INTRODUCTION OF THE INSTITUTE

The Institute is located at a distance of 11 kilometers from Sahiwal city towards east on Lahore-Multan Highway. It is situated at latitude of 30° 41 N and longitude of 73° 12 E and the elevation of 175 meters. The land of Yusafwala, District Sahiwal was converted in to Government Seed Farm in the year 1925 and was handed over to the Agriculture Department (Extension Wing) for multiplication of quality seed of wheat, Maize and cotton etc.

Research work on maize was started in the 1940's which was abandoned in its infancy with the partition of Sub-continent. A regular research work on maize was restarted after partition in the year 1953-54 at Faisalabad. The seed farm Yusafwala was transferred to research wing of Agriculture Department in the year 1958-59 and converted into a Hybrid Maize Seed Farm for conducting research and seed production of hybrid maize on large scale. 30

In 1968-69 the status of this farm was raised to a Research Institute, named as Maize & Millets Research Institute, Yusafwala. Research work on Sorghum and Pearl Millet was also initiated in addition to maize with the establishment of the Institute.
The objectives of Institute are

- To evolve high yielding varieties/hybrids of maize, sorghum and pearl millet.
- Breeding for biotic and a-biotic stresses.
- To develop improved package of production technology.
- To demonstrate improved production technology.
- Transfer of technology through print and electronic media.
- To produce BNS, pre-basic, basic and certified seed.

The Institute has evolved 11 varieties & 2 hybrids of maize, 2 varieties of sorghum and one variety of pearl millet since its establishment.

Three single cross maize hybrids YH-1898, FH-949 and FH-1046 were included in NUYT-Sp.2015 and ranked 8^{th}, 9^{th} and 17^{th}, respectively. Four hybrids FH-1200 (14453kg/ha), FH-1219 (13433 kg/ha), FH-1233 (13240 kg/ha) & FH-1231 (12936 kg/ha) were found promising in different trials.

Sorghum hybrid YSH-95 and pearl millet line YBS-95 were included in NUYT-Kh.2014 and ranked 5^{th} and 4^{th}, respectively.

Annual Program of Research Work for 2015-16 is given in subsequent pages:-

HYBRID MAIZE

GERMPLASM MAINTENANCE

01. TITLE	**MAINTENANCE OF INBRED LINES.**	
OBJECTIVE	To maintain the inbred lines for use in breeding program.	
RESEARCH WORKER(S)	Yusafwala	Mr. Khadim Hussain Mr. Shahid Hussain Mr. Aamir Ghani Dr. Muhammad Arshad
	Faisalabad	Muhammad Altaf Amer Hussain Ahsan Raza Mallhi Muhammad Rafique
PROJECT DURATION	Spring & Kharif 2016	
LOCATIONS	1. Maize & Millets Research Institute, Yusafwala-Sahiwal. 2. Maize Research Station, Faisalabad.	
TREATMENTS	Yusafwala	Inbred lines = 165
	Faisalabad	Inbred lines = 161
METHODOLOGY	Layout	= Ear to row
	Replications	= Non-replicated
	Plot Size	= 5m x 0.75m
	Plant to plant	= 20 cm
	Row to row	= 75 cm
	Fertilizer	= 297–148–124 NPK, Kg/ha.
	Date of sowing	= February & 2nd fortnight of July
	All the lines will be maintained through self-pollination to assure homozygosity. Data regarding following traits will be collected in each inbred lines for two years along with display of pictorial features to prepare germplasm directory. Each year data of freshly included inbred lines will also be recorded in similar fashion.	
	Seed/Seedling.	
	1. Days to seedling emergence	2. Seedling emergence % age
	3. Seedling vigor	4. Anthocyanin pigment.
	Leaf	
	5. No. of Leaves per plant	6. Leaf size (length / width)
	7. Leaf angle (drooping / semi-drooping / erect)	
	Stem	
	8. Root anchor	9. Stem at 1/2 meter growth stage (purple / Green)
	10. Stem at maturity	11. Stem thickness
	12. Stem height (dwarf/medium/tall)	

	Reproductive Traits			
	13. Days to tasseling		14. Days to silk emergence	
	15. Pollen shedding Period		16. Number of tassel branches	
	17. Type of tassel (spreading/erect)		18. Tassel	
	19. Days to maturity			
	Ear / Cob traits			
	20. Husk color		21. Husk hairiness	
	23. Ear diameter		24. Ear length	
	25. Ear height		26. Ear aspect (opening tip score (1-5)	
	27. Ear rot		28. Pith color	
	29. Kernel pith ratio		30. Prolificacy (% age)	
	Seed			
	31. Seed		32. Seed size	
	33. Seed shape (Dent, semi dent / semi flint / flint)		34. No. of kernel rows per ear	
	35. 100 grain weight			
	Lodging			
	42. Root lodging %age		43. Stalk lodging %age	
	Disease			
	44. Stalk rot %age		45. Root rot %age	
	46.Helmenthosporium maydis (1-5)		47. Helminthosporium turcicum (1-5)	
	48. Any other			
	Seedling	Days to seedling emergence	Seedling emergence %	Anthocyanine pigment (D/M/A)
		3-5 days	60-100 %	30/50/23
	Leaf	Leaf (L-light/G-green /D-Dark green)	Leaf Size (B-broad/ M-medium/ N-Narrow)	Leaf Angle (drooping / Semi drooping/erect)
		13/70/20	8/80/15	21/46/36
	Stem	Root anchor (week/medium/strong)	Stem at 1/2m growth stage. (purple/Green)	Stem color at maturity (green/dry)
		13/43/47	39/64	72/31
		Stem thickness	Stem height (dwarf/medium/ tall)	
		1.2-2.5 cm	9/77/17 (75-150 cm)	
	Reproductive traits	Days to tassel emergence	Days to silk emergence	Period of pollen shedding
		42-60 days	45-65 days	5-8 days
		Number of tassel	Type of tassel	Tassel color

		branches	(spreading/Semi erect/Erect)	(Green/Purple)
		6-19	65/38	43/60
		Days to maturity		
		100-115 days		
	Ear/Cob Traits	Husk Color (Green/ purple)	Husk hairiness (Hairy/ Absent)	
		93/10	17/86	
		Ear diameter	Ear length	Ear height
		2.7-4.4 cm	10-18 cm	40-80 cm
		Ear aspect (1-5)	Ear rot (Score 1-5)	Pith color (White/pink)
		1-2	1	85/18
		Kernel pith ratio	Prolificacy Present/ Absent	
		78-92 %	38/65	
	Seed	Seed Color (White/yellow/ dark yellow)	Seed size (Small/ medium / bold)	No. of kernel rows per ear
		3/17/83	19/64/20	12-18
		100-grain weight	Seed shape (Dent/semi dent/flint)	
		19-26 g	20/40/43	
	Lodging	Root lodging %	Stalk lodging %	
		0	0	
	Disease	Stalk rot	Root rot	*H. maydis*
		1-2	0	1-2
		H. turcicum		
		1-2		
PREVIOUS YEAR'S RESULTS:	**Yusafwala** 101 lines were maintained by hand pollination in Kh.2014 while 153 during Spring 2015. **Faisalabad** 161 inbred lines were maintained by hand pollination. 9 were discarded due to undesirable characters.			

GERMPLASM DEVELOPMENT

02. TITLE	**DERIVATION OF INBRED LINES THROUGH INBREEDING.**	
OBJECTIVE	To develop new inbred lines with desirable characteristics for constitution of new hybrids.	
RESEARCH WORKER(S)	Yusafwala	Mr. Shahid Hussain Mr. Khadim Hussain Dr. Muhammad Arshad
	Faisalabad	Muhammad Altaf

		Amer Hussain Ahsan Raza Mallhi Muhammad Rafique
PROJECT DURATION	Spring & Kharif 2016	
LOCATIONS	1. Maize & Millets Research Institute, Yusafwala-Sahiwal. 2. Maize Research Station, Faisalabad	
TREATMENTS	Yusafwala	272 families (S_0 =29, S_1 =39, S_2 =15, S_3 =24, S_4 =14, S_5 =53, S_6 =07, S_7 = 16 & S_8 = 75)
	Faisalabad	212 families (S_0 =30 , S_1 =30 , S_2 = 16, S_3 =16 , S_4 =33 S_5 =37 S_6 =31 & S7 =19)
METHODOLOGY	Layout	= Ear to row
	Replications	= Non-replicated
	Plot Size	= 5 m x 0.75 m
	Plant to plant	= 20 cm
	Row to row	= 75 cm
	Fertilizer	= 297–148–124 NPK, Kg/ha.
	Date of sowing	= Month of February & Mid of July
	The desirable/selected plants from each family will be selfed by hand pollination. Data of all traits will be collected in S_7 generation along with display of pictorial features to prepare germplasm directory.	
PREVIOUS YEAR'S RESULT'S	**Yusafwala.** Two hundred one families (201) inbreeding families were planted ear to row and self-pollinated by hand During Kharif 2014. At harvesting one hundred and seventy nine (179) derivatives could set seed. While during Spring 2015, two hundred and sixty five (265) (S_0 =28, S_1 =26, S_2=32, S3 =13, S_4=78, S_5=11, S_6=15 and S7=62 were planted and self-pollinated by hand for generation advancement. At harvesting one hundred and seventy three (173) derivatives could set seed.	
	Faisalabad One hundred ninety five (195) families i.e. S_0=30, S_1=16, S_2=16 S_3=33, S_4=37, S_5=31, S_6=19 & S_7=13 were selected from different generations and 13 advanced derivative families were selected from S_7 for inclusion in gene pool.	

03. TITLE	**DERIVATION OF INBRED LINES OF WHITE MAIZE.**
OBJECTIVE	To develop new inbred lines with desirable characteristics for constitution of new hybrids.
RESEARCH WORKER(S)	Mr. Ghulam Murtaza Mr. Aamir Hussain Dr. Muhammad Arshad
PROJECT DURATION	Spring & Kharif 2016
LOCATIONS	Maize & Millets Research Institute, Yusafwala-Sahiwal.
TREATMENTS	93 derivative lines. (S_0=22, S_1=05, S_2=09, S_3=04, S_4=07, S_5=23 S_6=12

	and S_7=11)	
METHODOLOGY	Layout	= Ear to row
	Reps.	= Non-replicated
	Plot Size	= 5m x 0.75m
	Plant to plant	= 20 cm
	Row to row	= 75 cm
	Fertilizer	= 297–148–124 NPK Kg/ha.
	Date of sowing	= Month of July & February
	Desirable / selected plants in each family will be selfed by hand pollination to increase homozygosity. Data of all traits will be collected in S_7 generation along with display of pictorial features to prepare germplasm directory.	
PREVIOUS YEAR'S RESULTS:	**Kharif 2014:** Fifty nine (59) inbreeding families (S_0=05, S_1=06, S_3=18, S_4=04, S_5=13 & S_6=13) were sown for derivation of inbred lines. At harvesting 161 inbreeding families were selected from different generations on phenotypic superiority basis for future program. **Spring 2015:** One hundred and sixty one families of different generations i.e., S_0=22, S_1=16, S_2=16, S_3=18, S_4=32, S_5=26 S_6=22 and S_7=09 were sown for derivation of inbred lines. At maturity, selfed plants (5-10) were harvested from each family and seed of 93 families was collected for further inbreeding programme.	

GERMPLASM ENHANCEMENT

04. TITLE	**SCREENING AND DEVELOPMENT OF GERMPLASM AGAINST STALK ROT (*Fusarium moniliforme*) TOLERANCE THROUGH INOCULATION.**	
OBJECTIVE	To develop germplasm tolerant to stalk rot.	
RESEARCH WORKER(S)	Muhammad Shakeel Ahmad Mr. Shahid Hussain Dr. Muhammad Arshad	
PROJECT DURATION	Spring & Kharif 2016	
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.	
TREATMENTS	1. One hundred & sixty five (165) inbred lines. 2. Two hundred & seventy two (272) derivative families.	
METHODOLOGY	Layout	= Ear to row
	Replications	= Non-replicated
	Plot Size	= 5m x 0.75m
	Plant to plant	= 20 cm
	Row to row	= 75 cm
	Fertilizer	= 297-148-124 NPK, Kg/ha.

	Date of sowing	= Month of July & February
	All the selfed plants will be inoculated with the pathogen carrier toothpicks in second internode from soil surface. At maturity, all selfed & inoculated plants will be torn apart with the help of scalpel and disease reaction will be recorded according to Hooker's scale (1-10). Resistant inbred lines will be marked for breeding program.	
PREVIOUS YEAR'S RESULTS:	During spring 2015, One hundred & sixty five (165) inbred lines and two hundred & seventy two (272) derivative families were sown ear to row for screening and development of inbred lines against stalk rot. On the basis of disease reaction recorded, all the inbred lines and derivative families were selected.	

