

**ANNUAL PROGRAMME OF RESEARCH
WORK**

RABI 2013-14



**ARID ZONE RESEARCH INSTITUTE
BHAKKAR**

CROP BREEDING

PULSES

CHICKPEA (*Cicer arietinum* L.)

PROJECT-1

TITLE: COLLECTION AND MAINTENANCE OF CHICKPEA GERMPLASM

OBJECTIVE To collect, maintain, evaluate and improve chickpea germplasm to use in hybridization programme

RESEARCH WORKER (S) Abdul Ghaffar, Dr. Muhammad Aslam & Naeem-ud-Din

PROJECT DURATION: Continuous

LOCATION Arid Zone Research Institute, Bhakkar

**TREATMENTS/
METHODOLOGY** Entries = 200
Plot size = 3.5 x 0.6m
Row spacing = 30 cm
Check = Three
(Thal-06, Punjab-08 & Bhakkar-11)
Fertilizer = 22-57 NP kg/ ha
Sowing date = October, 2013

PREVIOUS YEAR'S RESULTS 373 entries were sown and characterized as under.

Sr. No	Character studies	Range (Means)
1	Days to 50% flowering	92 - 112
2	Plant height (cm)	35 – 81
3	No. of pods/plant	15 – 137
4	Days to maturity	158-166
5	Total dry matter (g/plot)	200-2900
6	Grain yield (g/splot)	92-1016

Sr. No	Yield range (kg/ha)	No. of entries
1	4000-4836	10
2	3000-4000	38
3	2000-3000	123
4	1000-2000	131
5	<1000	71

PROJECT-2

TITLE: **CHICKPEA HYBRIDIZATION PROGRAMME**

OBJECTIVE Crosses among desirable genotypes/strains will be attempted to create variation for the development of chickpea varieties with higher yield, insect pest and disease tolerance/resistance and well adapted to arid zone conditions.

RESEARCH WORKER Abdul Ghaffar, Niaz Hussain & Dr. Muhammad Aslam

PROJECT DURATION: Continuous

LOCTION Arid Zone Research Institute, Bhakkar

**TREATMENTS/
METHODOLOGY** Following crosses will be attempted during Rabi 2013-14

Sr. No.	Cross combinations (Kubli)	Characteristics
1	K034-11 × K054-11	Early flowering, more pods / plant x high yielding
2	K041-11 × K049-11	More pods / plant x high yielding
3	K063-11 × CH47/04	High yielding x early flowering, bold seeded
4	K065-11 × CH51/07	More pods / plant, high yielding x early flowering, bold seeded
5	CH53/07 × CM1592/08	More pods / plant, high yielding x early flowing , more pods / plant
6	K044-11 × Noor-2009	High yielding x more pods / plant, high yielding
7	K034-11 × CM-2008	Early flowering, more pods / plant x bold seeded , high yielding.
8	K041-11 × Noor-2009	More pods / plant x more pods / plant, high yielding.
9	K063-11 × CM-2008	High yielding x bold seeded, high yielding.
10	CM1592/08 × Noor-2009	Early flowing, more pods / plant x high yielding.
11	TGDX201 × Bhakkar-2011	More pods / plant, bold seeded, high yielding x wilt resistant, early maturing, high yielding

12	TGDX201 ×CM98/05	More pods / plant, bold seeded, high yielding x early flowing, more pods / plant, high yielding.
13	D090-11×CH104/06	Bold seeded, high yielding x more pods / plant high yielding
14	D090-11× CM510/06	Bold seeded, high yielding x more pods / plant, high yielding.
15	CH16/06×CM526/05	High yielding
16	CH36/06× CH70/06	Bold seeded, high yielding.

PREVIOUS YEAR'S RESULTS

16 cross combination were attempted successful pods from 15 crosses were collected..

PROJECT-3

TITLE: **STUDY OF FILIAL GENERATIONS**

OBJECTIVE Selection of desirable recombinants having higher yield potential drought and disease resistance/tolerance.

