99 \text{ kg/ha}$ (standard)

$P_2 = 99 + 30\% \text{ increase}(99+30=129 \text{ kg/ha})$

$P_3 = 99 + 45\% \text{ increase}(99+45=144 \text{ kg/ha})$

$P_4 = 99 + 60\% \text{ increase}(99+60=159 \text{ kg/ha})$

B = Nitrogen (subplots)

$N_0 = 148 \text{ kg/ha}$ (standard)

$N_1 = 148 + 15\% \text{ increase}(148+22=170 \text{ kg/ha})$

$N_2 = 148 + 30\% \text{ increase}(148+44=192 \text{ kg/ha})$

$N_3 = 148 + 45\% \text{ increase}(148+67=215 \text{ kg/ha})$

$N_4 = 148 + 60\% \text{ increase}(148+89=237 \text{ kg/ha})$

| | |
|----------------------------|---|
| | <u>B. AUTUMN</u> |
| 10. 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 | Zahid Mahmood, M.Asalam and Fida Hussain |
| PROJECT DURATION | Continuous |
| LOCATIONS | Faisalabad |
| TREATMENTS/ METHODOLOGY | 10 “A” & “B” lines 10 “R” lines Seed of 10 “A” and “R” lines will be produced based on results of spring, 2016. Plot size As per seed requirements Row spacing 75 cm Plant spacing 23 cm Fertilizer 148: 99:62 NPK kg/ha Sowing date I st fortnight of August 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 10 “A” and “R” lines were harvested and seed was collected based on results of spring, 2015. |
| 11. TITLE | DEVELOPMENT OF NEW SUNFLOWER HYBRIDS |
| OBJECTIVES | To produce seed of different hybrids for evaluation of yield and other characteristics. |
| RESEARCH WORKERS | Zahid Mahmood, M. Aslam and Fida Hussain |
| PROJECT DURATION | Continuous nature |
| LOCATIONS | Faisalabad |
| TREATMENT/ METHODOLOGY | “A” lines = 8 “ R ” lines = 4 Row spacing 75 cm Plant spacing 23 cm Fertilizer 148 : 99:62 NPK kg/ha Sowing date I st fortnight of August “A” lines will be pollinated with the pollen collected from “R” lines. |

PREVIOUS YEAR'S RESULTS

Fifteen combinations will be made and these would be tested in the next season.
Seed of 11 Sunflower hybrids was produced during autumn 2015.

| 12. TITLE | STUDY OF NEW SUNFLOWER HYBRIDS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|----------------------|---------------|----------------------|----|--------|------|----|--------|------|----|--------|-----|----|------------|-----|----|--------|-----|----|--------|-----|-----|--------|-----|--|-----------|----|
| OBJECTIVES | To test the performance of newly developed sunflower hybrids. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RESEARCH WORKERS | M .Rafiq, Salahuddin and M.Asam | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROJECT DURATION | 2015-16 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOCATIONS | Faisalabad | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TREATMENTS/ METHODOLOGY | A trial on newly developed hybrids including two checks will be conducted at ORI, Faisalabad. Design R.C.B Repeats 3 Plot size 5m x 3 m Fertilizer 148: 99:62 NPK kg/ha Sowing date 1 st fortnight of August | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PREVIOUS YEAR'S RESULTS | A set of 17 hybrids were tested at ORI, Faisalabad Results are given below:- <table border="0" style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;"><u>Rank</u></th> <th style="text-align: left;"><u>Hybrid</u></th> <th style="text-align: left;"><u>Yield (kg/ha)</u></th> </tr> </thead> <tbody> <tr><td>1.</td><td>FH-516</td><td>1449</td></tr> <tr><td>2.</td><td>FH-600</td><td>1104</td></tr> <tr><td>3.</td><td>FH-533</td><td>966</td></tr> <tr><td>4.</td><td>FH-331 (C)</td><td>966</td></tr> <tr><td>5.</td><td>FH-586</td><td>897</td></tr> <tr><td>6.</td><td>FH-572</td><td>828</td></tr> <tr><td>17.</td><td>FH-592</td><td>276</td></tr> <tr><td></td><td>LSD at 5%</td><td>67</td></tr> </tbody> </table> | <u>Rank</u> | <u>Hybrid</u> | <u>Yield (kg/ha)</u> | 1. | FH-516 | 1449 | 2. | FH-600 | 1104 | 3. | FH-533 | 966 | 4. | FH-331 (C) | 966 | 5. | FH-586 | 897 | 6. | FH-572 | 828 | 17. | FH-592 | 276 | | LSD at 5% | 67 |
| <u>Rank</u> | <u>Hybrid</u> | <u>Yield (kg/ha)</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. | FH-516 | 1449 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. | FH-600 | 1104 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. | FH-533 | 966 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. | FH-331 (C) | 966 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. | FH-586 | 897 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. | FH-572 | 828 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17. | FH-592 | 276 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LSD at 5% | 67 | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|------------------|--|
| 13. TITLE | DEVELOPMENT OF NEW SUNFLOWER INBRED LINES |
| OBJECTIVES | To add fresh inbred lines in the existing genetic stock for their utilization in synthesis of new sunflower hybrids. |
| RESEARCH WORKERS | M.Asam, Fida Hussain, Salahuddin and Zahid Mahmood |
| PROJECT DURATION | Continuous |
| LOCATIONS | Faisalabad |

**TREATMENTS/
METHODOLOGY**

The seed harvested from the selected plants in spring, 2016 will be sown in progeny rows. Plant to row progeny will be selfed.

| | |
|--------------------|-------------------------------------|
| 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 | I st fortnight of Aug.16 |

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

**PREVIOUS YEAR'S
RESULTS**

Plants with desirable traits were selected, selfed and seed harvested for further Selection.

SESAME:**14. TITLE****MAINTENANCE AND EVALUATION OF
SESAME GENE POOL**

OBJECTIVES

To maintain and evaluate the sesame genetic stock for utilization in breeding programme.