HYBRID CONSTITUTION

05. TITLE	**EARLY GENERATION EVALUATION/TESTING OF INBRED FAMILIES.**	
OBJECTIVE	Evaluation of new derivatives at early generations**.**	
RESEARCH WORKER(S)	Mr. Shahid Hussain Dr. Muhammad Arshad	
PROJECT DURATION	Spring & Kharif 2016	
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.	
TREATMENTS	Fifty derivatives (S_4 & S_5) with one male.	
METHODOLOGY	Lay out	= strip planting
	Replications	= Non-replicated
	Plot Size	= 5m x 0.75m
	Plant to plant	= 20 cm
	Row to row	= 75 cm
	Fertilizer	= 297–148–124 NPK, Kg/ha.
	Date of sowing	= Month of July & February
	Fifty derivative lines will be planted in isolation with single male line to develop fifty (50) single crosses during Spring 2015. These crosses will be evaluated in preliminary yield trials in next crop season. Reconstitution of best performing single crosses will be done.	
PREVIOUS YEAR'S RESULTS:	Thirty three single crosses were developed during kharif 2014 and evaluated in Spring 2015	
06. TITLE	**CONSTITUTION OF NEW HYBRIDS IN ISOLATION AND THROUGH HAND POLLINATION.**	
OBJECTIVE	To constitute new single crosses for selection of best single crosses.	
RESEARCH WORKER(S)	Yusafwala	Mr. Khadim Hussain Mr. Shahid Hussain Dr. Muhammad Arshad

	Faisalabad	Muhammad Altaf Amer Hussain Ahsan Raza Mallhi Muhammad Rafique
PROJECT DURATION	Spring & Kharif 2016	
LOCATION	1. Maize & Millets Research Institute, Yusafwala-Sahiwal. 2. Maize Research Station, Faisalabad.	
TREATMENTS	Yusafwala	A. (Isolation) = 35 inbred lines (female) x one tester. B. (By hand) = 10 inbred lines (female) x 3 testers.
	Faisalabad	A. (Isolation-1) = 60 inbred lines (female) x one tester (Isolation-2) = 30 inbred lines (female) x one tester B. (By Hand) = 10 inbred lines (female) x two testers
METHODOLOGY	**Yusafwala.** A. Thirty five inbred lines will be crossed with one good combiner / male line for the constitution of new hybrids in isolated block in Kharif 2015 & Spring 2016. B. While in hand pollination block, three pollinators will be used with ten female lines. **Faisalabad** A. Indigenous 60 & 30 new inbred lines will be crossed in two isolations with male parent F165 and F-306, respectively in Kharif, 2015 for the development of new hybrids. B. Ten Indigenous inbred lines will be crossed by hand pollination with two male lines to find out best crosses as well as good male combiner.	
PREVIOUS YEAR'S RESULTS:	**Yusafwala.** **Kharif, 2014** Thirty four (34) single crosses were constituted in an isolation block using 34 inbred lines as female and 1 as pollinator. **Spring, 2015** One hundred and thirty nine new crosses were developed, 50 in isolation and 89 by hand pollination, during this season. **Faisalabad:** One hundred and twenty (120) single crosses were constituted by hand pollination / isolation block using 80 inbred lines as female and 3 as pollinators during Kharif 2014 while 52 new single cross hybrids were constituted during spring 2015.	

HYBRID EVALUATION

STATION TRIALS

07. TITLE	**PRELIMINARY MAIZE HYBRID YIELD TRIALS.**
OBJECTIVE	To select high yielding new hybrids**.**

RESEARCH WORKER(S)	Yusafwala	Mr. Khadim Hussain Mr. Shahid Hussain Dr. Muhammad Arshad Muhammad Shafique
	Faisalabad	Muhammad Altaf Amer Hussain Ahsan Raza Mallhi Muhammad Rafique
PROJECT DURATION	Spring & Kharif 2016	
LOCATION	1. Maize & Millets Research Institute, Yusafwala-Sahiwal. 2. Maize Research Station, Faisalabad.	
TREATMENTS	Yusafwala	A trial with thirty six single crosses including three hybrids (Two commercial & one local) as check.
	Faisalabad	Trial 1-2: Twenty seven single crosses including two commercial hybrids as check.
METHODOLOGY	Design	RCB
	Replications	Two
	Plot Size	5m x.0.75m
	Plant to plant	20 cm
	Row to row	75 cm
	Fertilizer	297–148–124 NPK Kg/ha.
	Date of sowing	Month of July & February
	Data will be recorded for different agronomic/ morphological traits and high yielding combinations will be selected.	

PREVIOUS YEAR'S RESULTS**:**

Yusafwala.

Trial No. 1: Kharif-2014:

This trial comprising of forty single crosses including three hybrids (two commercial & one local) as check was conducted. The results of top ranking entries are given below: -

S. No.	Entries	Plant Stand	Grain yield (kg/ha)	Days to 50% silk.	Plant ht. (Cm)	Cob ht. (Cm)
1	Y. Hybrid (C)	26	10920 a	54	213	108
2	YH5230	25	10093 ab	51	208	125
3	YH5225	24	9640 abc	51	193	98
4	30Y87 (C)	23	9467 abcd	57	238	130
5	NK6621 (C)	25	9440 abcd	55	200	100
18	YH5242	25	1987 n	57	160	85
	Range	22-26	1987-10920	47-57	160-238	73-125
	C.V.%	13.22	16.31	2.31	10.15	14.83
	LSD at 5%	6.13	2891	2.41	39.00	NS

Trial No. 2: Kharif-2014:

This trial comprising of forty single crosses including three hybrids (two commercial & one local) as check was conducted. The results of top ranking entries are given below: -

S. No.	Entries	Plant Stand	Grain yield (kg/ha)	Days to 50% silk.	Plant ht. (Cm)	Cob ht. (Cm)
1	YH-5280	25	11467 a	52	213	113
2	NK6621 (C)	26	10787 ab	56	228	105
3	Y. Hybrid (C)	25	10693 abc	54	225	110
4	YH-5288	24	10307 abcd	51	198	105
5	30Y87 (C)	23	9840 abcde	57	245	138
6	YH-5266	23	9760 abcde	50	205	110
23	YH-5284	25	4453 m	55	168	95
	RANGE	16-26	4453-11467	48-57	168-245	93-138
	C.V.%	10.09	16.92	2.33	5.96	10.15
	LSD at 5%	NS	2556	2.44	25.01	22.33

Trial No. 3: Kharif-2014:

This trial comprising of thirty single crosses including two hybrids (one commercial & one local) as check was conducted. The results of top ranking entries are given below: -

S. No.	Entries	Plant Stand	Grain yield (kg/ha)	Days to 50% silk.	Plant ht. (Cm)	Cob ht. (Cm)
1	NK6621 (C)	26	9187a	55	223	110
2	Y. Hybrid (C)	25	9027a	54	218	110
3	YH-5320	25	8147ab	50	218	93
4	YH-5319	25	8040abc	54	208	88
5	YH-5309	26	8027abc	53	233	115
6	YH-5315	24	8013abc	48	195	95
30	YH-5325	26	2307 i	60	188	90
	RANGE	23-26	2307-9187	47-60	178-265	85-125
	C.V.%	4.14	17.61	2.09	9.37	8.29
	LSD at 5%	NS	2169	2.24	40.01	17.58

Spring: 2015:

This trial comprising of thirty six crosses including three commercial hybrids as check was conducted. The results of top ranking entries are given below:

S. No.	Entries	Plant Stand	Grain yield (kg/ha)	Days to 50% silk.	Plant ht. (Cm)	Cob ht. (Cm)
1	YH 5333	25	12600	76	192	107
2	8711 (C)	26	12587	77	196	99
3	YH 5349	25	12307	76	202	112
4	YH 5343	22	12173	76	196	116
5	YH 5346	24	11680	79	196	122

36	Y. Hybrid (C)	21	7400	78	190	105
	Range	21-26	7400-12600	74-80	173-209	96-125
	CV%	15.78	10.20	2.49	7.50	12.06
	LSD at 5%	NS	2191	NS	NS	NS

Faisalabad

Trial-1: Kharif: 2014:

This trial comprised of twenty four single crosses including two commercial hybrids as check was conducted. The results of top ranking entries are given below: -

S. No.	Entries	Plant Stand	Grain yield (kg/ha)	Days to 50% silk.	Plant ht. (Cm)	Cob ht. (Cm)
1	FH-1219	25	13433a	55	196	86
2	FH-1203	24	13375a	54	191	80
3	NT-6621(C)	25	13039ab	55	213	93
4	FH-1200	24	12244abc	54	184	85
5	FH-1208	23	10595bcd	53	205	88
12	30Y87 (C)	19	9280defg	54	211	105
24	FH-1202	14	2655	54	182	61
	Range	10-25	2655-13433	49-55	154-213	58-105
	CV%	15.36	13.82	1.49	0.98	3.24
	LSD at 5%	3.05	1193	0.79	1.86	2.64

Trial-2: Kharif: 2014

This trial comprised of twenty four single crosses including two commercial hybrids as check was conducted. The results of top ranking entries are given below: -

S. No.	Entries	Plant Stand	Grain yield (kg/ha)	Days to 50% silk.	Plant ht. (Cm)	Cob ht. (Cm)
1	FH-1231	25	12936 a	49	211	107
2	NT-6621 (C)	25	11377 ab	54	205	102
3	FH-1238	21	11243 ab	54	206	99
4	FH-810 (C)	23	10709 abc	52	194	92
5	FH-1232	23	10556 abc	53	212	104
23	30Y87(C)	11	4621 de	50	187	81
24	FH-1242	8	4416 e	54	195	89
	Range	7-25	4416-12936	49-56	168-218	73-110
	CV%	13.91	17.27	1.15	1.52	4.45
	LSD at 5%	2.93	1574	0.61	2.99	4.25

Trial-1: Spring: 2015:

This trial comprised of twenty seven single crosses including two commercial hybrids as check was conducted. The results of top ranking entries are given below: -

S. No.	Entries	Plant Stand	Grain yield (kg/ha)	Days to 50% silk.	Plant ht. (Cm)	Cob ht. (Cm)
1	FH-1260	29	14636	80	184	62
2	FH-1266	27	13725	82	178	85
3	FH-1263	31	13496	81	189	93
4	FH-1257	29	13340	76	199	85
5	FH-1246	32	13160	78	193	82
6	NK-8711(C)	30	12974	77	195	75
7	FH-1256	29	12876	82	183	87
20	P15M43(C)	33	11465	77	185	76
27	FH-1267	27	7179	83	183	74
	Range	25-33	7179-14636	76-84	153-213	60-106
	CV%					
	LSD at 5%					

Trial-2: Spring: 2015:

This trial comprised of twenty seven single crosses including three commercial hybrids as check was conducted. The results of top ranking entries are given below: -

S. No.	Entries	Plant Stand	Grain yield (kg/ha)	Days to 50% silk.	Plant ht. (Cm)	Cob ht. (Cm)
1	FH-1287	30	15063	80	188	85
2	FH-1268	29	14947	79	172	77
3	FH-1276	30	14714	79	188	91
4	FH-1285	27	14569	80	206	99
5	FH-1290	27	14415	81	208	105
6	FH-1270	31	14097	78	196	96
11	P15M43 (C)	30	12919	76	194	92
27	FH-1291	18	3175	80	120	58
	Range	18-31	3175-15063	76-83	120-216	58-113
	CV%					
	LSD 5%					

08. TITLE **MICRO HYBRID MAIZE YIELD TRIALS.**

OBJECTIVE To selected high yielding single crosses having desirable characteristics.

RESEARCH WORKER (S)	Yusafwala	Mr. Khadim Hussain Mr. Shahid Hussain Dr. Muhammad Arshad

	Faisalabad	Muhammad Altaf Amer Hussain Ahsan Raza Mallhi
PROJECT DURATION	Spring & Kharif 2016	
LOCATION	Maize Research Station, Faisalabad.	
TREATMENTS	Yusafwala	A trial with twenty four single crosses including three hybrids (Two commercial & one local) as check.
	Faisalabad	Trial 1-3: Eighteen single crosses including two commercial hybrids as checks.
METHODOLOGY	Design	= R.C.B.
	Reps	= 2
	Plot size	= 5m x 1.5 m
	Row to row	= 75 cm
	Plant to plant	= 20 cm
	Fertilizer	= 297:148:124 NPK Kg/ha
	Date of Sowing	= Month of July & February
	Data will be recorded for the following morphological traits: stand count, days to 50% tasseling, days to 50% silking, plant height, cob height, No. of plants/plot (at harvest), No. of cobs/plot (at harvest), fresh cob wt. moisture percentage, lodging %age, stalk rot %age and grain yield.	

PREVIOUS YEAR'S RESULTS:

Yusafwala
Kharif 2014:

This trial comprising of twelve entries including two commercial hybrids as check was conducted. The results of top ranking entries are given below: -

R. No.	Entries	Plant Stand	Grain Yield (Kg/ha)	Days to 50 % silk	Plant ht. (cm)	Cob ht. (cm)
1	NT-6621 (C)	50	9247a	57	240	130
2	30Y87 (C)	47	8260ab	55	203	105
3	YH-5209	47	7547bc	53	200	100
4	YH-5165	51	7467bcd	51	185	95
5	YH-5189	52	7007bcde	50	168	80
12	YH-5323	52	4740 g	53	175	93
	Range	47-52	4740-9247	50-57	168-240	80-130
	CV%	4.45	8.96	1.65	8.63	15.57
	LSD at 5%	NS	1326	1.93	36.55	NS

Spring: 2015:

This trial comprising of twenty four entries including three commercial hybrids as check was conducted. The results of top

ranking entries are given below: -

R. No.	Entries	Plant Stand	Grain Yield (Kg/ha)	Days to 50 % silk	Plant ht. (cm)	Cob ht. (cm)
1	YH-5232	49	12633	77	207	106
2	P1543 (c)	43	12607	77	204	102
3	YH-5254	41	11980	77	172	95
4	YH-5264	39	11767	75	201	102
5	YH-5265	44	11300	77	184	107
24	YH-5225	39	8240	78	185	112
	Range	38-49	8240-12633	73-78	170-207	83-113
	CV%	11.53	6.19	2.52	6.59	11.90
	LSD at 5%	NS	1338	NS	NS	NS

Faisalabad

Kharif 2014

This trial comprising of fourteen entries including two commercial hybrids as check was conducted. The results of top ranking entries are given below: -

R. No.	Entries	Plant Stand	Grain Yield (Kg/ha)	Days to 50 % silk	Plant ht. (cm)	Cob ht. (cm)
1	FH-1137	44	10888 a	52	201	93
2	FH-1025	50	10473 ab	50	205	92
3	FH-1012	50	10423 ab	52	212	92
4	NT-6621 (C)	46	10020 abc	54	213	105
5	FH-1124	41	9115 bc	50	207	95
14	30Y87 (C)	17	3496 e	56	205	103
	Range	16-51	3496-10888	49-56	174-200	73-10
	CV%	8.94	11.01	1.56	0.98	2.46
	LSD at 5%	3.06	783	0.65	1.60	1.86

Trial 1: Spring: 2015:

This trial comprising of eighteen entries including two commercial hybrids as check was conducted. The results of top ranking entries are given below: -

R. No.	Entries	Plant Stand	Grain Yield (Kg/ha)	Days to 50 % silk	Plant ht. (cm)	Cob ht. (cm)
1	FH-1167	50	13680	80	177	108
2	FH-1117	51	12444	82	181	110
3	FH-1119	50	11733	76	170	105
4	FH-1166	51	11716	82	176	106
5	FH-1124	50	11627	80	153	82
6	NK-8711 (C)	51	11502	76	168	117