RESEARCH WORKER Abdul Ghaffar, Dr. Muhammad Aslam & Naeem-ud-Din

PROJECT DURATION: Continuous

LOCTION Arid Zone Research Institute, Bhakkar

TREATMENTS/ METHODOLOGY

Filial generations	No. of entries
F1	15 crosses
F2	17 progenies
F3	6 Bulk Populations
F4	90 progenies
F5	142 progenies
F6	300 progenies
F7	60 Progenies

PREVIOUS YEAR's RESULT

Filial generations	Crosses/progenies	Selected crosses/plants/progenies
F1	15	15
F2	18	17
F3	118	06
F4	160	90
F5	596	142
F6	116	300
F7	79	60

PROJECT-4

TITLE: CHICKPEA PRELIMINARY YIELD TRIAL (DESI)

OBJECTIVE To study and evaluate chickpea genotypes/ strains for higher yield, drought, insect pest and disease resistant/tolerant under arid zone agro climatic conditions.

RESEARCH WORKER Dr. Muhammad Aslam, Abdul Ghaffar & Dr. Khalid Hussain

PROJECT DURATION: Continuous

LOCTION Arid Zone Research Institute, Bhakkar

TREATMENTS/ METHODOLOGY	Test entries	Check	Total entries
	18	2	20
	Design		= RCBD
	Replications		= 3
	Plot size		= 4m x 1.2m
	Sowing time		= October, 2013

The trial will be conducted under both irrigated and rainfed conditions. Data on germination, days to flowering, insect pest and diseases, height, no of pods, maturity and yield will be recorded.

PREVIOUS YEAR'S RESULTS

A-I

Sr. No	Code/Name of entry	Yield (Kg ha ⁻¹)		
		Irrigated	Rainfed	Average yield
1	TG1203	3414	3166	3290
2	TG1204	3163	2851	3007
3	TG1221	3088	2752	2920
5	Bhakkar-2011	2951	2567	2759
13	Punjab-2008	2332	1828	2080
LSD _{0.05} = 530.8		CV (%)= 11.1	LSD _{0.05} = 406.2	CV(%)= 10.0

A-II

Sr. No	Code/Name of entry	Yield (Kg ha ⁻¹)		
		Irrigated	Rainfed	Average yield
1	TG1228	2759	3208	2984
2	TG1222	2943	2920	2932
3	TG1205	3070	2655	2863
6	Bhakkar-2011	2305	2897	2601
13	Punjab-2008	1991	2241	2116
		LSD _{0.05} = 218.3 CV(%) = 6.0	LSD _{0.05} = 235.7 CV(%) = 5.3	

A-III

Sr. No	Code/Name of entry	Yield (Kg ha ⁻¹)		
		Irrigated	Rainfed	Average yield
1	TG1210	2704	2241	2473
2	TG1213	2194	2548	2371
3	TG1232	1984	2458	2221
8	Punjab-2008	2173	2085	2129
10	Bhakkar-2011	1868	2230	2049
13	TG1214	1777	1914	1846
		LSD _{0.05} = 455.5 CV(%) = 15.3	LSD _{0.05} = 177.2 CV(%) = 4.8	

A-VI

Sr. No	Name of entry	Yield (Kg ha ⁻¹) Irrigated
1	TG12K07	1736
2	TG12K01	1641
3	TG12K10	1567
5	Noor-2009	1412
8	TG12K13	1207
		LSD _{0.05} = 95.7 CV(%) = 5.6

PROJECT-5**TITLE: CHICKPEA REGULAR YIELD TRIAL (DESI)****OBJECTIVE** To verify the yield performance of chickpea promising lines/strains selected from preliminary yield trials.**RESEARCH WORKER** Dr. Muhammad Aslam and Niaz Hussain**PROJECT DURATION:** Continuous**LOCTION** Arid Zone Research Institute, Bhakkar

TREATMENTS/ METHODOLOGY	Test entries 13	Check 2	Total entries 15
	Design		= RCBD
	Replications		= 3
	Plot size		= 4m x 1.2m
	Sowing time		= October, 2013

The trial will be conducted under both irrigated and rainfed conditions. Data on yield and yield components will be recorded.