RESEARCH WORKERS

M. Anwar, M. Aftab and Salahuddin

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

Entries = 78

| | |
|-------------|------------------|
| Repeats | Non-replicated |
| Plot size | 5 m x 0.90 m |
| Fertilizer | 60 : 60 NP kg/ha |
| Sowing date | June |

PREVIOUS YEAR'S
RESULTS

78 entries were sown and harvested.

15. TITLE**SESAME HYBRIDIZATION PROGRAMME**

OBJECTIVES

To create new genetic combinations for the development of high yielding sesame varieties.

RESEARCH WORKERS

M. Anwar and M. Aftab

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

| Parents: | Characteristics |
|----------|---|
| 96019 | High yielding, single stem, long pod |
| 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 | More locules, single stem |
| Korea-1 | Branched and disease tolerant |

Following crosses will be made:

1. 96019 x 50022
2. TH-6 x 92001
3. 92001 x 50022
4. 50022 x M.L.6-8/12
5. 40009 x 92001
6. 50009 x 96019
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, 2016 |

11 successful crosses were harvested.

PREVIOUS YEAR'S
RESULTS

16. TITLE

STUDY OF SESAME FILIAL GENERATIONS

OBJECTIVES

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

RESEARCH WORKERS

M. Anwar and M. Aftab

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

| | |
|-----------------------------|---|
| F ₁ = 11 crosses | F ₂ = 06 crosses |
| F ₃ = 08 crosses | F ₄ = 10 crosses |
| F ₅ = 06 crosses | F ₆ = single plant selection |
| Repeats | Non-replicated |
| Plot size | 5 m x 3.60 m |
| Fertilizer | 60 : 60 NP kg/ha |
| Sowing date | June, 2016 |

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.

| | |
|-----------------------------|-------------------------------|
| F ₁ = 06 crosses | F ₂ = 08 crosses |
| F ₃ = 10 crosses | F ₄ = 06 crosses |
| F ₅ = 04 crosses | F ₆ = 05 progenies |

| 17. TITLE | SESAME PRELIMINARY SEED YIELD TRIAL | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|---------------------------|-------------|---------------------------|----|-------|------|----|-------|------|----|-------|------|----|-------|-----|----|-------|-----|-----|------|-----|-----|-------|-----|--|-----------|-----|
| OBJECTIVES | To study the yield performance of newly developed sesame lines. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RESEARCH WORKERS | M. Anwar and M. Aftab | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROJECT DURATION | Continuous nature | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOCATIONS | Faisalabad | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TREATMENTS/ METHODOLOGY | <p>Entries:14 viz; 16001,,16002,16003, 16004, 16005, 86001, 87005, 50007, 87006, 87005,77011, 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, 2016</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>50009</td> <td>1324</td> </tr> <tr> <td>2.</td> <td>50022</td> <td>1176</td> </tr> <tr> <td>3.</td> <td>96020</td> <td>1000</td> </tr> <tr> <td>4.</td> <td>70002</td> <td>995</td> </tr> <tr> <td>5.</td> <td>40009</td> <td>976</td> </tr> <tr> <td>12.</td> <td>TH-6</td> <td>701</td> </tr> <tr> <td>15.</td> <td>50007</td> <td>586</td> </tr> <tr> <td></td> <td>LSD at 5%</td> <td>132</td> </tr> </tbody> </table> | <u>Rank</u> | <u>Line</u> | <u>Seed Yield (kg/ha)</u> | 1. | 50009 | 1324 | 2. | 50022 | 1176 | 3. | 96020 | 1000 | 4. | 70002 | 995 | 5. | 40009 | 976 | 12. | TH-6 | 701 | 15. | 50007 | 586 | | LSD at 5% | 132 |
| <u>Rank</u> | <u>Line</u> | <u>Seed Yield (kg/ha)</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. | 50009 | 1324 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. | 50022 | 1176 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. | 96020 | 1000 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4. | 70002 | 995 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. | 40009 | 976 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12. | TH-6 | 701 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15. | 50007 | 586 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LSD at 5% | 132 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18. TITLE | SESAME ADVANCED YIELD TRIAL | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OBJECTIVES | To evaluate promising sesame lines for their seed yield and oil content. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RESEARCH WORKERS | M. Anwar, M. Aftab and Salahuddin | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROJECT DURATION | Continues nature | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOCATIONS | Faisalabad | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TREATMENTS/ METHODOLOGY | <p>Entries: 09 viz; 40009, 70002, 50009, 50022, 96020, 87002, 87001, 70005 and TS-5 (check).</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,
 Data on yield and yield components i.e. Plant height, branches/plant, capsules/plant and 1000 seed weight will be recorded.

PREVIOUS YEAR'S RESULTS

| <u>Rank</u> | <u>Line</u> | <u>Seed Yield (kg/ha)</u> |
|-------------|-------------|---------------------------|
| 1. | 40004 | 1204 |
| 2. | 40021 | 775 |
| 3. | 95001 | 774 |
| 4. | 87008 | 771 |
| 5. | 70005 | 768 |
| 8. | TS-5 (C) | 511 |
| 10. | TH-6 (C) | 418 |
| | LSD at 5% | 185 |

19. TITLE

SESAME ZONAL YIELD TRIAL

OBJECTIVES

To test the performance of promising sesame strains under different agro ecological zones of the Punjab

RESEARCH WORKERS

M. Anwar, M. Aftab and Salahuddin

PROJECT DURATION

2016

LOCATIONS

Five viz; Faisalabad, Bahawalnagar, Khanpur, Karor and Piplan

**TREATMENTS/
METHODOLOGY**

Entries = 10 viz
 40004, 40021, 87008, 20011, 40012, 10003, 50011,
 70002, Black Til and TS-5 (check).
 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,

PREVIOUS YEAR'S
RESULTS

The results are as under:-

| Sr. No. | Variety/Line | Seed Yield (kg/ha) | | |
|------------|--------------|--------------------|--------|------|
| | | F/Abad | Piplan | Avg. |
| 1. | 50011 | 867 | 815 | 841 |
| 2. | 50022 | 742 | 704 | 723 |
| 3. | 70004 | 795 | 556 | 676 |
| 4. | 10003 | 606 | 741 | 674 |
| 5. | 40012 | 731 | 537 | 634 |
| 6. | TS-5 (C) | 706 | 519 | 613 |
| 7. | Black Til | 556 | 343 | 450 |
| 8. | TH-6 (C) | 350 | 463 | 407 |
| | LSD at 5% | | | 221 |

20. TITLE**NATIONAL UNIFORM SESAME YIELD TRIAL**

OBJECTIVES

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

RESEARCH WORKERS

M. Anwar and M. Aftab

PROJECT DURATION

2016

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

Due to construction of water channel, irrigation of canal water was not available. Therefore, data was not presentable.