	7	P1543 (C)	51	11298	76	165	96
	18	FH-1114	51	8436	82	141	85
		Range	42-52	8436-13680	76-83	141-213	82-125
		CV%					
		LSD 5%					

Trial 2: Spring: 2015:

This trial comprising of eighteen entries including two commercial hybrids as check was conducted. The results of top ranking entries are given below: -

R. No.	Entries	Plant Stand	Grain Yield (Kg/ha)	Days to 50 % silk	Plant ht. (cm)	Cob ht. (cm)
1	FH-1205	50	11333	77	186	91
2	FH-1173	50	10982	78	166	94
3	FH-1180	49	10573	80	179	108
4	FH-1203	48	10044	78	173	94
5	FH-1184	48	10027	77	168	99
9	P15M43(C)	47	9422	74	178	74
15	NK-8711 (C)	44	8622	75	167	79
18	FH-1202	32	7756	80	163	88
	Range	32-50	7756-11333	74-81	163-202	74-110
	CV%					
	LSD 5%					

Trial 3: Spring: 2015:

This trial comprising of eighteen entries including two commercial hybrids as check was conducted. The results of top ranking entries are given below: -

R. No.	Entries	Plant Stand	Grain Yield (Kg/ha)	Days to 50 % silk	Plant ht. (cm)	Cob ht. (cm)
1	FH-1218	50	11853	79	189	99
2	FH-1231	51	11347	84	183	96
3	FH-1229	49	11133	77	174	104
4	FH-1219	47	11107	81	186	100
5	FH-1212	48	10738	78	173	89
16	P15-M43 (C)	50	9204	76	174	85
17	NK-8711 (C)	46	9027	76	166	79
18	FH-1225	50	8107	82	182	92
	Range	43-51	8107-11853	76-85	166-192	79-117
	CV%					
	LSD 5%					

09. TITLE	**MACRO HYBRID MAIZE YIELD TRIALS.**

OBJECTIVE	To select high yielding hybrids.
RESEARCH WORKER(S)	Muhammad Altaf Amer Hussain Ahsan Raza Mallhi
PROJECT DURATION	Spring & Kharif 2016
LOCATION	Maize Research Station, Faisalabad.
TREATMENTS	Trial 1: Nine single crosses including two commercial hybrids as check. Trial 2: Twelve single crosses including two commercial hybrids as check.

METHODOLOGY		
	Design	= RCB
	Replications	= Two
	Plot Size	= 5m x 3m
	Plant to plant	= 20 cm
	Row to row	= 75 cm
	Fertilizer	= 297–148–124 NPK Kg/ha.
	Date of sowing	= Month of July & February.
	Data will be recorded for different agronomic/ morphological traits and high yielding combinations will be selected.	

PREVIOUS YEAR'S RESULTS:

Trial-1: Kharif: 2014:

This trial comprising of nine entries including three checks was conducted. The results of top ranking entries are given below: -

R. No.	Entries	Plant Stand	Grain Yield (Kg/ha)	Days to 50 % silk	Plant ht. (cm)	Cob ht. (cm)
1	FH-1036	94	11120 a	54	218	111
2	FH-810 (C)	90	10551 ab	53	201	105
3	FH-1046	98	10418 abc	52	188	92
4	NT-6621(C)	97	10031 bc	53	212	101
5	FH-963	90	9727 bc	55	198	105
9	30Y87 (C)	57	5727 d	56	202	94
	Range	52-109	5727-11120	50-56	185-225	79-112
	CV%	6.42	6.02	1.43	2.86	4.93
	LSD 5%	4.70	474	0.62	4.72	3.97

Trial -2: Kharif: 2014:

This trial comprising of twelve entries including four checks was conducted. The results of top ranking entries are given below: -

R.	Entries	Plant	Grain	Days to	Plant	Cob

No.		Stand	Yield (Kg/ha)	50 % silk	ht. (cm)	ht. (cm)
1	FH-950	73	10673 a	50	206	97
2	NT-6621 (C)	73	10471 ab	54	206	97
3	FH-922	72	10436 ab	50	202	101
4	FH-988	71	10124 abc	50	204	99
6	FH-810 (C)	71	9683 bcd	53	188	90
9	Y. Hybird (C)	65	8145 e	53	184	85
11	30Y87 (C)	63	7876 e	54	204	100
12	FH-936	47	6860 f	53	183	92
	Range	44-76	6860-10673	50-54	170-222	75-116
	CV%	5.74	5.11	2.07	5.60	8.06
	LSD 5%	3.18	386	0.88	8.88	NS

Trial: 1: Spring 2015:

This trial comprised of nine single crosses including two commercial hybrids as check was conducted. The results of top ranking entries are given below: -

R. No.	Entries	Plant Stand	Grain Yield (Kg/ha)	Days to 50 % silk	Plant ht. (cm)	Cob ht. (cm)
1	FH-1036	90	11120	85	193	113
2	FH-810	90	10551	81	183	108
3	FH-1046	98	10418	80	182	108
4	NK-8711(C)	97	10031	76	170	81
5	FH-985	89	9727	80	175	98
9	P1543(C)	59	5727	74	184	96
	Range	59-98	5727-11120	74-85	170-199	81-115
	CV%					
	LSD 5%					

Trial: 2 Spring 2015:
This trial comprised of twelve single crosses including two commercial hybrids as check was conducted. The results of top ranking entries are given below: -

R. No.	Entries	Plant Stand	Grain Yield (Kg/ha)	Days to 50 % silk	Plant ht. (cm)	Cob ht. (cm)
1	FH-1012	83	13158	84	172	87
2	FH-928	85	12397	80	173	98
3	FH-976	86	12133	83	192	107
4	FH-929	83	11632	84	173	86
5	FH-1042	85	11606	83	166	91
8	P15M43 (C)	85	11004	77	175	77
10	NK-8711(C)	80	10853	78	148	74
12	FH-1025	81	9310	84	167	90
	Range	80-	9310-	77-85	148-	74-

			87	13158		194	107
		CV%					
		LSD 5%					

10. TITLE	**EVALUATION OF PROMISING MAIZE HYBRIDS AGAINST COMMERCIAL HYBRIDS.**
OBJECTIVE	To evaluate local maize hybrids versus multinational hybrids
RESEARCH WORKER(S)	Mr. Khadim Hussain Mr. Shahid Hussain Dr. Muhammad Arshad
PROJECT DURATION	Spring & Kharif 2016
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.
TREATMENTS	Entries =10 (YH-1898, Yusafwala hybrid,FH-949,FH-963, FH-793, FH-985, FH-1046, FH-810, NK-8711 & P1543)
METHODOLOGY	Lay out = RCBD Replications = 03 Plot Size = 25m x 6m Plant to plant = 20 cm Row to row = 75 cm Fertilizer = 297–148–124 NPK, Kg/ha. Date of sowing = Month of July & February. Data regarding stand count, days to 50% silking, plant height, lodging % age, plants harvest/plot, fresh cob weight, moisture percentage and shelling % age will be collected and grain yield will be calculated.
PREVIOUS YEAR'S RESULTS:	**Kharif: 2014:**

R. No.	**Entries**	**Plant Stand**	**Grain Yield (Kg/ha)**	**Days to 50 % silk**	**Plant ht. (cm)**	**Cob ht. (cm)**
1	NK-6621(c)	89	9419 a	54	224	118
2	FH-963	77	9007 a	56	209	120
3	YH-1898	81	8201 b	52	199	104
4	FH-810	71	8098 bc	58	227	134
5	FH-985	74	7603bcd	54	207	112
6	30 Y 87(c)	77	7425 cd	55	236	133
10	FH-949	75	3233 f	56	209	110
	Range	63-89	3233-9419	52-58	109-236	104-133
	CV%	10.19	5.93	1.15	2.81	4.19
	LSD at 5%	13.1	745	1.08	10.2	8.28

Spring: 2015:

This trial comprising ten entries including two varieties and two commercial hybrids as check was conducted. The results of top ranking entries are given below.

R. No.	Entries	Plant Stand	Grain Yield (Kg/ha)	Days to 50 % silk	Plant ht. (cm)	Cob ht. (cm)
1	P1543 (C)	75	13733	69	227	111
2	NK-8711 (C)	72	12756	71	205	99
3	YH-1898	73	11642	74	218	121
4	FH-949	70	11600	73	190	126
5	FH-963	72	11428	74	187	103
10	Y. Hybrid (C)	35	6017	75	205	98
	Range	35-75	6017-13733	68-75	187-227	98-126
	CV%	7.57	7.20	2.81	9.16	2.56
	LSD at 5%	8.77	1350	3.51	NS	4.74

11. TITLE	**PRE STORAGE AFLATOXINS ANALYSIS IN MAIZE.**
OBJECTIVE	To estimate the susceptibility of maize hybrids/inbred lines to aflatoxins.
RESEARCH WORKER(S)	Muhammad Altaf Amer Hussain Ahsan Raza Mallhi Muhammad Rafique
COLABORATIVE RESEARCH WORKER(S)	Dr. Mazhar Iqbal (PSO) Miss Saima Majeed (Ph.D Student)
PROJECT DURATION	2015
LOCATION	NIBGE Faisalabad (Health Biochemistry Division)
TREATMENTS	Homogenized and representative samples of grains from 72 maize hybrids/inbred lines of Maize Research Station, Faisalabad
METHODOLOGY	Liquid Chromatography Mass Spectrometry
PREVIOUS YEAR'S RESULTS:	New experiment

NATIONAL UNIFORM YIELD TRIALS

12. TITLE	**NATIONAL UNIFORM/ADAPTABILITY MAIZE HYBRID YIELD TRIALS.**
OBJECTIVE	To evaluate exotic/local hybrids at various locations throughout the country.

RESEARCH WORKER(S)	Yusafwala	Malik Riaz Hussain Dr. Muhammad Arshad
	Faisalabad	Muhammad Altaf Muhammad Rafique
PROJECT DURATION	Spring & Kharif 2016	
LOCATION	1. Maize & Millets Research Institute, Yusafwala-Sahiwal. 2. Maize Research Station, AARI, Faisalabad.	
TREATMENTS:	As provided by National Coordinator (Cereal System) PARC, Islamabad.	
METHODOLOGY:	As per instructions of National Coordinator (Cereal System) PARC, Islamabad.	
PREVIOUS YEAR'S RESULTS:	**MAIZE HYBRID ADAPTABILITY TRIAL** **Entries: 40, Year: Kharif - 2014, Locations: 11**	

R. No.	Hybrid Name	Grain Yield (Kg/Ha.) (Average)
1	TN9208	8316
2	X40C245	8105
3	X40C253	8015
4	BP-1	7953
5	KXB2572	7930

Source: NARC, Islamabad.

MAIZE HYBRID ADAPTABILITY TRIAL
Entries: 58, Year: Spring- 2015, Locations: 09

R. No.	Hybrid Name	Grain Yield (Kg/Ha.) (Average)
1	DK-6634	9214
2	Garannon	9128
3	S-7219	8850
4	HT-2088	8827
5	S-7272	8762

Source: NARC, Islamabad.

SEED PRODUCTION

13. TITLE	**SEED MULTIPLICATION.**	
OBJECTIVE	To multiply seed of single cross hybrids and their parental inbred lines for experimental and commercial purposes.	
RESEARCH WORKER(S)	Yusafwala	Sadia Kanwal Malik Riaz Hussain Dr. Muhammad Arshad
	Faisalabad	Muhammad Altaf Amer Hussain

		Muhammad Rafique
PROJECT DURATION	Spring & Kharif 2016	
LOCATION	1. Maize & Millets Research Institute, Yusafwala-Sahiwal. 2. Maize Research Station, AARI, Faisalabad.	
TREATMENTS	Yusafwala	A. Inbred lines = 03 i.e. Y-14, Y-22, Y-27 B. Single crosses = 02 i.e. Yusafwala Hybrid, YH-1898 & FH-1046
	Faisalabad	A. Inbred lines = 05 i.e. F-165, F-182, F-271, F-299 and ZP-633 B. Single crosses = 07 i.e. FH-810, FH-949, FH-963, FH-985, FH-988, FH-1036 & FH-1046
METHODOLOGY	Lay out	Isolation
	Plot size	1-10 Kanals for inbred lines 1-8 Acres for single crosses
	Row to row	75 cm
	Plant to plant	20 cm
	Fertilizer	297:148:124 NPK Kg/ha
	Date of Sowing	Month of January, February, July & August

PREVIOUS YEAR'S RESULTS

The following quantity of inbred lines seed was produced:

	Yusafwala	Faisalabad	Quantity (kg)
Inbred lines			
	Y-22	-	62
	Y-27	-	60
	-	F-107	02
	-	ZP-633	03
	-	F-165	60
	-	F-182	02
	-	F-271	80
Single Crosses	YH-1898	-	2000
	Yusafwala Hybrid	-	-
	FH- 949	-	14
		FH-793	05
		FH-922	05
		FH- 949	90
		FH- 963	05
		FH-985	05
		FH-988	05
		FH-1046	30
Double Cross	-	DTC-1	1000

14. TITLE	**IMPROVEMENT OF PARENTAL INBRED LINES OF APPROVED AND CANDIDATE HYBRIDS.**

OBJECTIVE	To achieve uniformity regarding flowering, maturity, number of rows, cob placement and better root anchor.	
RESEARCH WORKER(S)	Yusafwala	Malik Riaz Hussain Dr. Muhammad Arshad
PROJECT DURATION	Spring & Kharif 2016	
LOCATION	1. Maize & Millets Research Institute, Yusafwala-Sahiwal.	
TREATMENTS	Y-14, Y-22, Y-27	
METHODOLOGY	Lay out	Strip
	Plot size	1-2 Kanals for each inbred line,
	Row to row	75 cm
	Plant to plant	20 cm
	Fertilizer	297:148:124 NPK Kg/ha
	Date of Sowing	Month of January, February, July & August
PREVIOUS YEAR'S RESULTS	**Kharif 2015:** 100 plants were selected from each of the three lines and selfed by hand pollination.	
15. TITLE:	**ON-FARM TESTING OF PROMISING HYBRIDS.**	
OBJECTIVE:	To evaluate maize hybrids on farmer's field.	
RESEARCH WORKER (S):	Yusafwala	Mr. Saleem ur rahman Dr. Muhammad Arshad
	Faisalabad	Muhammad Rafique Muhammad Altaf
PROJECT DURATION:	Spring & Kharif 2016	
LOCATION:	6 (Four in Faisalabad & two in Sahiwal division).	
TREATMENTS:	Hybrids = 08 i.e (FH 963, FH 949, FH 985, FH 1036,FH-1046,YH-1898, Yusafwala Hybrid & one commercial hybrid)	
METHODOLOGY:	Layout	= Strips
	Reps	= Non replicated
	Plot size	= 45 m^2
	Row to row	= 67.5 cm
	Plant to plant	= 20 cm
	Fertilizer	= Farmer's Practice.
	Date of sowing	= Month of January and July.