PREVIOUS YEAR'S RESULTS**B-I**

Sr. No	Code/Name of entry	Yield (Kg ha ⁻¹)		
		Irrigated	Rainfed	Average yield
1	TG1107	3592	2095	2844
2	TG1108	3324	2101	2713
3	TG1109	3330	2001	2666
4	Bhakkar-2011	3393	1918	2656
12	Punjab-2008	2960	1759	2360
		LSD _{0.05} = 129.2	LSD _{0.05} = 155	
		CV (%) = 3.4	CV (%) = 4.9	

B-II

Sr. No	Code/Name of entry	Yield (Kg ha ⁻¹)		
		Irrigated	Rainfed	Average yield
1	TG1122	2906	1897	2402
2	TG1116	2623	2026	2325
3	TG1129	2770	1876	2323
4	Bhakkar-2011	2731	1914	2323
9	Punjab-2008	2644	1659	2152
		LSD _{0.05} = 128.8	LSD _{0.05} = 182.9	
		CV (%) = 3.5	CV (%) = 6.2	

PROJECT-6

TITLE: **CHICKPEA REGULAR YIELD TRIAL (KABULI)**

OBJECTIVE To verify the yield performance of chickpea promising lines/strains selected from preliminary yield trials

RESEARCH WORKER Dr. Muhammad Aslam, Niaz Hussain & Naeem-ud-Din

PROJECT DURATION: Continuous

LOCATION Arid Zone Research Institute, Bhakkar

TREATMENTS/ METHODOLOGY	Test entries	Check	Total entries
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9

1

10

Design = RCBD

Replications = 3

Plot size = 4m x 1.2m

Sowing time = October, 2013

The trial will be conducted under both irrigated and rainfed conditions. Data on yield and yield components will be recorded.

PREVIOUS YEAR's RESULT First Year

PROJECT-7**TITLE: CHICKPEA MICRO YIELD TRIAL (DESI)****OBJECTIVE** To study the adaptability of chickpea advance lines/strains in arid zone area**RESEARCH WORKER** Dr. Muhammad Aslam, Niaz Hussain & Naeem-ud-Din**PROJECT DURATION:** Continuous**LOCTION**
i. Arid Zone Research Institute, Bhakkar
ii. Agronomic Research Sub-Station Karor
iii. Gram Breeding Res. Sub-Station Kallur kot.**TREATMENTS/
METHODOLOGY** **Test entries** 11 **Check** 2 **Total entries** 13Design = RCBD
Replications = 3
Plot size = 4 x 1.2m
Sowing time = October, 2013

The trial will be conducted under both irrigated and rainfed conditions. Data on yield and yield components will be recorded.

PREVIOUS YEAR'S**RESULT****Set-1**

Sr. No	Entry	Yield (Kg ha ⁻¹) Irrigated
1	05A015	1611
2	93A375	1531
3	06A011	1488
4	TGX202	1482
9	Bhakkar-2011	1360
10	Punjab-2008	1311
		LSD _{0.05} = 162.3 CV(%) = 8.4

Set-2

S.No	Entry	Yield (Kg ha ⁻¹)			
		AZRI. BKR	ARS Karor	GBRSS. KKot	Average
1	TGX216	1407	263	1798	1156
2	Bhakkar-2011	1200	433	1687	1107
3	TGX214	1435	233	1364	1011
4	Punjab-2008	934	372	1397	901
13	TGX218	863	240	612	572
		LSD _{0.05} = 167.4 CV(%) = 10.5	LSD _{0.05} = 73.8	LSD _{0.05} = 167.1 CV(%) = 9.7	

PROJECT-8**TITLE: CHICKPEA NATIONAL UNIFORM YIELD TRIAL (DESI)****OBJECTIVE** To test the performance of candidate varieties developed by Chickpea breeders from all over the country on a wide range of agro-climatic conditions**RESEARCH WORKER** Dr. Muhammad Aslam, Niaz Hussain, Naeem-ud-Din & Dr. Khalid Hussain**PROJECT DURATION:** Continuous**LOCATION** Arid Zone Research Institute, Bhakkar**TREATMENTS/METHODOLOGY** The seed sets will be prepared and supplied by Coordinator (Pulses), NARC, Islamabad. The trial will be conducted according to layout plan and instructions received along with the seed.**PREVIOUS YEAR'S RESULT**