21. TITLE**SOWING METHODS TRIAL ON SESAME**

OBJECTIVES

To find out the best sowing method for sesame

RESEARCH WORKERS

M. Rafiq and M. Anwar

PROJECT DURATION

2016 -18

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

A. Sowing Methods (sub-plot) = 3

1. Broadcast

2. Line sowing in 45 cm apart rows.

3. Seed broadcasting and then ridge making.

B. variety (TH-6)

| | |
|------------|-----------------|
| Design | R.C.B. |
| Repeats | 03 |
| Plot size | 3.0 m x 12 m |
| Fertilizer | 60:60 NP, kg/ha |

The data on yield and yield contributing parameters will be recorded.

PREVIOUS YEAR'S
RESULTS

Ist Year.

22. TITLE

SEED MULTIPLICATION OF SESAME

OBJECTIVE

To multiply the seed of commercial variety and promising strains to be used in experiments and for supplying to Punjab Seed Corporation and progressive growers.

RESEARCH WORKER (S)

Tanveer A.Kalyar, M. Aftab and M. Anwar

PROJECT DURATION

Continuous nature

LOCATIONS

Two viz; Faisalabad and Piplan

TREATMENTS/
METHODOLOGY

Approved Varieties: TH-6 and TS-5

| | |
|-------------|------------------|
| Row spacing | 45 cm |
| Fertilizer | 60 : 60 NP kg/ha |
| Sowing date | June |

PREVIOUS YEAR'S
RESULTS

Prebasic and basic seed of TH-6 and TS-5 was produced for experiments and distribution among progressive growers.

The detail of seed is as under: -

1. TH-6 = 880 kg
2. TS-5 = 875 kg

SOYBEAN:**23. TITLE** **MAINTENANCE AND EVALUATION OF SOYBEAN GENE POOL**

OBJECTIVES To maintain, evaluate soybean germplasm for utilization in breeding programme.

RESEARCH WORKERS A.Qayyum, M. Aftab and Salahuddin

PROJECT DURATION Continuous nature

LOCATIONS Faisalabad

**TREATMENTS/
METHODOLOGY**

Entries = 232

Repeats Non-replicated

Plot size 5m x 0.6 m

Row spacing 30 cm

Fertilizer 60 : 100 NP kg/ha

Sowing time End July to Mid August

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.

PREVIOUS YEAR'S RESULTS 232 entries were evaluated and maintained

| Seed Yield data of germplasm (kg/ha) : | | |
|---|-----------------|-----------------------|
| Sr. No. | Range | No. of Entries |
| 1. | 1500-2000 kg/ha | 25 |
| 2. | 800-1300 kg/ha | 58 |
| 3. | 600-1000 kg/ha | 105 |
| 4. | Below 500 kg/ha | 44 |

24. TITLE **SOYBEAN HYBRIDIZATION PROGRAMME**

OBJECTIVE To create genetic variability by making crosses among the elite lines/cultivar possessing desirable traits.

RESEARCH WORKERS A.Qayyum and M.Aftab

PROJECT DURATION Continuous nature

LOCATIONS Faisalabad

| | | | | | | | | | | | | | |
|----------------------------|--|---------|----------------|-----------|------------|------------|------------------|-------------|-------|-------------|------------------|-------------|------------------------------|
| TREATMENTS/ METHODOLOGY | <p>Parents = 6</p> <p>95-2, DUGLAS, Spaks, SS-183, Lakota and HM 8468, High Yields Disease tolerant</p> <p>Following crosses will be made:</p> <ol style="list-style-type: none"> 1. 95-2 X SS-183 2. DUGLAS X Spaks 3. 95-2 X Lakota 4. HM8468 X Spaks 5. 95-2 X HM8468 6. SS-183 x Lakota <table border="0" style="margin-left: 40px;"> <tr> <td>Repeats</td> <td>Non-replicated</td> </tr> <tr> <td>Plot size</td> <td>5m x 0.6 m</td> </tr> <tr> <td>Fertilizer</td> <td>60: 100 NP kg/ha</td> </tr> <tr> <td>Row spacing</td> <td>30 cm</td> </tr> <tr> <td>Sowing date</td> <td>August</td> </tr> </table> | Repeats | Non-replicated | Plot size | 5m x 0.6 m | Fertilizer | 60: 100 NP kg/ha | Row spacing | 30 cm | Sowing date | August | | |
| Repeats | Non-replicated | | | | | | | | | | | | |
| Plot size | 5m x 0.6 m | | | | | | | | | | | | |
| Fertilizer | 60: 100 NP kg/ha | | | | | | | | | | | | |
| Row spacing | 30 cm | | | | | | | | | | | | |
| Sowing date | August | | | | | | | | | | | | |
| PREVIOUS YEAR'S RESULTS | 6 crosses were attempted and 4 were successful. | | | | | | | | | | | | |
| 25. TITLE | PRELIMINARY SEED YIELD TRIAL OF PROMISING SOYBEAN LINES | | | | | | | | | | | | |
| OBJECTIVES | To evaluate yield performance of elite soybean lines | | | | | | | | | | | | |
| RESEARCH WORKERS | A.Qayyum and M.Aftab | | | | | | | | | | | | |
| PROJECT DURATION | Continuous nature | | | | | | | | | | | | |
| LOCATIONS | Faisalabad | | | | | | | | | | | | |
| TREATMENTS/ METHODOLOGY | <p>Entries: 14</p> <p>HM-8468, Black Hack, Carlin, MS-4, SPAKS, DUGLAS, No. 12, Bossier, Lakota, SS-183, RX (48-52-1), L-16, 95-2 and ADA.</p> <table border="0" style="margin-left: 40px;"> <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 0.6 m</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>End July to Mid August, 2016</td> </tr> </table> <p>Data on yield and yield components i.e. Plant height, branches/plant, pods/plant and 100 seed weight will be recorded. Regular plant protection measures will be provided.</p> | Design | R.C.B | Repeats | 3 | Plot size | 5m x 0.6 m | Row spacing | 30 cm | Fertilizer | 60: 100 NP kg/ha | Sowing time | End July to Mid August, 2016 |
| Design | R.C.B | | | | | | | | | | | | |
| Repeats | 3 | | | | | | | | | | | | |
| Plot size | 5m x 0.6 m | | | | | | | | | | | | |
| Row spacing | 30 cm | | | | | | | | | | | | |
| Fertilizer | 60: 100 NP kg/ha | | | | | | | | | | | | |
| Sowing time | End July to Mid August, 2016 | | | | | | | | | | | | |