PREVIOUS YEAR'S RESULTS:	**On-Farm Trial:** **Spring 2015:**

	Sr. No.	**Location**	**Entries**	**Grain yield (kg/ha)**
	1	Khidder wala, Gojra	FH-949 FH-985 P1543 (C) FH-793 EV-77	10973 9285 8926 8551 7732
	DEMONSTRATION PLOT OF FH-949			
	Sr. No.	**Location**	**Entries**	**Grain yield (kg/ha)**
	1	Seed Abad Jhang	FH-949 NK-8711(C)	11763 9645
	2	Chak no. 463 JB Gojra	FH-949 DK 6142 (C)	11419 10487
	DEMONSTRATION PLOT OF FH-1046			
	Sr. No.	**Location**	**Entries**	**Grain yield (kg/ha)**
	1	Chimbranwali Jhang	FH-1046 P15M43 (C)	9147 8871

MAIZE OPV'S

01. TITLE:	**MAINTENANCE AND ENRICHMENT OF POPULATIONS OF POOL - 10 & 50.**	
OBJECTIVE:	To enrich base population of pool 10 & 50 required for OPVs derivations.	
RESEARCH WORKER(S):	Rana Abdul Hameed Khan Dr. Muhammad Arshad	
PROJECT DURATION:	Continuous	
LOCATION:	Maize & Millets Research Institute, Yusafwala-Sahiwal.	
TREATMENTS:	Base populations of Yusafwala Pools-10 & 50.	
METHODOLOGY:	Lay out Plot size Plant to plant distance Row to row distance Fertilizer Date of sowing	= Strip = 31.5m x 48.5m = 20cm = 75cm = 227-114-62 NPK, Kg/ha = Month of February and July
	Presently available base populations of pool-10 and pool-50 will be sown in isolation for their maintenance. Undesirable plants will be roughed out before pollination and open pollination will be allowed to broaden the genetic base. At maturity, crop will be harvested as a whole. Random representative samples will be kept for further	

	maintenance.
PREVIOUS YEAR'S RESULTS:	Base population of pool-10 was maintained. Undesirable plants were roughed out before pollination and open pollination was allowed to broaden the genetic base. Base population of pool-50 was enriched by adding 10 new germplasm collected from various sources during Spring 2014. It was planted in Kharif 2014 and desirable 100 plants were selected for next selection cycle. The selected cob's seed was mixed and planted during Spring 2015 and 200 plants were selected on phenotypic superiority basis. Out of which 100 plants were selfed while 100 plants were allowed to open pollinate for next cycle of selection.
02. TITLE:	**DEVELOPMENT OF OPEN POLLINATED VARIETY**
OBJECTIVE:	To develop improved maize variety.
RESEARCH WORKER (S):	Ghulam Murtaza Rana Abdul Hameed Khan Dr. Muhammad Arshad Mian Muhammad Shafique
PROJECT DURATION:	Spring & Kharif 2016
LOCATION:	Maize & Millets Research Institute, Yusafwala-Sahiwal.
TREATMENTS:	Fifty one selected cobs.
METHODOLOGY:	Lay out = Ear to row Plot size = 5m x 0.75m Plant to plant distance = 20cm Row to row distance = 75cm Fertilizer = 227-114-62 NPK, Kg/ha Date of sowing = Month of February & July, 2014. Fifty one selected cobs will be sown in isolation. Before tasseling, undesirable plants will be roughed out. Prior to silking, selection will be made on the bases of tallness, stem girth, cob placement at 8^{th} -9^{th} node and lodging resistance during Kharif 2015. At 50 % silking, again roughing will be conducted keeping in view of greater cob length and similar silking time and allow open pollination. After harvesting, table selection of cobs will be made and bulked as a new experimental variety (AH-15) seed which will be evaluated against check varieties during Spring 2016.
PREVIOUS YEAR'S RESULTS:	Mixed seed of seven selected lines was planted during Kharif 2014 and selected the plants on the bases of height, stem girth, cob placement at 8^{th} -9^{th} node and uprooted the rest of the plants. Open pollination was allowed and selected 100 desirable plants for next improvement cycle. Mixed seed of 100 selected cobs was planted and 150 superior plants were selected and selfed. Out of these, 51 cobs were selected on their cob aspect as table selecton for further selection.

03. TITLE: **MICRO PLOT MAIZE YIELD TRIAL (OPV)**

OBJECTIVE: To evaluate the promising maize experimental varieties for high yield potential.

RESEARCH WORKER (S): Mr. Ghulam Murtaza
Mr. Aamir Hussain
Dr. Muhammad Arshad

PROJECT DURATION: Spring & Kharif 2016

LOCATIONS: Maize & Millets Research Institute, Yusafwala-Sahiwal.

TREATMENTS: 7= YEV-6486, Pak-1, Pak-2, AH-15, YEV-6487, Pearl & MMRI Yellow.

METHODOLOGY:

Design	= RCB
Reps	= 3
Plot size	= 5m x 3m
Row to row	= 75 cm
Plant to plant	= 20 cm
Fertilizer	= 227:114:62 NPK Kg/ha
Date of Sowing	= Month of July & February.

Data will be recorded for stand count, days to 50% tasseling, days to 50% silking, plant height, cob height, fresh cob weight/plot and grain yield.

PREVIOUS YEAR'S RESULTS:

Kharif 2014:

The trial comprising eight entries was conducted. The results are given below.

Sr. No.	Entries	Plant Stand	Grain Yield (Kg/ha)	Days to 50 % silk	Plant ht. (cm)	Cob ht. (cm)
1	MMRI Yellow (C)	36	4902 a	52	237	134
2	Agaiti-2002	34	4253 b	51	226	120
3	Pearl	33	4107 bc	52	219	108
4	FEV-77	36	3933 bc	51	208	110
5	YEV1098	35	3911 bc	49	192	89
6	YEV-6486	35	3729 c	50	223	112
7	Pak-2	35	2649 d	51	212	109
8	Pak-1	34	2347 d	52	204	100
	CV%	6.17	7.92	1.94	9.10	16.25
	LSD at 5%	NS	517	NS	NS	NS

Spring 2015:

The trial comprising eight entries was conducted. The results are given below.

Sr. No.	Entries	Plant Stand	Grain Yield	Days to 50 %	Plant ht.	Cob ht.

				(Kg/ha)	**silk**	**(cm)**	**(cm)**
	1	AH-15	70	9291 a	75	211	106
	2	MMRI Yellow (C)	70	7722 b	73	213	113
	3	Sahiwal-2002	71	7330 c	72	225	116
	4	Pearl	66	7039 c	71	235	126
	5	Pak-2	68	6552 d	70	225	120
	6	YEV-6487	66	6522 d	69	226	122
	7	Pak-1	75	6511 d	69	216	115
	8	YEV 6486	71	5986 e	69	202	107
		CV%	4.63	2.60	1.73	5.17	8.16
		LSD at 5%	NS	324	2.0	NS	NS

03. TITLE:	**MICRO PLOT MAIZE YIELD TRIAL (POP & SWEET CORN)**	
OBJECTIVE:	To evaluate the promising pop corn maize experimental varieties for high yield potential.	
RESEARCH WORKER (S):	Mr. Ghulam Murtaza Mr. Aamir Hussain Dr. Muhammad Arshad	
PROJECT DURATION:	Spring & Kharif 2016	
LOCATIONS:	Maize & Millets Research Institute, Yusafwala-Sahiwal.	
TREATMENTS:	8= Pop Corn-14, Pop Corn-12, Local Sahiwal, Local Swat, Local Dir, White Pop Corn, MMRI, Sweet Corn and Local Sweet Corn.	
METHODOLOGY:	Design	= RCB
	Reps	= 3
	Plot size	= 4m x 3m
	Row to row	= 75 cm
	Plant to plant	= 20 cm
	Fertilizer	= 227:114:62 NPK Kg/ha
	Date of Sowing	= Month of July & February.
	Data will be recorded for stand count, days to 50% tasseling, days to 50% silking, plant height, cob height, fresh cob weight/plot and grain yield.	
PREVIOUS YEAR'S RESULTS:	**Spring 2015:** The trial comprising five entries was conducted. The results are given below.	

Sr. No.	**Entries**	**Plant Stand**	**Grain Yield (Kg/ha)**	**Days to 50 % silk**	**Plant ht. (cm)**	**Cob ht. (cm)**
1	Pop Corn-14	91	5638 a	73	224	120
2	Pop Corn-12	90	4043 b	70	210	112
3	Local	90	3681 c	73	229	128

		Sahiwal					
	5	Local Dir	89	3673 c	70	223	127
	4	Local Swat©	86	3216 d	70	228	125
		CV%	2.56	3.18	1.27	6.70	11.52
		LSD at 5%	NS	198	1.40	NS	NS

04. TITLE:	**NATIONAL UNIFORM MAIZE VARIETAL YIELD TRIAL.**	
OBJECTIVE:	To evaluate national maize varieties.	
RESEARCH WORKER (S):	Yusafwala	Rana Abdul Hameed Khan Dr. Muhammad Arshad
	Faisalabad	Mr. Muhammad Altaf Mr. Muhammad Rafique
	Rawalpindi	Mr. Muhammad Siddique Dr. Muhammad Irshad-ul-Haq
PROJECT DURATION:	Spring & Kharif 2016	
LOCATIONS:	1-Maize & Millets Research Institute, Yusafwala-Sahiwal. 2-Maize Research Station, Faisalabad.	
TREATMENTS:	As per instructions of the National Coordinator (Cereal System) PARC, Islamabad	
METHODOLOGY:	As per instructions of the National Coordinator (Cereal System) PARC, Islamabad	

PREVIOUS YEAR'S RESULTS:

NATIONAL UNIFORM MAIZE VARIETAL YIELD TRIAL.
Entries: 10, Year: Kharif- 2014, Locations: 7

R. No.	Variety Name	Grain Yield (Kg/Ha.) (Average)
1	**FEV-77**	**5166**
2	NP-3	4821
3	Rustam Special	4624
4	Islamabad Gold	4598
10	NP-4	3264
Source: NARC, Islamabad.		

NATIONAL UNIFORM MAIZE VARIETAL YIELD TRIAL.
Entries: 14, Year: Spring- 2015, Locations: 4

R. No.	Variety Name	Grain Yield (Kg/Ha.) (Average)
1	Islamabad Gold (c)	6695
2	Pop-corn-14	5903
3	NARC-EV-1401	5798
4	EV-77 (Malka)	5635
14	Islamabad White	3585
Source: NARC, Islamabad.		

OPV Seed Multiplication

Basic Seed MMRI YELLOW= 2400 Kg Spring 2016 Malik Riaz Hussain SORGHUM

01. TITLE	**MAINTENANCE OF GENE POOL.**		
OBJECTIVE	To maintain the germplasm for breeding program.		
RESEARCH WORKER (S)	Yusafwala	Mr. Muhammad Saeed Mr. Dilbar Hussain	
	D.G.Khan	Mr. Ihsanullah Mrs.Zaib-un-Nisa	
PROJECT DURATION	Kharif 2016		
LOCATION	1. Maize & Millets Research Institute, Yusafwala-Sahiwal. 2. Sorghum Research Sub-station, D. G. Khan.		
TREATMENTS	80 entries each at MMRI, Yusafwala and SRSS, D. G. Khan.		
	Seed/Seedling.		
	1. Seedling growth habit	2. Coleoptile's Anthcyanin	
	3. Seedling length (cm)	4. First leaf color	
	5.First leaf tip		
	Leaf		
	6. No, of Leaf per plant	7. Leaf size (length / width)	
	8. Leaf attitude (drooping / semi-drooping / erect)	9. Mid rib color	
	Stem		
	10. Stem length	11.Stem type (Juicy/dry)	
	12. Stem thickness	13. Lodging	
	14. Internode length		
	Reproductive Traits		
	15. Days to panicle emergence	16.Peduncle length	
	17. Panicle shape	18. Panicle attitude	
	19. Rachis length/width	20. Stigma color	
	21. Anther fertility		
	Seed		
	22. Seed covering	23. Seed size	
	24. Seed shape (Narrow elliptic, elliptic and spherical)	25. 100 grain weight (gm)	
	26. Seed weight/panicle (gm)		
	Disease		
	27. Red leaf spot	28. Stalk rot %age	
	29. Any other		

METHODOLOGY	Lay out Reps Plot size Plant to plant Row to row Fertilizer Date of sowing	= = = = = =	Strip Non replicated 5m x 1.5m 15 cm 75 cm 170-84-62 NPK (Kg/ha) at Y. Wala & D.G.K. 79-57-62 NPK (Kg/ha) at Rawalpindi. 25^{th} June – 15^{th} July
	Five true to type plants will be selected in each line and will be covered with Kraft paper bags to avoid contamination. At maturity, Selected panicles will be harvested and seed will be collected for maintenance. The data on different agronomic characteristics like days to 50% anthesis, plant height, brix percentage, leaf color, leaf attitude, tillering, lodging, panicle attitude etc. will be recorded.		
PREVIOUS YEAR'S RESULTS:	Eighty entries were planted and maintained at MMRI, Yusafwala-Sahiwal and SRSS, D. G. Khan.		
02. TITLE	**MAINTENANCE OF CYTOPLASMIC MALE STERILE (A) LINES.**		
OBJECTIVE	To maintain the female parent lines for hybrid program.		
RESEARCH WORKER(S)	Mr. Muhammad Saeed Mr. Dilbar Hussain		
PROJECT DURATION	Kharif 2016		
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.		
TREATMENTS	Fifteen A & B lines.		
METHODOLOGY	Lay out Reps Plot size Plant to plant Row to row Fertilizer Date of sowing	= = = = = = =	Strip Non replicated 5m x 2.25m 15 cm 75 cm 170-84-62 NPK, (Kg/ha) 25^{th} June – 15^{th} July
	These lines will be sown in 3:1 (female: male). Ten vigorous plants/ heads of male and female lines will be selected in each line &covered with Kraft paper bags before flowering and pollination will done by hand for maintenance of CMS lines. At maturity, seed will be collected for maintenance.		
PREVIOUS YEAR'S RESULTS:	Eighteen CMS (A) and their counterpart (B) lines were planted. Fifteen lines were maintained while three lines were rejected, one due to disease susceptibility and other two restore the fertility..		