Sr. No	Entry	Yield (Kg ha ⁻¹)
1	CM156/05	2100
2	07041	1949
3	CH38/04	1799
4	07009	1784
12	Punjab-08	1411
14	V09AG021	1260
		LSD _{0.05} = 139.7 CV(%) = 5.1

PROJECT-9

TITLE: **CHICKPEA NATIONAL UNIFORM YIELD TRIAL (Kabuli)**

OBJECTIVE To test the performance of candidate varieties developed by Chickpea breeders from all over the country on a wide range of agro-climatic conditions

RESEARCH WORKER Dr. Muhammad Aslam, Niaz Hussain, Naeem-ud-Din & Dr. Khalid Hussain

PROJECT DURATION: Continuous

LOCTION Arid Zone Research Institute, Bhakkar

**TREATMENTS/
METHODOLOGY** The seed sets will be prepared and supplied by Coordinator (Pulses), NARC, Islamabad The trial will be conducted according to layout plan and Instructions received along with the seed.

**PREVIOUS YEAR'S
RESULT** Yield data of National Uniform Yield Trial (Kabuli)

S.No	Entry	Yield (Kg ha⁻¹)
1	NCS-0709	1943
2	K-70005	1862
3	K-70008	1793
4	CM770/06	1644
5	CM-95/06	1529
6	CM1528/03	1473
7	NOOR-2009	1471
8	NCS-0534	1453
		LSD _{0.05} = 106.6 CV(%) = 3.9

PROJECT-10**TITLE:****NUCLEUS SEED PRODUCTION****OBJECTIVE**

To produce pure and true to type seed of chickpea commercial varieties of this Institute, in the order to facilitate its availability to the farming community of the area.

RESEARCH WORKER

Dr. Muhammad Aslam, Niaz Hussain & Dr. Khalid Hussain

PROJECT DURATION:

Continuous

LOCATION

Arid Zone Research Institute, Bhakkar

**TREATMENTS/
METHODOLOGY**

Following material will be sown

Name of Variety / Line	Plant to Row Progenies	Blocks
Thal-2006	120	75
Bhakkar-2011	130	80

**PREVIOUS YEAR'S
RESULT**

Following BNS & Pre-basic seed was produced during 2012-13

Variety	BNS (kg)	Pre-Basic(kg)
Thal-2006	31	600
Bhakkar-2011	25	5273

WHEAT

PROJECT-11

TITLE: **COLLECTION, MAINTENANCE AND EVALUATION OF GERMPLASM**

OBJECTIVE To strengthen and broaden the genetic base of wheat germplasm through collection and hybridization.

RESEARCH WORKER Dr. Muhammad Irshad, Dr. Khalid Hussain & Naeem-ud-Din

PROJECT DURATION: Continuous
LOCATION Arid Zone Research Institute, Bhakkar

TREATMENTS/ METHODOLOGY

No. of entries	= 265
No. of rows / entry	= 02
Design	= Augmented
Row length	= 1.75 m
Row spacing	= 30 cm
Fertilizer (N.P.K)	= 115-85-0 kg ha-1
Sowing time	= 2 nd week of Nov.2013

PREVIOUS YEAR's RESULT

Wheat germplasm were characterized as under	
Days to 50% heading	85 – 120
Plant height (cm)	70 – 130
Productive tillers per plant (N)	4 - 25
Av. grain weight per spike (g)	1 - 5
100 grain weight (g)	3.0 - 5.5
Grain yield per plant (g)	2 - 35

PROJECT-12

TITLE:

**WHEAT CROSSING BLOCK AND
HYBRIDIZATION**

OBJECTIVE

To create genetic variability for different traits in spring
Wheat

RESEARCH WORKER

Dr. Muhammad Irshad, Dr. Khalid Hussain
& Naeem-ud-Din

PROJECT DURATION:

Continuous

LOCATION

Arid Zone Research Institute, Bhakkar

TREATMENTS/ METHODOLOGY

No. of entries = 150
No. of Rows/Entry = 02
Row length = 1.75 m
Row spacing = 30 cm
Fertilizer (N.P.K) = 115-85-0 kg ha⁻¹.
Sowing time = 2nd week of November, 2013

PREVIOUS YEAR'S RESULT

150 crosses were attempted during previous year. Out of
which 125 proved successful. F₀ seed of successful
crosses was harvested to raise F₁ generations during
2013-14

PROJECT-13

TITLE: **STUDY OF FILIAL GENERATIONS**

OBJECTIVE

a). Study of Filial generations (F₁-F₆) and selection of better performing and desirable plants for further studies.

b). Selection of stable advanced lines with desirable traits from F₅ to F₆ generations

RESEARCH WORKER Dr. Muhammad Irshad, Dr. Khalid Hussain & Naeem-ud-Din

PROJECT DURATION: Continuous

LOCATION Arid Zone Research Institute, Bhakkar

**TREATMENTS/
METHODOLOGY** Sowing time 1st fortnight of Nov. 2013

Generation	Single plant populations to be sown
F1	113 crosses
F2	194 progenies
F3	150 "
F4	134 "
F5	90 "
F6	80 "
Total	761

PREVIOUS YEAR'S RESULT

Generations	Single plant populations sown	Single plants selected	Entries Bulkied for trials
F1	84	194	-
F2	42	150	-
F3	224	134	-
F4	120	90	
F5	181	80	8
F6	127	-	25
Total	778	648	33

PROJECT-14

TITLE: PRELIMINARY WHEAT YIELD TRIALS

OBJECTIVE To study the yield performance, diseases and other yield components of promising lines selected from advanced generations and exotic material

RESEARCH WORKER Dr. Muhammad Irshad, Dr. Khalid Hussain & Naeem-ud-Din

PROJECT DURATION: Continuous

LOCATION Arid Zone Research Institute, Bhakkar

**TREATMENTS/
METHODOLOGY**

Trials	Test entries	Checks	Total entries
2	36	2	40

Layout = RCBD
Replications = 03
Plot size = 1.2 x 5m
Sowing Time = 2nd fortnight of Nov.13

**PREVIOUS YEAR's
RESULT** A-(I)

Sr. No.	V-code	Yield (Kg/ha)
1	TW12602	5500.00
2	TW12520	5111.11
3	TW12606	5083.33
4	TW12601	4916.67
9	Punjab-11	4333.33
10	Millat-11	4083.33
LSD _{0.05} 211.35 kg / ha		

A-(II)

Sr. No.	V-code	Yield (Kg/ha)
1	TW12524	5666.67
2	TWS12496	5222.22
3	TW12523	5222.22
4	TWS12491	5166.67
12	Millat-11	5000.00
13	Punjab-11	4916.67
LSD _{0.05} 150.81 kg / ha		

A(III)

Sr. No.	V-code	Yield (Kg/ha)
1	TWS12093	5416.67
2	TWS12083	5416.67
5	Punjab-11	5250.00
6	Millat-11	5083.33
LSD _{0.05} 159.52 kg / ha		

A(IV)

Sr. No.	V-code	Yield (Kg/ha)
1	TWS12289	5416.67
2	TWS12245	5361.11
8	Punjab-11	5208.33
9	Millat-11	5183.33
LSD _{0.05} 131.58 kg / ha		

PROJECT-15

TITLE: **REGULAR WHEAT YIELD TRIAL**

OBJECTIVE To confirm the yield and various yield components of promising lines selected from PYTs.