PREVIOUS YEAR'S
RESULTS

| Seed Yield Data of different lines | | |
|---|-----------------------------|-------------------------------|
| S.No. | Name of Line/Variety | Seed Yield (kg/ha) |
| 1. | FS-10 | 2069 |
| 2. | Faisal Soybean | 1740 |
| 3. | RX(48-52-1) | 1672 |
| 12. | Ajmeri | 540 |

Data showed that promising line FS-10 gave highest seed yield of 2069 kg/ha followed by the check variety Faisal Soybean with seed yield of 1740 kg/ha. Minimum seed yield was recorded for variety Ajmeri with seed yield of 540 kg/ha.

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

OBJECTIVES

To evaluate yield performance of elite soybean lines

RESEARCH WORKERS

A.Qayyum and M.Aftab

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

Entries: 08

FS-60, FS-.10, RX (48-52-1), S39-40, E-402, R-315, Valder, SK-5, Ajmeri (c) and Faisal Soybean (c).

Design R.C.B

Repeats 3

Plot size 5m x 0.6 m

Row spacing 30 cm

Fertilizer 60: 100 NP kg/ha

Sowing time End July to Mid August.

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

PREVIOUS YEAR'S
RESULTS

1st year

27. TITLE**PERFORMANCE OF SOYBEAN UNDER VARIOUS PLANT AND ROW SPACING**

OBJECTIVES

To find out optimum yield potential of soybean under different plant and row spacing

RESEARCH WORKERS

A.Qayyum, M.Aftab and M.Rafiq

PROJECT DURATION
LOCATIONS

Continuous nature
Faisalabad

TREATMENTS/
METHODOLOGY

a. Variety = Faisal soybean
b. Row spacing = 3 (Main Plot)
RS1= 20cm
RS2= 30cm
RS3=40cm
c. Plant spacing = 4 (Sub-Plot)
PS1= 5.0 cm
PS2=7.5 cm
PS3= 10 cm
PS4= 12.5 cm

Design Split plot
Repeats 3
Plot size 5m x 1.2 m
Fertilizer 60: 100 NP kg/ha
Sowing time Mid August

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

PREVIOUS YEAR'S
RESULTS

Seed Yield Data under Various Plant and Row Spacing

| Row Spacing | Plant Spacing | Seed Yield Kg/ha |
|--------------------------|-------------------------|-------------------------|
| Row Spacing 1 (20 cm) | Plant Spacing 1 (5cm) | 840 |
| | Plant Spacing 2 (10 cm) | 644 |
| | Plant Spacing 3 (15 cm) | 668 |
| Row Spacing 2 (30 cm) | Plant Spacing 1 (5cm) | 1007 |
| | Plant Spacing 2 (10 cm) | 867 |
| | Plant Spacing 3 (15 cm) | 620 |
| Row Spacing 3 (40 cm) | Plant Spacing 1 (5cm) | 880 |
| | Plant Spacing 2 (10 cm) | 737 |
| | Plant Spacing 3 (15 cm) | 522 |

TORIA:

| | | | | | | | | | | | |
|----------------------------|--|---------|----------------|-----------|-------------|------------|-----------------|-------------|-------|-------------|--------------------------------------|
| 28. TITLE | COLLECTION AND MAINTENANCE OF TORIA GERMPLASM | | | | | | | | | | |
| OBJECTIVES | To maintain and evaluate germplasm for utilization in breeding programme of toria. | | | | | | | | | | |
| RESEARCH WORKERS | A.Qayyum, M. Aftab and Salahuddin | | | | | | | | | | |
| PROJECT DURATION | Continuous nature | | | | | | | | | | |
| LOCATIONS | Faisalabad | | | | | | | | | | |
| TREATMENTS/ METHODOLOGY | <p>Entries = 4, viz; Toria Selection A , Chinese Rapa, TS/1 and Chakwal selection</p> <table border="0"> <tr> <td>Repeats</td> <td>Non-replicated</td> </tr> <tr> <td>Plot size</td> <td>5m x 0.45 m</td> </tr> <tr> <td>Fertilizer</td> <td>75: 75 NP kg/ha</td> </tr> <tr> <td>Row spacing</td> <td>45 cm</td> </tr> <tr> <td>Sowing date</td> <td>Ist week of August, 2016</td> </tr> </table> <p>Available genotypes will be maintained through random mating under time and space isolation.</p> | Repeats | Non-replicated | Plot size | 5m x 0.45 m | Fertilizer | 75: 75 NP kg/ha | Row spacing | 45 cm | Sowing date | I st week of August, 2016 |
| Repeats | Non-replicated | | | | | | | | | | |
| Plot size | 5m x 0.45 m | | | | | | | | | | |
| Fertilizer | 75: 75 NP kg/ha | | | | | | | | | | |
| Row spacing | 45 cm | | | | | | | | | | |
| Sowing date | I st week of August, 2016 | | | | | | | | | | |
| PREVIOUS YEAR'S RESULTS | The germplasm entries were maintained through sib mating under net tunnel. Seed of Toria selection A, Chinese Rapa, TS/1 and Chakwal Selection was collected for further studies. | | | | | | | | | | |
| 29. TITLE | DEVELOPMENT OF TORIA COMPOSITE VARIETY | | | | | | | | | | |
| OBJECTIVES | To develop high yielding, disease tolerant and better oil content variety. | | | | | | | | | | |
| RESEARCH WORKERS | A.Qayyum and M. Aftab | | | | | | | | | | |
| PROJECT DURATION | Continuous nature | | | | | | | | | | |
| LOCATIONS | Faisalabad | | | | | | | | | | |