03. TITLE	**MAINTENANCE OF FERTILITY RESTORER (R) LINES.**		
OBJECTIVE	To maintain the male parent lines for hybrid program.		
RESEARCH WORKER(S)	Mr. Muhammad Saeed Mr. Dilbar Hussain		
PROJECT DURATION	Kharif 2016		
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.		
TREATMENTS	Twenty six fertility restorer (R) lines.		
METHODOLOGY	Lay out Reps Plot size Plant to plant Row to row Fertilizer Date of sowing	= = = = = = =	Strip Non replicated 5m x 1.5m 15 cm 75 cm 170-84-62 NPK (Kg/ha) 25^{th} June – 15^{th} July
	Five true to type plants will be selected from each line. The panicles of selected plants will be covered with craft paper bags before flowering for their maintenance. The data on different traits like days to 50% anthesis, plant height, brix percentage, leaf color, leaf attitude, tillering, lodging, panicle attitude etc. will be recorded.		
PREVIOUS YEAR'S RESULTS:	Twenty six restorer lines were planted and maintained.		
04. TITLE	**DEVELOPMENT OF DUAL PURPOSE SWEET SORGHUM VARIETY.**		
OBJECTIVE	To develop sweet sorghum variety with high grain yield and sugar content.		
RESEARCH WORKER (S)	Mr. Muhammad Saeed Mr. Dilbar Hussain Mian Muhammad Shafique		
PROJECT DURATION	Kharif 2016		
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.		
TREATMENTS	Eight F_2 populations. Five F_4 populations		
METHODOLOGY	Replications	03	
	Plot size	5m x 31.5m	
	Plant to Plant	25 cm	
	Row to Row	75 cm	
	Fertilizer (Kg/ha)	79-57-62 NPK.	

	Date of sowing	25th June – 15th July
	Eight F_2 and five F_4 populations will be planted along with both parents according to standard practice. Desirable plants will be marked /selected, keeping in view; brix % age, medium tall in height, semi drooping green leaves, panicle size, panicle shape and their panicles will be covered with craft paper bags to ensure selfing. At maturity, plants exhibiting cream color grains will be finally selected for next generation studies.	
PREVIOUS YEAR'S RESULTS:	Eight F_1 crosses were planted and harvested for raising their segregating generation during Kharif 2016. Eight F_3families were planted and phenotypically superior plants from five families were selected and harvested for raising their next filial generation.	

HYBRIDIZATION

05. TITLE:	**CONSTITUTION OF SORGHUM HYBRIDS.**	
OBJECTIVE:	To develop high yielding local hybrids as compare to multinational hybrids to curtail seed import.	
RESEARCH WORKERS:	Mr. Muhammad Saeed Mr. Dilbar Hussain	
PROJECT DURATION:	Kharif-2016	
	`	
LOCATION:	Maize and Millets Research Institute, Yusafwala, Sahiwal.	
TREATMENTS:	CMS lines = 08 Restorer lines = 02	
METHODOLOGY	Layout	= Strip
	Replications	= Non-replicated
	Plot size	= 5 m x 1.5 m
	Plant to plant	= 15 cm
	Row to row	= 75 cm
	Fertilizer	= 170:84:62 NPK, (Kg/ha.)
	Date of sowing	= 25th June – 15th July
	The CMS lines will be sown side by side with restorer line in ratio 1:2 (male: female) in isolations. At maturity, the panicles of each entry will be harvested separately. The performance of harvested hybrids will be tested in the next season.	
PREVIOUS YEARS RESULTS:	Twelve "CMS x R" crosses were constituted, nine in isolation and 3 by hand pollination.	

EVALUATION

06. TITLE	**VARIETAL YIELD TRIAL.**	
OBJECTIVE	To evaluate the promising varieties/strains for grain yield.	
RESEARCH WORKERS	Yusafwala	Mr. Dilbar Hussain

		Mr. Muhammad Saeed
	D.G.Khan	Mr. Ihsan Ullah Mrs.Zaib-un-Nisa
PROJECT DURATION	Kharif-2016	
LOCATION	1. Maize & Millets Research Institute, Yusafwala-Sahiwal. 2. Sorghum Research Sub-station, D. G. Khan.	
TREATMENTS	Eight varieties i.e. YSS-10, YS-15, YSS-17, YSS-19, YSS-23 YSS-25, YSS-31 and Standard YSS-98.	
METHODOLOGY	Design = RCB Reps = 4 Plot size = 5m x 3m Plant to plant = 15 cm Row to row = 75 cm Fertilizer = 170-84-62 NPK (Kg/ha) Date of sowing = Month of July	
	Data regarding stand count, disease score, days to 50% anthesis, plant height, lodging %age, head weight, grain & stalk yield will be recorded.	
PREVIOUS YEAR'S RESULTS:	New experiment.	

07. TITLE	**SORGHUM HYBRID YIELD TRIAL.**		
OBJECTIVE	Selection of high yielding local hybrids to replace multinational hybrids.		
RESEARCH WORKER (S)	Yusafwala	Mr. Muhammad Saeed Mr. Dilbar Hussain	
	D. G. Khan	Mrs. Zaib-un-Nisa Mr. Ihsanullah	
PROJECT DURATION	Kharif-2016		
LOCATION	1. Maize & Millets Research Institute, Yusafwala-Sahiwal. 2. Sorghum Research Sub-station, D. G. Khan.		
TREATMENTS	Entries = 10 (9 hybrids & 1 check).		
METHODOLOGY	Design Reps Plot size Plant to plant Row to row Fertilizer Date of sowing	= = = = = = =	RCB 3 5m x 1.5m 15 cm 75 cm 170-84-62 NPK (Kg/ha) 25th June – 15th July
	Data regarding no. of plants per plot, days to 50% anthesis, disease score, plant height, head length, head weight and grain yield will be recorded.		

PREVIOUS YEAR'S RESULTS:	Hybrid trial comprised of ten entries including one check was conducted during kharif 2014.

MMRI, Yusafwala.

R. No.	Entry	Plant Stand	Grain Yield (Kg/ha)	Stalk Yield (Kg/ha)	Days to 50% Anth.	Plant ht. (cm.)
1	YSH-95	31	3439 a	30444	73	223
2	YSH-119	32	2969 b	25333	73	222
3	YSH-123	32	2913 b	22222	71	204
4	YSH-118	31	2791 bc	26222	74	213
5	YSH-122	31	2707 bcd	25111	73	219
6	YSH-115	33	2600 bcd	26000	75	213
7	YSS-98 (C)	33	2598 bcd	22222	71	165
10	YSH-120	33	2051 e	26667	74	254
	Range	30-36	2051-3439	22222-30444	71-75	165-254
	C.V.%	5.71	8.56	10.66	2.46	8.08
	LSD at 5%	NS	188	2213	1.28	14

Sorghum Research Sub-station, D. G. Khan.

R. No.	Entry	Plant Stand	Grain Yield (Kg/ha)	Stalk Yield (kg/ha)	Days to 50% Anth.	Plant ht. (cm)
1	YSH 115	31	4667 a	31667	91	189
2	YSH 123	31	4333 ab	26667	83	198
3	YSH 95	31	4000 b	39333	91	205
4	YSH 118	30	3333 c	27000	95	210
5	YSH 122	32	3333 c	33000	91	209
9	YSS 98 (C)	33	3000 c	21333	80	188
	Range	30-33	2000-4667	21333-39667	80-97	188-215
	C.V.%	4.59	9.56	5.30	1.46	1.74
	LSD at 5%	N.S	265	1953	2.93	7.64

08. TITLE	**NATIONAL UNIFORM/ADAPTABILITY SORGHUM YIELD TRIAL.**	
OBJECTIVE	To test the adaptability and performance of the national varieties/material under local conditions.	
RESEARCH WORKERS	Yusafwala	Mr. Aamir Ghani Mr. Muhammad Saeed Mr. Dilbar Hussain Mian Muhammad Shafique

	Rawalpindi	Miss. Saeeda Khanum Mr. Irshad Ul Haq
	D.G.Khan	Mrs.Zaib-un-Nisa Mr. Ihsanullah
PROJECT DURATION	Kharif-2016	
LOCATION(S)	1. Maize & Millets Research Institute, Yusafwala-Sahiwal. 2. Millets Research Station, Rawalpindi. 3. Sorghum Research Sub-station, D. G. Khan.	
TREATMENTS	As provided by the National Coordinator (Cereal System) PARC, Islamabad.	
METHODOLOGY	As per instructions of National Coordinator (Cereal System) PARC, Islamabad.	
PREVIOUS YEAR'S RESULTS:	**NATIONAL UNIFORM MAIZE VARIETAL YIELD TRIAL. Entries: 10, Year: Kharif- 2014, Locations: 4**	

	R. No.	**Variety Name**	**Grain Yield (Kg/Ha.) (Average)**
	1	ICSA480 x R-160	3017
	2	Johar	2737
	3	ICSA29001 x V-89058	2715
	4	ICSA101 x Johar	2277
	5	**YSH 95**	**2134**
	10	ICSA759 x V-700	1539
	Source: NARC, Islamabad.		

09. TITLE	**SEED MULTIPLICATION.**		
OBJECTIVE	To produce breeder, pre-basic & basic seed of approved variety. Seed production of a hybrid and parental lines for local and national testing.		
RESEARCH WORKER(S)	Mr. Aamir Ghani Mr. Muhammad Saeed Mr. Dilbar Hussain Mr. Tanveer Mukhtar Mr. Asrar Mahboob		
PROJECT DURATION	Kharif-2016		
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.		
TREATMENTS	Variety = YSS-98 CMS Line = One Hybrid Constitution = One		
METHODOLOGY	Lay out Reps Plot size	= = =	Blocks Non replicated Breeder = 10m x 31.5m Pre-basic = 20m x 31.5m

	Plant to plant Row to row Fertilizer Date of sowing	= = = =	Basic = (1/2 hectare) 15 cm 75 cm 170-84-62 NPK (Kg/ha) 25th June – 15th July

PREVIOUS YEAR'S RESULTS:	The following quantity of seed was produced.			
	Variety	**Quantity (Kg)**		
		Breeder	**Pre-basic**	**Basic**
	YSS 98	9	-	2050
	YSS-9 (Promising)		195	-

PEARL MILLET:

01. TITLE:	**MAINTANACE OF GERMPLASM**		
OBJECTIVE:	To maintain the germplasm for breeding program.		
RESEARCH WORKERS:	Mr. Abdul Razaq Muhammad Hussain Chaudhary		
PROJECT DURATION:	Kharif-2016		
LOCATION:	Maize and Millets Research Institute, Yusafwala, Sahiwal.		
TREATMENTS:	17 lines		
METHODOLOGY:	Layout	=	Strips
	Reps	=	Non replicated
	Plot size	=	5m x 1.5m
	Plant to plant distance	=	25 cm
	Row to row distance	=	75 cm
	Fertilizer	=	114:75:62 NPK ($kg.ha^{-1}$)
	Date of sowing	=	15th June to 5th July
	All the lines will be maintained through self-pollination to assure homozygosity. Data regarding following traits will be collected in each line for two years along with display of pictorial features to prepare germplasm directory. Each year data of freshly included lines will also be recorded.		

Seed/Seedling.	
1. Seedling growth habit	2. Coleoptile's Anthcyanin
3. Seedling length (cm)	4. First leaf color
5.First leaf tip	
Leaf	
6. No, of Leaf per plant	7. Leaf size (length / width)
8. Leaf attitude (drooping / semi-drooping / erect)	9. Mid rib color
Stem	
10. Stem length	11.Stem type (Juicy/dry)
12. Stem thickness	13. Lodging
14. Internode length	

	Reproductive Traits		
	15. Days to panicle emergence		16.Peduncle length
	17. Panicle shape		18. Panicle attitude
	19. Rachis length/width		20. Stigma color
	21. Anther fertility		
	Seed		
	22. Seed covering		23. Seed size
	24. Seed shape (Narrow elliptic, elliptic and spherical)		25. 100 grain weight (gm)
	26. Seed weight/panicle (gm)		
	Disease		
	27. Red leaf spot		28. Stalk rot %age
	29. Any other		
REVIOUS YEAR'S RESULTS:	Seventeen lines were sown and maintained by hand pollination.		
02. TITLE:	**MAINTANACE OF CYTO PLASMIC MALE STERILE LINES**		
OBJECTIVE:	To maintain and increase seed of cytoplasmic male sterile lines along with their counter part B lines for constitution of pearl millet hybrids.		
RESEARCH WORKERS:	Mr. Abdul Razaq Muhammad Hussain Chaudhary		
PROJECT DURATION:	Kharif-2016		
LOCATION:	Maize and Millets Research Institute, Yusafwala, Sahiwal.		
TREATMENTS:	19 lines		
METHODOLOGY:	Layout	=	Strips
	Reps	=	Non replicated
	Plot size	=	5m x 1.5m for both A & B lines
	Plant to plant distance	=	25 cm
	Row to row distance	=	75 cm
	Fertilizer	=	114:75:62 NPK ($kg.ha^{-1}$)
	Date of sowing	=	15^{th} June to 5^{th} July
	The CMS (A) lines will be planted side by side along with their counterpart male fertile (B) line. The heads of CMS and their counterpart 'B' lines will be covered with butter paper bags before the emergence of the stigmas. Five heads of each line will be maintained by their counterpart 'B' lines. Data will be recorded for seedling emergence %age, number of leaves per main tiller, leaf size, plant height, stem thickness, days to 50%		

	anthesis, disease score, number of tillers per plant, panicle length, panicle thickness, panicle weight, grain and stalk weight per plant.		
PREVIOUS YEAR'S RESULTS:	Nineteen lines were sown and maintained by hand pollination.		
03. TITLE:	**MAINTANACE OF FERTILITY RESTORER 'R' LINES**		
OBJECTIVE:	To maintain and increase seed of fertility restorer lines for constitution of pearl millet hybrids.		
RESEARCH WORKERS:	Mr. Abdul Razzaq Muhammad Hussain Chaudhary		
PROJECT DURATION:	Kharif-2016		
LOCATION:	Maize and Millets Research Institute, Yusafwala, Sahiwal.		
TREATMENTS:	31 lines		
METHODOLOGY:	Layout	=	Strips
	Reps	=	Non replicated
	Plot size	=	5m x 1.5m
	Plant to plant distance	=	25 cm
	Row to row distance	=	75 cm
	Fertilizer	=	114:75:62 NPK ($kg.ha^{-1}$)
	Date of sowing	=	15^{th} June to 5^{th} July
	All the lines will be maintained through self-pollination to assure homozygosity. Five true to type plants will be selected and 1-2 heads will covered be covered from each selected plant with butter paper bags before the emergence of the stigmas. Data will be recorded for seedling emergence %age, number of leaves per main tiller, leaf size, leaf angle, plant height, stem thickness, days to 50% anthesis, disease score, lodging %age, number of tillers per plant, panicle length, panicle thickness, panicle weight, grain and stalk weight per plant.		
PREVIOUS YEAR'S RESULTS:	Thirty one lines were sown and maintained by hand pollination.		
04. TITLE:	**DERIVATION OF FERTILITY RESTORER 'R' LINES**		
OBJECTIVE:	To derive new fertility restorer lines for hybrid programme.		
RESEARCH WORKERS:	Mr. Abdul Razaq Muhammad Hussain Chaudhary		
PROJECT DURATION:	Kharif-2016		
LOCATION:	Maize and Millets Research Institute, Yusafwala, Sahiwal.		