RESEARCH WORKER Dr. Muhammad Irshad, Dr. Khalid Hussain & Naeem-ud-Din

PROJECT DURATION: Continuous

LOCATION Arid Zone Research Institute, Bhakkar

TREATMENTS/ METHODOLOGY

Test entries 16 **Checks** 2 **Total entries** 18

Layout = RCBD

Replications = 03

Plot size = 1.2 x 5m

Sowing Time = 2nd fortnight of Nov.13

PREVIOUS YEAR'S RESULT

Sr. No.	Normal planting		Late planting	
	Strain	Yield (Kg/ha)	Strain	Yield (Kg/ha)
1	TWX411	5333.33	TWX437	3333.33
2	TWX421	5250.00	TWX432	3166.67
3	TWX406	5208.33	TWX409	3083.33
4	Lasani-08	5083.33	Millat-11	2700.00
7	Millat-11	4666.67	Punjab-11	2333.33
8	Punjab-11	4583.33	Lasani-08	2027.78
		LSD _{0.05} 130.84 kg / ha	LSD _{0.05} 121.96 kg / ha	

PROJECT-16

TITLE: **ADVANCED WHEAT YIELD TRIAL**

OBJECTIVE To confirm the yield and yield related traits of promising lines selected from regular yield trials

RESEARCH WORKER Dr. Muhammad Irshad, Dr. Khalid Hussain & Naeem-ud-Din

PROJECT DURATION: Continuous

LOCATION Arid Zone Research Institute, Bhakkar

TREATMENTS/ METHODOLOGY

Test entries 8 **Checks** 2 **Total entries** 10

Layout = RCBD

Replications = 03

Plot size = 1.2 x 5m

Sowing Time = 2nd fortnight of Nov.13

PREVIOUS YEAR'S RESULT

Sr. No.	Normal planting		Late planting	
	Strain	Yield (Kg/ha)	Strain	Yield (Kg/ha)
1	TWX411	5333.33	TWX437	3333.33
2	TWX421	5250.00	TWX432	3166.67
3	TWX406	5208.33	TWX409	3083.33
4	Lasani-08	5083.33	Millat-11	2700.00
7	Millat-11	4666.67	Punjab-11	2333.33
8	Punjab-11	4583.33	Lasani-08	2027.78
LSD _{0.05} 130.84 kg / ha			LSD _{0.05} 121.96 kg / ha	

PROJECT-17

TITLE: **MICRO WHEAT YIELD TRIALS (2013-14)**
(NORMAL & LATE PLANTING)

OBJECTIVE To test the yield performance and adaptability of promising lines under different agro-ecological conditions in the Punjab

RESEARCH WORKER Dr. Muhammad Irshad, Dr. Khalid Hussain
& Naeem-ud-Din

PROJECT DURATION: Continuous

LOCATION Arid Zone Research Institute, Bhakkar

**TREATMENTS/
METHODOLOGY** Layout = RCBD
Replications = 03
Plot size = 1.2 x 5m

Sowing Time

15th November, 2013 (Normal Planting)

15th December, 2013 (Late Planting)

PREVIOUS YEAR'S RESULT

(NORMAL PLANTING)

Sr. No.	Location	Advance lines		Check Varieties	
		TW8614	TW96018	Lasani-06	Punjab-11
1	Jhang	3172	2499	3790	2445
2	Piplan	2850	2787	2753	2847
3	Bhakkar	4028	4028	4683	3681
4	Muzafarghar	2611	3472	2833	2961
5	Pakpattan	4176	3921	3924	4027
6	Gujranwala	2972	3389	2921	2920
7	Narowal	3429	3340	3361	2689
8	Sargodha	2555	2654	2559	2467
9	Bahawalpur	3705	5144	3806	4383
10	Rahim yar Khan	5831	4986	5950	5203
	Mean	3533	3622	3558	3362

LATE PLANTNIG

Sr. No.	Location	Advance lines		Check Verities	
		TW8614	TW96018	Shafaq-06	Millat-11
1	Jhang	3009	1940	2077	2229
2	Piplan	2798	2498	2729	2615
3	Bahawalpur	3408	2832	3465	3167
4	Khanewal	2440	2201	2421	2250
5	Vehari	2711	3031	2624	2903
6	Narowal	3254	3068	3125	2937
7	Rahim yar khan	3425	3889	3811	3250
	Mean	3006	2779	2778	2764

PROJECT-18

TITLE: NATIONAL UNIFORM WHEAT YIELD TRIAL

OBJECTIVE To test the performance of candidate wheat varieties/strains developed by wheat breeders from all over the country on a wide range of agro-ecological conditions.