| | | | | | | | | | |
|----------------------------|---|---------------|------------------------------------|-------------|-----------------|-------------|-----------------|-------------|--|
| TREATMENTS/ METHODOLOGY | 100 Selected plants on the basis of plant-to-row progenies will be composited to raise open pollinated population for random matting. The recurrent selection method will be preceded till yield improvement persists. | | | | | | | | |
| | <table border="0"> <tr> <td>Plot size</td> <td>5m x 0.45 m</td> </tr> <tr> <td>Fertilizer</td> <td>75: 75 NP kg/ha</td> </tr> <tr> <td>Row spacing</td> <td>45 cm</td> </tr> <tr> <td>Sowing date</td> <td>Ist week of August, 2016</td> </tr> </table> | Plot size | 5m x 0.45 m | Fertilizer | 75: 75 NP kg/ha | Row spacing | 45 cm | Sowing date | I st week of August, 2016 |
| Plot size | 5m x 0.45 m | | | | | | | | |
| Fertilizer | 75: 75 NP kg/ha | | | | | | | | |
| Row spacing | 45 cm | | | | | | | | |
| Sowing date | I st week of August, 2016 | | | | | | | | |
| | The remnant seed of the better performing plants will be mixed in equal quantities to raise crop for random matting in isolation. | | | | | | | | |
| PREVIOUS YEAR'S RESULTS | 100 plant to row progenies were marked better on the basis of yield performance to run next recurrent cycle. | | | | | | | | |
| 30. TITLE | DEVELOPMENT OF HEAT TOLERANT TORIA GENOTYPES | | | | | | | | |
| OBJECTIVES | To develop heat tolerant genotypes for early sowing of Toria. | | | | | | | | |
| RESEARCH WORKERS | M. Aftab and A.Qayyum | | | | | | | | |
| LOCATIONS | Faisalabad | | | | | | | | |
| TREATMENTS/ METHODOLOGY | Seed of heat tolerant plants . | | | | | | | | |
| | <table border="0"> <tr> <td>Plot size</td> <td>5m x 0.45 m</td> </tr> <tr> <td>Row spacing</td> <td>45 cm</td> </tr> <tr> <td>Fertilizer</td> <td>75: 75 NP kg/ha</td> </tr> <tr> <td>Sowing date</td> <td>Ist July, 2016 to 1st August, 2016 (15 days interval).</td> </tr> </table> | Plot size | 5m x 0.45 m | Row spacing | 45 cm | Fertilizer | 75: 75 NP kg/ha | Sowing date | I st July, 2016 to 1 st August, 2016 (15 days interval). |
| Plot size | 5m x 0.45 m | | | | | | | | |
| Row spacing | 45 cm | | | | | | | | |
| Fertilizer | 75: 75 NP kg/ha | | | | | | | | |
| Sowing date | I st July, 2016 to 1 st August, 2016 (15 days interval). | | | | | | | | |
| | <table border="0"> <tr> <td>Sowing Method</td> <td>1. Flat sowing 2. Ridge sowing.</td> </tr> </table> | Sowing Method | 1. Flat sowing 2. Ridge sowing. | | | | | | |
| 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 5 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**31. TITLE****DEVELOPMENT OF INBRED LINES**

OBJECTIVE

To develop short duration synthetic castor bean varieties for better adaptability and high seed yield.

RESEARCH WORKER (S)

Busharat Hussain and
Tariq Mahmood

PROJECT DURATION

Continuous nature

LOCATION

Faisalabad

TREATMENTS/
METHODOLOGY

| <u>S.No.</u> | <u>Selfed generation</u> | <u>No. of progenies</u> |
|--------------|--------------------------|-------------------------|
| 1. | S ₁ | 50 |
| 2. | S ₂ | 45 |
| 3. | S ₃ | 63 |
| 4. | S ₄ | 45 |
| 5. | S ₅ | 22 |
| 6. | S ₆ | 08 |
| 7. | S ₇ | 05 (lines) |

| | |
|------------------------|------------------|
| 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, 2016 |

The progenies will be selfed by bagging the primary raceme. 3–4 desirable plants will be selfed in each entry.

PREVIOUS YEAR'S
RESULTS

Selfed material was collected for further studies.

32. TITLE**MAINTENANCE OF INBRED LINES**

OBJECTIVE

To maintain the available genetic stock for their utilization for developing the new synthetic varieties

RESEARCH WORKER (S)

Busharat Hussain and Tariq Mahmood

PROJECT DURATION

Continuous nature

| | |
|----------------------------|--|
| LOCATION | Faisalabad |
| TREATMENTS/ METHODOLOGY | <p>Entries = 08</p> <p>Repeats Non-replicated Plot size 5 x 1 m Fertilizer 60 : 60 NP kg/ha Sowing date Mid June, 2016 The inbred line will be planted in isolation, so that the selfing may be ensured for their uniformity.</p> |
| PREVIOUS YEAR'S RESULTS | Seed of inbred lines was collected. |
| 33. TITLE | DEVELOPMENT OF CASTOR BEAN SYNTHETIC VARIETY |
| OBJECTIVES | Development of high yielding synthetic variety of castor bean using inbred lines with better GCA. |
| RESEARCH WORKERS | Busharat Hussain and Salahuddin |
| PROJECT DURATION | Continuous nature |
| LOCATIONS | Faisalabad |
| TREATMENTS/ METHODOLOGY | <p>Entries = 08 (07 test cross combinations and DS-30 (Check)</p> <p>Design R.C.B. Repeats 03 Plot size 6 m x 3 m Row Spacing 1 m Fertilizer 60 : 60 NP kg/ha Sowing date Mid June, 2016</p> <p>Data on plant height, branches/plant, days to flowering, days to maturity, primary raceme length, seeds/primary raceme, No. of raceme/plant, 100 seed weight, seed yield/plant, seed yield /plot will be recorded. After compilation the data, GCA will be estimated.</p> |
| PREVIOUS YEAR'S RESULTS | 7 test cross combinations were harvested and seed was collected for further study. |