TREATMENTS:	S_{10} families = 5 S_4 families = 5 S_3 families = 8		
METHODOLOGY:	Layout	=	Strips
	Reps	=	Non replicated
	Plot size	=	5m x 1.5m
	Plant to plant distance	=	25 cm
	Row to row distance	=	75 cm
	Fertilizer	=	114:75:62 NPK ($kg.ha^{-1}$)
	Date of sowing	=	15^{th} June to 5^{th} July
	Three to five best plants will be selected from each family. To self the selected plants one - two heads will be covered with butter paper bags before the emergence of the stigmas and heads of each plant/family will be harvested separately.		
PREVIOUS YEAR'S RESULTS:	Eight S_2, five S_3 and five S_9 families were sown. Five plants were selected from each family on the basis of phenotypic performance and self-pollinated. Selfed heads of each line were harvested, sun dried and threshed separately.		

05. TITLE	**CROSSING BLOCK OF PEARL MILLET (Rawalpindi)**	
OBJECTIVES	i. To maintain selected pearl millet germplasm lines through hand pollination. ii. Crossing of Pearl millet lines for development of dual purpose varieties.	
RESEARCH WORKER (S)	Mr. Muhammad Siddique Miss Saeeda Khanum & Dr. Muhammad Irshad-ul-Haq	
PROJECT DURATION	Kharif-2016	
LOCATION	Millets Research Station, Rawalpindi.	
TREATMENTS	55 lines.	
METHODOLOGY	Layout	Strips
	Replications	Non replicated
	Plot size	5m x 1.5m
	Plant to Plant	20 cm
	Row to Row	75 cm
	Fertilizer (Kg/ha)	79:57:62 NPK.
	Date of sowing	End of June / Ist week of July.
	All the lines will be maintained by hand pollination and possible crosses will be constituted.	

PREVIOUS YEAR'S RESULTS :	i. All lines were maintained through bulk pollination method ii. Twenty fresh crosses were attempted and seed was harvested and retained to raise F_1 population during kharif 2015

06. TITLE	**DEVELOPMENT OF DUAL PURPOSE PEARL MILLET VARIETY.**		
OBJECTIVE	To develop high yielding dual purpose variety for rainfed condition.		
RESEARCH WORKER (S)	Miss Saeeda Khanum, Mr. Muhammad Siddique & Dr. Muhammad Irshad-ul-Haq		
PROJECT DURATION	Kharif-2016		
LOCATION	Millets Research Station, Rawalpindi		
TREATMENTS	i. 20 F_1 crosses ii. 38 F_2 Populations iii. 20 F_3 Populations iv. 30 F_4 Populations		
METHODOLOGY	Layout	=	Strips
	Replications	=	Non replicated
	Plot size	=	5m x 1.5 m
	Plant to Plant	=	25 cm
	Row to Row	=	75 cm
	Fertilizer (Kg/ha)	=	79:57:62 NPK.
	Date of sowing	=	End of June / Ist week of July.
	F_2 population will be developed from F_1 crosses through selfing. From F_2 and F_3 populations individual plants will be selected on phenotypic basis for the parameters like vigorous growth, head compactness, uniformity, stalk and grain yield. Uniform lines having desirable characters like mentioned above will be selected from F_4 population during kharif 2015 for further evaluation.		
PREVIOUS YEAR'S RESULTS :	i. Forty F_1crosses were planted during kharif 2014. Two were not germinated; thirty eight crosses were maintained through selfing for F_2 population. ii. Twenty single plants from three F_2 populations were selected to develop F_3 population. iii. Seven superior lines were selected from F_3 population for evaluation in the micro yield trial during kharif 2015. iv. Thirty single plants from F_3 population were also selected for further evaluation.		

07. TITLE:	**CONSTITUTION OF PEARL MILLET HYBRIDS.**
OBJECTIVE:	To estimate the general combining ability of the cytoplasmic male sterile lines.

RESEARCH WORKERS:	Mr. Abdul Razaq Muhammad Hussain Chaudhary		
PROJECT DURATION:	Kharif-2016		
LOCATION:	Maize and Millets Research Institute, Yusafwala, Sahiwal.		
TREATMENTS:	CMS lines = 11 Restorer lines = 02		
METHODOLOGY:	Layout	=	Strips
	Reps	=	Non replicated
	Plot size	=	5m x 1.5m
	Plant to plant distance	=	25 cm
	Row to row distance	=	75 cm
	Fertilizer	=	114:75:62 NPK ($kg.ha^{-1}$)
	Date of sowing	=	15^{th} June to 5^{th} July
	The hybrids will be constituted in isolations. Off type plants will be rouged out before flowering.		
PREVIOUS YEAR'S RESULTS:	16 crosses were constituted in isolation in isolation.		
08. TITLE	**PEARL MILLET MICRO YIELD TRIAL**		
OBJECTIVE	To evaluate the performance of pearl millet genotypes for grain and dry stalk yield under barani conditions.		
RESEARCH WORKER (S)	Mr. Muhammad Siddique Miss. Saeeda Khanum & Dr. Muhammad Irshad-ul-Haq		
PROJECT DURATION	Kharif-2016		
LOCATION	Millets Research Station, Rawalpindi.		
TREATMENTS	08 Entries = 07 lines developed at MRS. Rwp. + 01 check variety.		
METHODOLOGY	Design	R.C.B.	
	Plot size	5 m x 2.4 m	
	Plant to Plant	20 cm	
	Row to Row	60 cm	
	Fertilizer (Kg/ha)	N = 79, P= 57, K=62.	
	Date of sowing	End of June / Ist week of July.	
PREVIOUS YEAR'S RESULTS :	New Experiment		

09. TITLE	**PEARL MILLET HYBRID YIELD TRIAL.**

OBJECTIVE	Selection of high yielding local hybrids to replace multinational hybrids.
RESEARCH WORKER (S)	Mr. Abdul Razaq Muhammad Hussain Chaudhary
PROJECT DURATION	Kharif-2016
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.
TREATMENTS	Entries = 17 (16 hybrids & 1 check).
METHODOLOGY	Design = RCB Reps = 3 Plot size = 5m x 1.5m Plant to plant = 20 cm Row to row = 75 cm Fertilizer = 114:75:62 NPK (Kg/ha) Date of sowing = 15th June to 5th July
	Data regarding stand count, days to 50% anthesis, disease score, plant height, head length, head weight and grain yield will be recorded.

PREVIOUS YEAR'S RESULTS:

S. No.	Hybrid	Plant Stand	Grain Yield (kg/ha)	Stalk yield (kg/ha)	Days to 50% anthesis	Plant ht. (cm)
1	YBH-274	34	2537a	24667	58	220
2	YBH-269	24	2337ab	24667	59	245
3	YBH-273	25	2187abc	24000	58	225
4	YBH-268	41	2163abcd	28666	57	215
5	YBH-271	39	2050bcde	28667	58	195
15	YBH-236	23	690	25333	56	190
	Range	28-36	690-2537	21333-29333	54-59	190-258
	CV%	18.21	10.55	13.51	1.87	5.22
	LSD at 5%	NS	402	NS	2.29	24.29

10. TITLE:	**PEARL MILLET VARIETAL YIELD TRIAL.**	
OBJECTIVE:	To evaluate the performance of promising material.	
RESEARCH WORKERS:	Yousafwala	Mr. Abdul Razaq Muhammad Hussain Chaudhary
	Rawalpindi	Miss Saeeda Khanum Dr. Muhammad Irshad-ul-Haq
	D.G.Khan	Ihsanullah Mrs. Zaib Un Nisa
PROJECT DURATION:	Kharif-2016	

LOCATION:	1. Maize and Millets Research Institute, Yusafwala, Sahiwal. 2. Millets Research Station, Rawalpindi. 3. Sorghum Research Sub Station, D. G. Khan.		
TREATMENTS:	10 varieties including check.		
	Layout	=	RCBD
	Reps	=	3
	Plot size	=	5m x 3m
	Plant to plant distance	=	20 cm
	Row to row distance	=	75 cm
	Fertilizer	=	114:75:62 NPK ($kg.ha^{-1}$)
	Date of sowing	=	15th June to 5th July
	Data will be recorded for seedling emergence, number of plants per plot, plant height, stem girth, number of tillers per plant, number of leaves per main tiller, days to 50% anthesis, disease score, lodging %age, head length, head girth, heads harvested per plot, head weight per plot, stalk yield and grain yield.		
PREVIOUS YEAR'S RESULTS:	**Yusafwala:** This trial was comprised of ten entries.		

S. No.	**Varieties**	**Plant Stand**	**Grain Yield (kg/ha)**	**Stalk yield (kg/ha)**	**Days to 50% anthesis**	**Plant ht. (cm)**
1	YBS-98	34	2607 a	48000	61	305
2	YBS-89	39	2556 a	46667	63	298
3	YBS-5	34	2316 a	40889	56	287
4	YBS-83	38	2296 a	40889	59	300
5	YBS-92	39	2258 b	42667	60	285
10	YBS-93	36	2044	44444	63	320
	Range	31-39	2044-2607	39555-52444	56-73	285-403
	CV%	10.44	7.02	3.33	1.15	4.92
	LSD at 5%	NS	272	2570	1.129	26.47

Rawalpindi

R. No.	Varieties	Plant Stand	Grain yield (Kg/ha)	Days to 50% anthesis	Plant ht. (cm)
1	YBS-93	82	2945 a	54	263
2	YBS-89	84	2772 ab	54	241
3	YBS-98	83	2750 ab	49	254
4	YBS-95	84	2704 abc	50	269
5	YBS-94	82	2608 bcd	51	245
6	18-BY (C)	84	1548 e	58	336
	Range	77-84	1547-2945	46-58	336-241
	CV %	2.46	4.97	2.45	1.71
	LSD at 5%	4.75	294.45	2.95	10.53

D.G.Khan

R. No.	Varieties	Plant Stand	Grain Yield (kg/ha)	Stalk yield (kg/ha)	Days to 50% anthesis	Plant ht. (cm)
1	YBS-94	29	1822	12778	72	260
2	YBS-98	28	1689	13556	71	264
3	YBS-95	28	1556	20444	70	269
4	YBS-89	28	1245	12556	76	274
5	YBS-70	27	1200	11222	74	296
8	18-BY (C)	28	1022	23444	80	318
	Range	27-29	778-1822	10778 - 23444	68-80	242-318
	CV%	3.50	12.01	3.36	1.22	2.10
	LSD at 5%	NS	257	815	1.54	9.75

11. TITLE:	**NATIONAL UNIFORM PEARL MILLET YIELD TRIAL.**	
OBJECTIVE:	To test the adaptability and performance of the national varieties /material under local conditions.	
RESEARCH WORKERS	Yusafwala	Mr. Abdul Razaq Muhammad Hussain Chaudhary
	Rawalpindi	Miss Saeeda Khanum Dr. Muhammad Irshad-ul-Haq
	D.G. Khan	Muhammad Ihsanullah Zaib Un Nisa
PROJECT DURATION:	Kharif-2016	
LOCATION:	1. Maize and Millets Research Institute, Yusafwala, Sahiwal. 2. Millet Research Station, Rawalpindi 3. Sorghum Research Sub Station, D.G. Khan	
TREATMENTS:	Treatments will be provided by National Coordinator (Cereal System) PARC, Islamabad	

METHODOLOGY	The trial will be conducted according to the instructions received with the seed.
PREVIOUS YEARS RESULTS:	This trial comprised of 12 entries was conducted during kharif 2014. The results are under compilation at NARC, Islamabad.

12. TITLE:	**SEED MULTIPLICATION**		
OBJECTIVE:	To increase the seed of promising varieties /lines.		
RESEARCH WORKERS:	Mr. Abdul Razaq Muhammad Hussain Chaudhary Mr. Tanweer Mukhtar Mr. Asrar Mahboob		
PROJECT DURATION:	Kharif-2016		
LOCATION:	Maize and Millets Research Institute, Yusafwala, Sahiwal.		
TREATMENTS:	Varieties/lines = 08		
METHODOLOGY:	Layout	=	strip
	Reps	=	Non replicated
	Plot size	=	Breeder = 10m x 31.5m Pre-basic = 20m x 31.5m Basic = (1/2 hectare)
	Plant to plant distance	=	20 cm
	Row to row distance	=	75 cm
	Fertilizer	=	114:75:62 NPK ($kg.ha^{-1}$)
	Date of sowing	=	15^{th} June to 5^{th} July
	Seed of all the lines/varieties will be produced in isolations. Off type plants will be rouged out before flowering.		