RESEARCH WORKER Dr. Muhammad Irshad, Dr. Khalid Hussain & Naeem-ud-Din

PROJECT DURATION: Continuous

LOCTION Arid Zone Research Institute, Bhakkar

**TREATMENTS/
METHODOLOGY** Seed will be supplied by National Coordinator (Wheat) NARC, Islamabad. Data will be recorded for yield and yield components as per directions with seed

Sowing Time

15th Novembr,2013 (Normal Planting)

15th December, 2013 (Late Planting)

PREVIOUS YEAR's RESULT

Sr. No.	V. Code	Normal Planting (kg/ha)	V. Code	Late Planting (kg/ha)
1	Faisalabad-08	4833.33	WHTSD12227	3361.11
2	V07096	4805.56	Faisalabad-08	3338.89
3	WHTSD12240	4347.22	WHTSD12271	3333.33
4	Fakhre sarhad	4277.78	WHTSD12246	3277.78
5	NARC-2011	4222.22	Seher-06	3166.67
9	Seher-06	4166.67	Pirsabak -08	3055.56
10	Aas-2011	4166.67	NARC-11	3000.0
11	NIA-Sunehri	4111.11	NIA-Sunehri	2888.89
12	Pirsabak -08	3694.67	Aas-2011	2833.33

WHEAT:
PROJECT-2

(Triticum aestivum L.)

TITLE: SCREENING OF WHEAT GENOTYPES AGAINST APHID INFESTATION UNDER IRRIGATED TIMELY SOWN CONDITIONS.

OBJECTIVE: To identify the resistant/tolerant genotypes against aphids.

RESEARCH WORKER(S): Muhammad Nadeem and Naeem-ud- Din

PROJECT DURATION: Continuous

LOCATION: Arid Zone Research Institute, Bhakkar

TREATMENTS/ 5 lines from A, B and C trials

METHODOLOGY:

Design = RCBD
Repeats = 3
Plot size = 5mx1.8m.
Sowing date =Ist fortnight of November, 2013

Aphid infestation, aphid population data will be recorded from all the strains/lines on fortnightly basis and data will be analyzed statistically.

PREVIOUS YEAR'S RESULTS:

A-TRIAL

Sr. No.	Name of Line/variety	Aphid/15tiller
1	TWS1113	119.56
2	TWX432	121.22
3	TW11505	129.33
4	Lasani-2008	143.33
14	TWX4011	315.44
15	TW11520	322.56
LSD 0.05		6.44

B-TRIAL

Sr. No.	Name of Line/variety	Aphid/15tiller
1	TWX421	116.89
2	TWX437	133.00
3	AARI-11	140.00
14	TWX409	239.89
15	TW11509	246.55
LSD 0.05		2.70

omising strains TWS1113, TWX432, TW11505, Lasani-2008 in A-Trial and TWX421, TWX437, AARI-2011 in B-trial proved tolerant even during peak period of aphid attack (March 2013) and found less than 10 aphids per tillers.

PROJECT-3

TITLE: EFFECT OF APHID INCIDENCE AND PLANTING GEOMETRY ON YIELD TRAITS OF WHEAT

OBJECTIVE: To find out the optimum planting pattern correlated with incidence of aphid population.

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PROJECT DURATION: 2013-2014 and 2014-15

LOCATION: Arid Zone Research Institute, Bhakkar

TREATMENTS/ variety = Millat 2011

METHODOLOGY: Treatments = 6

1. Spacing 1 = 6"
2. Spacing 2 = 9"
3. Spacing 3 = 12"
4. Spacing 4= Three line strip with line to line distance=9" and strip to strip distance =18'
5. Spacing 5= Two line strip with line to line distance= 6" and strip to strip distance =12"
- 6= Spacing 6= Four line strip with line to line distance= 6" and strip to strip distance= 12"

Design = RCBD

Repeats = 3

Seed Rate = 50Kg/acre

Plot size = 5mx4.5m.

Sowing date = November 2013

Data regarding aphid population will be recorded on weekly basis. Grain yield will also be recorded.

PREVIOUS YEAR'S RESULTS:

1st Year.