| | | | | | | | | | | | | | | | |
|----------------------------|--|--------|--------|---------|---|-----------|---------|-------------|-----|---------------|-----|------------|------------------|-------------|----------------|
| 34. TITLE | ZONAL TRIAL OF CASTOR BEAN | | | | | | | | | | | | | | |
| OBJECTIVE | To evaluate the yield performance and suitability of advanced lines of castor bean in different ecological zones of Punjab. | | | | | | | | | | | | | | |
| RESEARCH WORKER (S) | Busharat Hussain and Tariq Mahmood | | | | | | | | | | | | | | |
| PROJECT DURATION | 2014-16 | | | | | | | | | | | | | | |
| LOCATIONS | Faisalabad, Bahawalpur, Khanpur and Piplan | | | | | | | | | | | | | | |
| TREATMENTS/ METHODOLOGY | <p>Entries = 08 viz; S-4, S-15, S-29, KR-20, KR-30, FS-90, FS-2000 & DS-30 (check)</p> <table border="0"> <tr> <td>Design</td> <td>R.C.B.</td> </tr> <tr> <td>Repeats</td> <td>4</td> </tr> <tr> <td>Plot size</td> <td>5 x 4 m</td> </tr> <tr> <td>Row spacing</td> <td>1 m</td> </tr> <tr> <td>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, 2016</td> </tr> </table> | 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, 2016 |
| 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, 2016 | | | | | | | | | | | | | | |
| PREVIOUS YEAR'S RESULTS | Crop is in the field. Harvesting and threshing of trial is yet to be done. | | | | | | | | | | | | | | |

OIL SEEDS PATHOLOGY

| | |
|----------------------------|---|
| 35. 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 and Qamar A. Tufail |
| PROJECT DURATION | Continuous nature |
| LOCATIONS | Faisalabad |
| TREATMENTS/ METHODOLOGY | Available sunflower hybrids will be tested. 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. ❖ 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 2015, 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-606, FH-610, FH-613, FH-617, FH-620, FH-622 | 6 |
| C | Infection covered the stem length 21-30 cm | Moderately Resistant (MR) | FH-607, FH-609, FH-612, FH-615, FH-618, FH-621 | 6 |
| D | Infection covered the stem length 31cm or above | Susceptible | FH-611, FH-614, FH-616, FH-619 | 4 |
| | | | Total | 16 |

36. **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 (*Marcophomina phaseolina*)

RESEARCH WORKERS

Qamar A.Tufail and Ahsan Mohyo-U-din

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad

**TREATMENTS/
METHODOLOGY**

Sunflower hybrids to be supplied by PARC, Islamabad.

Design: R.C.B.

Repeats: 3

Plot size: 4.6 m x .75 m

Plant spacing: 23 cm

Row Spacing: 75 cm

Fertilizer: 148: 99:62 NPK kg/ha

Sowing date: 1st fortnight of February, 2016

- ❖ 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**

18 hybrids 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) | 15001,15088,15095,15097,15099 | 5 |
| C | Infection covered the stem length 21-30 cm | Moderately Resistant (MR) | 15007,15015,15022,15029,15034,15042,15049,15062,15067,15073,15078,15096 | 12 |
| D | Infection covered the stem length 31cm or above | Susceptible | 15055 | 1 |
| | | | Total | 18 |

37. 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 Qamar A.Tufail and Ahsan Mohyo-U-din

PROJECT DURATION Continuous nature

LOCATIONS Faisalabad

TREATMENTS
METHODOLOGY Elite sunflower entries/hybrids

Design: R.C.B.
Plot size: 4.6 m x 3 m
Replicates: 3
Plant spacing: 23 cm
Row Spacing: 75 cm
Fertilizer: 148: 99:62 NPK kg/ha
Sowing date: 1st fortnight of February.

- ❖ 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-606,FH-607, FH-609,FH-610 FH-611,FH-612 FH-613,FH-614, FH-615,FH-616, FH-617,FH-618, FH-619,FH-620, FH-621,FH-622 | 16 |
| | | | Total | 16 |

38. TITLE**SCREENING OF SUNFLOWER NUYT
HYBRIDS AGAINST HEAD ROT DISEASE****OBJECTIVES**

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

RESEARCH WORKERS

Ahsan Mohyo-U-din and Qamar A.Tufail

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad

**TREATMENTS\
METHODOLOGY**

Sunflower NUYT hybrids to be supplied by the PARC, Islamabad

Design: R.C.B.

Plot size: 4.6 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.

- ❖ 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 | 15001,15007,15015,15022,15029,15034,15042,15049,15055,15062,15067,15073,15078,15088,15095,15096,15097,15099 | 18 |
| | | | Total | 18 |

39. 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 Qamar A. Tufail and Ahsan Mohyo-U-Din

PROJECT DURATION Continuous nature

LOCATIONS Faisalabad, M.B. Din, Piplan, Karor, Khanpur

TREATMENTS\ METHODOLOGY Avail germplasm of sesame will be tested.
 Design: R.C.B.
 Plot size: 2 m x 5 m
 Repeats: 3
 Row Spacing: 45 cm
 Fertilizer: 60 : 60 NP kg/ha
 Sowing date: 2nd fortnight of June

- ❖ 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 RESULTS

| Score | Conditions | Remarks | Varieties/lines | No. of varieties/lines |
|-------|------------------------------|-----------------------------|--------------------------|------------------------|
| 0 | No symptoms on plants | Immune | 0 | 0 |
| 1 | 1 % or less plants mortality | Highly Resistant (HR) | 0 | 0 |
| 3 | 1-10 % mortality | Resistant (R) | 0 | 0 |
| 5 | 11-25 % mortality | Moderately resistant (MR) | 50011,50022 | 2 |
| 7 | 26-50 % mortality | Moderately Susceptible (MS) | 20011 | 1 |
| 9 | 51 % or more mortality | Susceptible (S) | TS-5,TH-6 40012,10003 | 4 |
| | | | Total | 7 |

40. TITLE**EVALUATION OF VARIOUS FUNGICIDES AGAINST ROOT ROT DISEASE (*Macrophomina phaseolina*) OF SESAME****OBJECTIVES**

To find out the most effective fungicides against root rot disease (*Macrophomina phaseolina*).