PREVIOUS YEAR'S RESULTS:	**S. No.**	**Varieties**	**Quantity(kg)**
	1	18-BY (Basic)	320
	2	YBS-98 (Certified)	89

13. TITLE:	**ON FARM PEARL MILLET YIELD TRIAL**	
OBJECTIVE:	Evaluation of promising varieties at farmer field.	
RESEARCH WORKER (S):	Rawalpindi	Dr. Muhammad Irshad-ul-Haq Mr. Muhammad Siddique
	D. G Khan	Mr. Muhammad Ihsanullah Mrs. Zaib Un Nisa
PROJECT DURATION:	Kharif-2016	
LOCATIONS:	Rawalpindi Division (four locations) Dera Ghazi Khan Division (five locations)	

TREATMENTS:	Three Entries	
METHODOLOGY:	Layout	Strips
	Reps	Non replicated
	Plot size	One Kanal (506 m^2)
	Plant to Plant	20 cm
	Row to Row	60 cm
	Fertilizer (Kg/ha)	79: 57: 62 NPK
	Date of sowing	End of June / 1st week of July.

PREVIOUS YEAR,S RESULTS: **Kharif-2013,Rawalpindi**

S. No.	Location	Grain Yield (kg/ha)		
		YBS-95	YBS-98	18-BY
1	BARS, Fateh Jang	870	914	830
2	Sohawa (Jehlum)	1840	2340	1580
3	BARI, Chakwal	1660	1900	1560
	TOTAL	**4370**	**5154**	**3970**

Dera Ghazi Khan Division

S. No.	Location	Grain Yield (kg/ha)		
		YBS-95	YBS-98	18-BY
1	Muhammad Riaz S/O Haji Munir Ahmad R/O Mouza Haider Wahan, D.G.Khan.	1442	1541	1106
2	Ghulam Haider S/O Moosa Khan R/O Mouza Pukkhan Tehsil Tounsa Distt. D.G.Khan.	1166	1324	929
3	Muhammad Ibrahim S/O Muhammad Hussain R/O Chotti Zareen, D.G.Khan.	1521	1620	1245
4	Muhammad Afzal S/O Muhamma Mirza R/O Mouza Chak Buzdar, D.G.Khan.	2154	2371	2015
5	Mukhtiar Hussain S/O Rahim Ali R/O Mouza Qaim Wala, D.G.Khan.	1739	1917	1363
	Average	**1604**	**1755**	**1332**

AGRONOMY

01. TITLE:	**DETERMINATION OF OPTIMUM PLANT SPACING FOR MAIZE HYBRIDS**
OBJECTIVE:	To find out the optimum planting geometry for obtaining maximum grain yield of promising maize hybrids.
RESEARCH WORKER (S):	Mr. TanweerMukhtar Mr. Asrar Mahboob
PROJECT DURATION:	Spring & Kharif 2016
LOCATION:	Maize & Millets Research Institute, Yusafwala-Sahiwal.

TREATMENTS:	**A.**	**Hybrids : FH-1046**	
	B.	**Planting Geometry**	**Plant Population**
	1	R-R = 75cm & P-P =12.5cm	106666
	2	R-R = 75 cm & P-P =15cm	88888
	3	R-R = 75 cm & P-P =17.5cm	76190
	4	R-R = 75 cm & P-P =20 cm	66666
	5	R-R = 75 cm & P-P =22.5 cm	59276

METHODOLOGY:	Design	= RCB
	Replications.	= 4
	Plot size	= 5mx 3m
	Fertilizers	= 300-150-125 NPK (Kg/ha)
	Date of sowing	= Month of January & July
	Data regarding plants per plot, days to 50% silking, plant height, cob height and grain yield will be recorded.	

PREVIOUS YEAR'S RESULTS:

Kharif – 2014

Sr. No.	Plant density/ ha.	Grain yield (kg /ha)
		FH-1046
1	133333	7577 d
2	106666	7915 cd
3	88888	8606 ab
4	**76190**	**8989 a**
5	66666	8280 bc
	CV%	4.40
	LSD at 5%	560.90

Spring-2015

Sr.No.	Plant density/ ha.	Grain yield (kg /ha)	
		FH-949	**YH-1898**
1	133333	9637 de	8332 f
2	**106666**	12880 a	9254 e
3	88888	**13350 a**	**11590 b**
4	76190	13120 a	11020 bc
5	66666	11840 b	10390cd
	CV%	4.72	
	Cd1 i. Treatments ii. Interaction	644.15 910.97	

02. TITLE:	**EFFECT OF DIFFERENT PLANTING METHODS ON GRAIN YIELD OF MAIZE.**
OBJECTIVE:	To search out the most suitable planting method for obtaining maximum grain yield of maize.
RESEARCH WORKER (S):	Mr. TanweerMukhtar Mr. Asrar Mahboob

PROJECT DURATION:	Spring & Kharif 2016		
LOCATION:	Maize & Millets Research Institute, Yusafwala-Sahiwal.		
TREATMENTS:	**S. No.**	**Planting method**	**Planting Geometry**
	1	Ridge Sowing	R-R (30″) sowing on one side
	2	Bed Sowing	B-B (36″) sowing on both side
	3	Bed Sowing	B-B (42″) sowing on both side
	4	Bed Sowing	B-B (48″) sowing on both side
METHODOLOGY:	Design		RCB
	Replications.		4
	Plot size		5m x 5.25m
	Fertilizers		300-150-125(NPK, Kg/ha)
	Sowing date		Months of February & July
	Data regarding stand count, days to 50% silking, plant height, cob height and grain yield will be recorded and analyzed statistically.		
PREVIOUS YEAR'S RESULTS:	New project.		

03. TITLE:	**DETERMINATION OF OPTIMUM PLANT SPACING FOR SORGHUM HYBRID**		
OBJECTIVE:	To find out the optimum planting geometry for obtaining maximum grain yield of promising sorghum hybrid.		
RESEARCH WORKER (S):	Mr. TanweerMukhtar Mr. Asrar Mahboob		
PROJECT DURATION:	Kharif-2016		
LOCATION:	Maize & Millets Research Institute, Yusafwala-Sahiwal.		
TREATMENTS:	**A.**	**Hybrids : YSH-95**	
	B.	**Planting Geometry**	**Plant Population**
	1	R-R = 75 cm & P-P =15cm	88888
	2	R-R = 75 cm & P-P =17.5cm	76190
	3	R-R = 75 cm & P-P =20 cm	66666
	4	R-R = 75 cm & P-P =22.5 cm	59276
METHODOLOGY:	Design		= RCB
	Replications.		= 4
	Plot size		= 5mx 3m
	Fertilizers		= 170-84-62 NPK (Kg/ha)
	Date of sowing		= Month of July
	Data regarding plants per plot, days to 50% anthesis, plant height, and grain yield will be recorded.		
PREVIOUS YEAR'S RESULTS:	New project		

04. TITLE:	**EFFECT OF PLANT SPACING ON GRAIN YIELD OF NEW PEARL MILLLET VARIETIES**		
OBJECTIVE:	To search out the optimum plant density for obtaining maximum grain yield of pearl millet.		
RESEARCH WORKER (S):	Mr. Asrar Mahboob Mr. TanweerMukhtar		
PROJECT DURATION:	Kharif-2016		
LOCATION:	Maize & Millets Research Institute, Yusafwala-Sahiwal.		
TREATMENTS:	**A. Variety : YBS-95** **B. Plant spacing**		
	S. No.	**Plant spacing**	**Plant density/ha.**
	1	R-R = 75cm & P-P =20 cm	66666
	2	R-R = 75cm & P-P =22.5cm	59276
	3	R-R = 75 cm & P-P =25cm	53333
	4	R-R = 75 cm & P-P =27.5cm	48496
	5	R-R = 75 cm & P-P =30cm	44444
METHODOLOGY:	Design	= RCB	
	Replications.	= 3	
	Plot size	= 5mx 3m	
	Fertilizers	= 114-75-62 NPK (Kg/ha)	
	Date of sowing	= 15th June to 5thJuly	
	Data regarding stand count, No of tillers per plant, days to 50% anthesis, plant height, Stover yield and grain yield will be recorded and analyzed statistically.		
PREVIOUS YEAR'S RESULTS:	**Khaif-2014**		
	Sr.No.	**Plant spacing**	**Grain Yield (Kg/ha)**
			YBS-95 / **YBS-98**
	1	R-R = 75cm & P-P = 20 cm	2316 / 2453
	2	R-R = 75cm & P-P = 22.5cm	2056 / 2569
	3	R-R = 75 cm & P-P = 25cm	2393 / 2762
	4	R-R = 75 cm & P-P = 27.5cm	2987 / 2691
	5	R-R = 75 cm & P-P = 30cm	2413 / 2184
		CV %	12.53
		LSD at 5%	NS
05. TITLE	**MAIZE SEED MULTIPLICATION.**		
OBJECTIVE	To multiply seed of Maize OPV's (MMRI-Yellow, Pearl.		
RESEARCH WORKER(S)	Asrar Mahboob TanweerMukhtar		

PROJECT DURATION	Spring & Kharif 2016				
LOCATION	1. Maize & Millets Research Institute, Yusafwala-Sahiwal.				
TREATMENTS	MMRI Yellow and Pearl.				
METHODOLOGY	Lay out	Isolated blocks			
	Plot size	Pearl (Basic)		10 Kanals	
		MMRI Yellow (Basic)		10 Kanals	
		MMRI Yellow (Certified)		30 Kanals	
	Row to row	75 cm			
	Plant to plant	20 cm			
	Fertilizer	297:148:124 NPK Kg/ha			
	Date of Sowing	Spring	10^{th} January to 20^{th} February		
		Kharif	10^{th} July to 10^{th} August		

PREVIOUS YEAR'S RESULTS

The following quantity seed of Maize OPV's was produced:

	Kharif 2014		**Spring 2015**	
Category	**MMRI Yellow**	**Pearl**	**MMRI Yellow**	**Pearl**
Basic (kgs)	450	1415	1300	2156
Certified (kgs)	2160	720	4050	570

06. TITLE:	**EFFECT OF DIFFERENT PLANTING RATIO OF MALE AND FEMALE INBRED LINES ON MAIZE HYBRID SEED PRODUCTION**		
OBJECTIVE:	To standardize planting ratio of male and female inbred lines for economical seed production of Maize Hybrid YH-1898.		
RESEARCH WORKER (S):	Dr. Javed Iqbal Tanweer Mukhtar Asrar Mahboob Mian Munir Ahmed		
PROJECT DURATION:	Spring & Kharif 2016		
LOCATION:	Maize & Millets Research Institute, Yusafwala-Sahiwal.		
TREATMENTS:	Treatments	Male lines	Female lines
	1	1	3
	2	1	4
	3	1	5
	4	1	6
	5	1	7
	6	1	8
METHODOLOGY:	Design	= RCB	
	Replications.	= 4	
	Plot size	= 5 m x 1.25 m	
	Fertilizers	= 300-150-125 NPK (Kg/ha)	
	Date of sowing	= Month of July & February	

	Data regarding yield and yield components will be recorded and analyzed statistically.
PREVIOUS YEAR'S RESULTS:	New project

07. TITLE:	**DETERMINATION OF OPTIMUM PLANT SPACINGS FOR SEED PRODUCTION OF MAIZE HYBRIDS**		
OBJECTIVE:	To find out the optimum planting geometry for obtaining maximum seed of maize hybrid YH-1898.		
RESEARCH WORKER (S):	Dr. Javed Iqbal Tanweer Mukhtar Asrar Mahboob Mian Munir Ahmed		
PROJECT DURATION:	Spring & Kharif 2016		
LOCATION:	Maize & Millets Research Institute, Yusafwala-Sahiwal.		
TREATMENTS:	**A.**	**Hybrids : YH-1898**	
	B.	**Planting Geometry**	**Plant Population**
	1	R-R = 75 cm & P-P = 12.5cm	106666
	2	R-R = 75 cm & P-P = 15cm	88888
	3	R-R = 75 cm & P-P = 17.5cm	76190
	4	R-R = 75 cm & P-P = 20 cm	66666
METHODOLOGY:	Design	= RCB	
	Replications.	= 4	
	Plot size	= 5 mx 3.75 m	
	Fertilizers	= 300-150-125 NPK (Kg/ha)	
	Date of sowing	= Month of July	
	Data regarding yield and yield components will be recorded. Spacing will be varied among female lines.		
PREVIOUS YEAR'S RESULTS:	New project		

SOIL CHEMISTRY

01. TITLE	**EFFECT OF FERTILIZER DOSES ON GRAIN YIELD OF NEW MAIZE HYBRID.**
OBJECTIVE	To find out the optimum dose of NP for maximum grain yield of new Maize Hybrids
RESEARCH WORKER(S)	Mr. Muhammad Jamil

	MianMuhammad Shafique
PROJECT DURATION	Spring & Kharif 2016
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.
TREATMENTS	**A. Hybrid = FH-1046**

B.	**Fertilizer levels.**		
Treatments	**N**	**P**	**K**
	(Kg/ha)	**(Kg/ha)**	**(Kg/ha)**
1	0	0	0
2	225	112	100
3	250	125	100
4	275	137	100
5	300	150	100
6	325	162	100

METHODOLOGY:	Design	= RCB
	Replications	= 3
	Plot size	= 5m x 4.5m
	Fertilizer	= As per treatment
	Date of sowing	= Month of January & July.

Hybrids will be kept in main plots and fertilizer doses in sub-plots. All P, K and 1/8 N will be applied at sowing time, 1/5 N at 4 leaf stage, 1/3 N at grand growth stage, while last 1/3 N just before flowering stage. The data regarding stand count, days to 50% silking, plant height, cob height and grain yield will be recorded and analyzed statistically.