RESEARCH WORKERS

Ahsan Mohyo-U-Din and Qamar A. Tufail

PROJECT DURATION

2014-2016

LOCATIONS

Faisalabad

**TREATMENTS\
METHODOLOGY**

Sesame variety TH-6

| | |
|-------------|---|
| Design | R.C.B. |
| T1 | Antracol 70 WP (Propineb) 2.5 g/liter of water |
| T2 | Topsin-M(Thiophenate Methyl) 2.5 g/liter of water |
| T3 | Mancozeb (dithiocarbamate) 2.5g/liter of water |
| T4 | Score 250 EC (Difenoconazole) 1ml/liter of water |
| T5 | Topass 100 EC (Penoconazole) 1 ml/liter of water |
| T6 | Hombre (Tebuconazole + Imidacloprid) 2ml/Kg of seed |
| T7 | Control |
| Sowing date | 2 nd fortnight of June. |

- ❖ Sesame material will be sown in sick field.
- ❖ Seed treatment will be done with respective fungicide.
- ❖ Fungicides will be sprayed thrice times after every 2 weeks interval of germination.
- ❖ Percentage of the disease will be recorded on the basis of diseased/healthy plants among the population of each treatment.
- ❖ Efficacy of above mentioned fungicides will also be tested through poisoned food technique *in-vitro*.

PREVIOUS YEAR'S RESULTS:

In Vivo

| TREATMENTS | Disease %age |
|---|--------------|
| T1: Antracol 70WP (Propineb) @ 2.5g/1 lit water | 40 |
| T2: Topsin-M (Thiophenate Methylene) @ 2.5g/1 lit water | 25 |
| T3: Mancozeb @ 2.5g/1 lit water | 11 |
| T4: Score 250 EC (Difenoconazole) @ 1 ml/1 lit water | 18 |
| T5: Topass 100 EC (Penoconazole) @ 1 ml/1 lit water | 36 |
| T6: Nativo 75 WG (Tebuconazole + Trifloxystrobin) 1g/liter of water | 30 |
| T7: Control | 88 |

In Vitro

| TREATMENTS | MYCELIUM GROWTH (mm) | % DECREASE OVER CONTROL |
|---|----------------------|-------------------------|
| T1: Antracol 70WP (Propineb) @ 2.5g/1 lit water | 48 | 46 |
| T2: Topsin-M (Thiophenate Methylene) @ 2.5g/1 lit water | 15 | 83 |
| T3: Mancozeb @ 2.5g/1 lit water | 10 | 88 |
| T4: Score 250 EC (Difenoconazole) @ 1 ml/1 lit water | 15 | 83 |
| T5: Topass 100 EC (Penoconazole) @ 1 ml/1 lit water | 25 | 72 |
| T6: Nativo 75 WG (Tebuconazole + Trifloxystrobin) 1g/liter of water | 21 | 76 |
| T7: Control | 90 | 0 |

41. TITLE**SCREENING OF SESAME GERMPLASM AGAINST PHYLLODY DISEASE****OBJECTIVES**

To observe relative tolerance/susceptibility of sesame germplasm against phyllody disease

RESEARCH WORKERS

Qamar A.Tufail, Salahuddin and Ahsan Mohyo-U-Din

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad, M.B.Din, Piplan, Karor, Khanpur

**TREATMENTS/
METHODOLOGY**

Available sesame entries/cultivars will be tested.

Design: R.C.B.
 Plot size: 5 m x 1.35 m
 Repeats: 3
 Row Spacing: 45 cm
 Fertilizer: 60 : 60 NP kg/ha
 Sowing date: 2nd fortnight of June.

- ❖ 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**

| Score | Conditions | Remarks | Varieties/lines | No. of varieties/lines |
|--------------|-------------------------------|----------------------------|------------------------|-------------------------------|
| 0 | No symptoms on plants | Immune | 0 | 0 |
| 1 | 1 % or less plants infected | Highly Resistant (HR) | 0 | 0 |
| 3 | 1-10 % plants infected | Resistant (R) | 50011,50022 | 2 |
| 5 | 11-20 % plants infected | Moderately resistant (MR) | 20011, 40012, TS-5 | 3 |
| 7 | 21-50 % plants infected | Moderately Susceptible(MS) | TH-6,10003 | 2 |
| 9 | 51 % or above plants infected | Susceptible (S) | 0 | 0 |
| | | | Total | 7 |

OILSEEDS ENTOMOLOGY:**42. 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 and Qaisar Abbas

PROJECT DURATION

Kharif-2016

LOCATIONS

Faisalabad

**TREATMENT/
METHODOLOGY**

Entries = 16
FH-610, FH-583, FH-648, FH-647, FH-646, FH-645,
FH-623, FH-642, FH-626, FH-627, FH-642, FH-626,
FH-627, FH-628, FH-629, FH-630, FH-631, FH-632, FH-633

Design R.C.B

Repeats 3

Plot size 1.5m x 4 m

Row spacing 75 cm

Fertilizer 148 : 99 : 62 NPK kg/ha

Sowing date 1st fort night of February

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.

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 |

- 43. TITLE** **DEVELOPMENT OF SUNFLOWER INBRED LINES FOR RESISTANCE AGAINST HEAD MOTH LARVAE (*Helicoverpa armigera*)**
- OBJECTIVES** To find out resistance against Sunflower head moth larvae in existing germplasm of sunflower
- RESEARCH WORKERS** Sikandar Ali and Qaisar Abbas
- PROJECT DURATION** Kharif-2016
- LOCATIONS** Faisalabad
- TREATMENT/
METHODOLOGY** Twenty two inbred lines viz;
ORI-28B, ORI-29B, ORI-30B, ORI-31B, ORI-32B, ORI-33B, ORI-34B, ORI-35B, ORI-36B, ORI-37B, ORI-38B, ORI-39B, ORI-40B, ORI-41B, ORI-42B, ORI-43B, ORI-44B, ORI-45B, ORI-46B, ORI-47B, ORI-48B, ORI-49B & ORI-50B.
- | | |
|-------------|---------------------------------------|
| Repeats | Non-replicated |
| Plot size | 0.75m x 10m |
| Row spacing | 75 cm |
| Fertilizer | 148 : 99 : 62 NPK kg/ha |
| Sowing date | 1 st fortnight of February |
- 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.
- PREVIOUS YEAR'S RESULTS** 1st year of study
- 44. TITLE** **COMPARATIVE EFFICACY OF DIFFERENT INSECTICIDES AGAINST HEAD MOTH LARVAE ON SUNFLOWER**
- OBJECTIVES** To find out relative response of different insecticides against Head moth on sunflower.
- RESEARCH WORKERS** Sikandar Ali Cheema and Qaisar Abbas
- PROJECT DURATION** Kharif-2016
- LOCATIONS** Faisalabad

**TREATMENTS/
METHODOLOGY**

6 viz;
 T1= Emamectin Benzoate 1.9 EC @ 200 ml/acre
 T2 = Diflubenzuron 25 WP @ 300 gm/acre
 T3 = Chlorphenapyr @ 330ml/acre
 T4 = Belt 480 SC @ 50 ml/acre
 T5 = Coragen 18.5% SC @ 60 ml/acre
 T6 = check (Unsprayed)
 Design R.C.B.
 Repeats 3
 Plot size 4m x 75c m
 Row spacing 75 cm
 Fertilizer 148 : 99: 62 NP kg/ha
 Sowing date 1st fort night of February, 2016

The experiment will be sown in RCBD with four replications. FH-506 will be sown. The data regarding head moth caterpillars will be recorded from heads of 5 randomly selected plants in each treatment. When its population reaches 1.0/head, the treatments will be applied. Data after application of insecticides will be recorded at 24 hours, 48 hours and 72 hours respectively. The following formula will be used for data recording.

$$\% \text{ Mortality} = \frac{\text{Pretreatment population} - \text{post treatment population}}{\text{Pretreatment population}} \times 100$$

**PREVIOUS YEAR'S
RESULTS**

| Sr.# | Insecticides | Pre-treatment pop. | 24 hrs after treatment (% mort.) | 48 hrs after treatment (% mort.) | 72 hrs after treatment (% mort.) |
|------|---------------------|--------------------|----------------------------------|----------------------------------|----------------------------------|
| 1 | Emamectin benzoate | 1.33 | 76.87 | 90.62 | 98.18 |
| 2 | Radiant(Spinetoram) | 1.01 | 77.08 | 85.36 | 93.75 |
| 3 | Profenofos | 1.20 | 66.67 | 68.12 | 81.44 |
| 4 | Spinosad | 1.27 | 64.57 | 77.48 | 87.27 |
| 5 | Chlorpyriphos | 1.13 | 70.15 | 81.64 | 91.28 |
| 6 | check (Unsprayed) | 1.13 | -8.13 | -20.15 | -28.14 |

45. 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 and Qaisar Abbas

PROJECT DURATION

Kharif-2016

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

10 Entries

| | |
|-------------|-----------------------------------|
| Design | R.C.B. |
| Repeats | 3 |
| Plot size | 4m x 0.9 m |
| Row spacing | 30 cm |
| Fertilizer | 60 : 60 NP kg/ha |
| Sowing date | 2 nd fortnight of June |

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.

PREVIOUS YEAR'S
RESULTS

The trial was destroyed due to heavy rains in summer 2015.

OIL TECHNOLOGY:**46. TITLE****DETERMINATION OF OIL CONTENTS OF SUNFLOWER HYBRIDS**

OBJECTIVES

Identification of Sunflower hybrids with high oil contents.

RESEARCH WORKERS

Hafiz Saad Bin Mustafa

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad

TREATMENTS/
METHODOLOGY

108 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 (%) |
|-----------------------|-------------------------------|------------------|
| 27 | 130 | 35 - 44 |

| Trials | No. of Hybrids analyzed | Oil Contents (%) | Hybrid with minimum oil content | Hybrid with maximum oil content |
|--------------------|-------------------------|------------------|---------------------------------|---------------------------------|
| Local Hybrid Set-1 | 13 | 36- 43 | FH-425 | FH-572 |
| Local Hybrid Set-2 | 14 | 35-43 | FH-557 | FH-516 |

| Trials | No. of hybrids analyzed | Oil Content (%) | Hybrid with minimum oil content | Hybrid with maximum oil content |
|------------------------|-------------------------|-----------------|---------------------------------|---------------------------------|
| Local Hybrids (autumn) | 17 | 19- 41 | FH-587 | FH-516 |

47. TITLE**OIL CONTENTS OF SUNFLOWER HYBRID INFLUENCED BY DIFFERENT SOWING DATES**

OBJECTIVES

Identification of oil contents of FH-572 Sunflower hybrid at different sowing dates.

RESEARCH WORKERS

Hafiz Saad Bin Mustafa

PROJECT DURATION

Continuous nature

LOCATIONS

Faisalabad

TREATMENTS/

44 samples from four Sunflower hybrids sown in Spring

METHODOLOGY

will be evaluated for their oil contents.

PREVIOUS YEAR'S RESULTS

Oil content will be determined through Soxhlet apparatus.

| No. of sowing dates | Total No. of samples Analyzed | Oil Contents (%) |
|---------------------|-------------------------------|------------------|
| 11 | 33 | 21 - 33 |

48. TITLE

OIL CONTENTS OF SUNFLOWER HYBRID INFLUENCED BY DIFFERENT FERTILIZERS

OBJECTIVES

Identification of oil contents of FH-572 Sunflower hybrid at different levels of nitrogen and phosphorus fertilizers.

RESEARCH WORKERS

Hafiz Saad Bin Mustafa

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 = 05 P = 04 | 60 | 17.23 with N @ 170 kg/ha and P @ 144 kg/ha | 43 with N @ 192 kg/ha and P @ 129 kg/ha |