PREVIOUS YEAR'S RESULTS: **Khaif-2014**

Sr. No.	**Fertilizer levels (Kg/ha)**			**Maize Hybrid= FH-1046**	
	N	**P**	**K**	**Plant Stand**	**Grain Yield (Kg/ha)**
1	0	0	0	109	4771e
2	225	112	100	110	6758 d
3	250	125	100	111	7235 cd
4	275	137	100	109	7858 bc
5	**300**	**150**	**100**	**110**	**9022 a**
6	325	162	100	111	8466 ab
	CV %			1.43	6.23
	LSD at 5%			NS	689

Spring 2015

Sr. No.	**Fertilizer levels (Kg/ha)**			**Maize Hybrid= YH-1046**	
	N	**P**	**K**	**Plant Stand**	**Grain Yield (Kg/ha)**
1	0	0	0	105	6625 e
2	225	112	100	104	8667 d
3	250	125	100	104	9016 cd
4	275	137	100	105	9538 bc

	5	**300**	**150**	**100**	**104**	**11218 a**
	6	325	162	100	105	10182 b
		CV %			1.85	4.74
		LSD at 5%			NS	794

02. TITLE	**EFFECT OF FERTILIZER DOSES ON GRAIN YIELD OF NEW SORGHUM HYBRID.**				
OBJECTIVE	To find out the optimum dose of NP for maximum grain yield of new Sorghum Hybrids				
RESEARCH WORKER(S)	Mr. Muhammad Jamil MianMuhammad Shafique				
PROJECT DURATION	Kharif-2016				
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.				
TREATMENTS	**A.** **Hybrid = YSH-95.**				
	B.	**Fertilizer levels.**			
	Treatments	**N**	**P**	**K**	
		(Kg/ha)	(Kg/ha)	(Kg/ha)	
	1	0	0	0	
	2	125	62	50	
	3	150	74	50	
	4	175	87	50	
	5	200	100	50	
	6	225	112	50	
METHODOLOGY:	Design	= RCB			
	Replications	= 3			
	Plot size	= 5m x 4.5m			
	Fertilizer	= As per treatment			
	Date of sowing	= Month of July.			
	All P, K and 1/3 N will be applied at sowing time, 1/3 N at full general growth period, while last 1/3 N before flowering The data regarding stand count, days to 50% anthesis, plant height, stalk yield and grain yield will be recorded and analyzed statistically.				

PREVIOUS YEAR'S RESULTS:	**Sr. No.**	**Fertilizer levels (Kg/ha)**			**Maize Hybrid= YSH-95**	
		N	**P**	**K**	**Plant Stand**	**Grain Yield (Kg/ha)**
	1	0	0	0	80	1300 d
	2	125	62	50	81	2200 c
	3	150	74	50	81	2433 c
	4	175	87	50	81	2800 ab
	5	200	100	50	81	2756 b
	6	225	112	50	80	3056 a
		CV %			2.47	6.40
		LSD at 5%			NS	282

PLANT PATHOLOGY

01.TITLE	**TESTING OF STALK ROT *(Fusarium moniliforme)* INTENSITY IN MAIZE HYBRIDS BY ARTIFICIAL INOCULATION.**			
OBJECTIVE	To study the response of maize hybrids against stalk rot.			
RESEARCH WORKER(S)	Mr. Muhammad Shakeel Ahmad Mian Muhammad Shafique			
PROJECT DURATION	Spring & Kharif 2016			
LOCATION	Maize &Millets Research Institute, Yusafwala-Sahiwal.			
TREATMENTS	Maize Hybrids = FH-949, FH-1046, FH-793, FH-963 & FH-985.			
METHODOLOGY:	Lay Out	RCBD		
	Replications	04		
	Plot Size	5m x 0.75m		
	Plant to plant distance	20cm		
	Row to row distance	75cm		
	Fertilizer	300-150-125 NPK(Kg/ha)		
	Date of sowing	Month of January &July		
	At silking stage, all the hybrids will be inoculated with stalk rot pathogen by toothpicks method at second internodes of the plants from soil level. Four weeks after inoculation, disease intensity will be noted with the help of Hooker^{s} disease rating scale (1-10)			
PREVIOUS YEAR'S RESULTS	**Spring 2015**			
	Name of maize hybrids	**Infestation %age of inoculated internode**	**Scale**	**Reaction**
	-	1-25	1	Highly resistant
	-	26-50	2	Resistant
	FH-793, FH-985, FH-949, FH-963, FH-1046	51-75	3	Moderately Resistant
	-	76-100	4	Moderately susceptible
	Among five maize hybrids tested, all the maize hybrids showed moderately resistant reaction against the disease.			

02.TITLE	**TESTING OF SEED DRESSING FUNGICIDES AGAINST SEEDLING DISEASES IN MAIZE.**
OBJECTIVE	To evaluate the performance of different seed dressing fungicides against seedling diseases.

RESEARCH WORKER(S)	Mr. Muhammad Shakeel Ahmad Mian Muhammad Shafique
PROJECT DURATION	Spring & Kharif 2016
LOCATION	Maize &Millets Research Institute, Yusafwala-Sahiwal.
TREATMENTS	**Fungicides** = 1. Argyl Super 62.5% WS @9 gm / kg seed. 2. Hombre 186.25% FS @ 20 ml / kg seed. 3. Topsin –M 70WP @ 2gm/ Kg seed. 4. Protoco l50%WP @ 2gm/ Kg seed. 5. Control. **Hybrid** = YH-1898

METHODOLOGY:	Lay Out	RCBD
	Replications	04
	Plot Size	5mx2.25m
	Plant to plant distance	20cm
	Row to row distance	75cm
	Fertilizer	300-150-125 NPK(Kg/ha)
	Date of sowing	Month of January & July
	Seed dressing of the maize Hybrid YH-1898 will be done with Fungicides at above mentioned doses before sowing of the crop. Data regarding seed and seedling mortality % age will be recorded after 10 days of germination.	

PREVIOUS YEAR'S RESULTS: **Spring 2015**

Sr. No	Treatments	Plant Stand	Seedling Diseases Attack %age	Grain yield (Kg/ha
1	Argyl Super 62.5% WS	59	2.08	11706 a
2	Hombre 186.25% FS	58	2.49	11406 ab
3	Topsin –M 70WP	56	2.91	10575 bc
4	Protoco l50%WP	56	6.24	10436 c
5	Control	53	12.49	8756 d
	CV% age	2.27	32.95	5.58
	LSD at 5%	1.96	2.66	909

ENTOMOLOGY

01.TITLE	**TESTING OF DIFFERENT SEED DRESSING INSECTICIDES AGAINST SHOOT FLY *(Atherigona soccata Rond)***
OBJECTIVE	To find out the most effective seed dressing insecticides against shoot fly.
RESEARCHER WORKER(S)	Mr. Muhammad Shakeel Ahmad Muhammad Shafique
PROJECT DURATION	Spring -2016
LOCATION	Maize &Millets Research Institute, Yusafwala-Sahiwal.

TREATMENTS	**Insecticides:** 1. Confidor 70 WS @ 7gm/kg seed 2. Coniflex70 WS @ 5gm/kg seed 3. Hombre 186.25. FS @ 20ml/kg seed 4. Hombre Excel 372.5 FS @ 10ml/kg seed 5. Control **Hybrid** = YH-1898

METHODOLOGY:			
	Layout	=	RCBD
	Replications	=	04
	Plot Size	=	5mx2.25m
	Plant to plant distance	=	20cm
	Row to row distance	=	75cm
	Fertilizer	=	300-150-125 NPK(kg/ha)
	Date of sowing	=	Month of January & July
	Seed dressing will be done with insecticides at above-mentioned doses before sowing of the crop. Observation on shoot fly attack will be recorded 21 days after germination of the crop. At maturity, yield data will also be recorded.		

PREVIOUS YEAR 'S RESULTS

Spring 2015

Sr. No	Treatments	Plant Stand	Shootfly Infestation %age	Grain yield (Kg/ha
1	Hombre 186.25. FS	57	1.31	11339 a
2	Hombre Excel 372.5 FS	57	3.09	11144 a
3	Coniflex70 WS	57	1.75	11122 a
4	Confidor 70 WS	56	1.31	10981 a
5	Control	56	43.51	9433 b
	CV% age	3.04	36.64	5.04
	LSD at 5%	NS	5.75	840

02.TITLE	**TESTING OF DIFFERENT GRANULAR INSECTICIDES AGAINST MAIZE BORER *(ChiloPartellusSwin)***
OBJECTIVE	To find out the most effective granular insecticide against maize borer.
RESEARCH WORKER (S)	Mr. Muhammad Shakeel Ahmad Muhammad Shafique
PROJECT DURATION	Spring & Kharif 2016
LOCATION	Maize &Millets Research Institute ,Yusafwala-Sahiwal
TREATMENTS	1- Furadan 3G @ 8 Kg /acre 2- Ferterra 0.4% G @ 4 Kg /acre 3- Oncol 3%G @ 8 Kg /acre 4- karbosol 3%G @ 8 Kg /acre 5- Control Hybrid = YH-1898

METHODOLOGY:	Lay out	=	RCBD
	Replications	=	04
	Plot Size	=	5mx2.25m
	Plant to Plant distance	=	20cm
	Row to row distance	=	75cm
	Fertilizer	=	300-150-125 NPK (kg/ha)
	Recommended doses of granular insecticides will be applied at the initiation of maize borer infestation. Observation on maize borer attack will be recorded before and one week after application of insecticides. At maturity, yield data will also be recorded.		

PREVIOUS YEAR'S RESULTS

Kharif- 2014 Hybrid= YH-1898

Sr. No	Treatments	Plant Stand	Borer attack % age before application of insecticide	Borer attack % age after application of insecticide	Grain yield (Kg/ha)
1	Furadan	75	13.66	3.33	7260 a
2	karbosol	75	16.67	4.33	6795ab
3	Ferterra	75	19.99	5.33	6458 b
4	Oncol	75	17.00	4.66	6409 b
5	Control	75	20.72	18.72	6304 b
	CV% age	0.30	27.32	27.52	5.09
	LSD at 5%	NS	NS	3.08	520

Spring 2015

Sr. No	Treatments	Plant Stand	Borer attack % age before application of insecticide	Borer attack % age after application of insecticide	Grain yield (Kg/ha)
1	karbosol	57	8.74	2.18	11330 a
2	Furadan	57	9.68	2.20	11133 a
3	Ferterra	56	8.47	2.22	11022 a
4	Oncol	57	15.15	3.42	10508 b
5	Control	56	16.53	15.15	9458c
	CV% age	2.50	34.95	53.73	2.73
	LSD at 5%	NS	6.31	4.16	450

02. TITLE	**RESPONSE OF MAIZE CROP TOWARDS DIFFERENT LEVELS OF PHOSPHORUS SOWN AFTER POTATO.**
OBJECTIVE	To find out the optimum dose of Phosphorus (P) for maximum grain yield of spring hybrid maize sown after potato.
RESEARCH WORKER(S)	Mr. Muhammad Jamil MianMuhammad Shafique
PROJECT DURATION	Kharif-2015and Spring-2016
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.
TREATMENTS	**Potato**: Fertilizer dose as farmer practice i.e. N P K (Kg/ha) 300 225 125

Spring Maize: Hybrid = YH-1898

B.	**Fertilizer levels.**		
Treatments	**N**	**P**	**K**
	(Kg/ha)	(Kg/ha)	(Kg/ha)
1	275	30	0
2	275	60	0
3	275	90	0
4	275	120	0
5	275	150	0
6	275	180	0

METHODOLOGY:	Design	= RCB
	Replications	= 3
	Plot size	= 5m x 4.5m
	Fertilizer	= As per treatment
	Date of sowing Potato Maize	 = October,2015 = February,2016
	Potato crop will be sown in kharif 2015 according to farmer's fertilizer dose (300:225:125 NPK Kg/ha. After harvesting of potato crop, maize crop will be sown during spring 2016 and fertilizer will be applied as per treatment. All P, K and 35 kg N will be applied at sowing time, 56 kg N at 4 leaf stage, 92 kg N at grand growth stage, while last 92 kg N just before flowering stage. The data regarding stand count, days to 50% silking, plant height, cob height and grain yield will be recorded and analyzed statistically.	
PREVIOUS YEAR'S RESULTS:	New experiment.	

03. TITLE	**IMPACT OF FERTILIZER DOSES ON GRAIN YIELD OF SPRING MAIZE SOWN AFTER POTATO.**
OBJECTIVE	To find out the optimum dose of Potasium (K) for maximum grain yield of spring hybrid maize sown after potato.
RESEARCH WORKER(S)	Mr. Muhammad Jamil MianMuhammad Shafique
PROJECT DURATION	Kharif-2015and Spring-2016
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.
TREATMENTS	**Potato**: Fertilizer dose as farmer practice i.e. N P K (Kg/ha) 300 225 125

Spring Maize: Hybrid = YH-1898

B.	**Fertilizer levels. (Kg/ha)**		
Treatments	**N**	**P**	**K**
1	275	120	0
2	275	120	30
3	275	120	60
4	275	120	90
5	275	120	120
6	275	120	150

METHODOLOGY:	Design	= RCB
	Replications	= 3
	Plot size	= 5m x 4.5m
	Fertilizer	= As per treatment
	Date of sowing Potato Maize	 = October,2015 = February,2016
	Potato crop will be sown in kharif 2015 according to farmer's fertilizer dose (300:225:125 NPK Kg/ha. After harvesting of potato crop, maize crop will be sown during spring 2016 and fertilizer will be applied as per treatment. All P, K and 35 kg N will be applied at sowing time, 56 kg N at 4 leaf stage, 92 kg N at grand growth stage, while last 92 kg N just before flowering stage. The data regarding stand count, days to 50% silking, plant height, cob height and grain yield will be recorded and analyzed statistically.	
PREVIOUS YEAR'S RESULTS:	New experiment.	

09. TITLE	**SEED PRODUCTION OF SORGHUM SUDANGRASS HYBRID AND DEVELOPMENT OF PRODUCTION TECHNOLOGY.**
OBJECTIVE	To produce seed of new high yielding sadabahar fodder and development of its production technology for end users.

RESEARCH WORKER(S)	Mr. Aamir Ghani Mr. Muhammad Saeed Mr. Dilbar Hussain Mian Muhammad Shafique		
PROJECT DURATION	Kharif-2015.		
LOCATION	Maize & Millets Research Institute, Yusafwala-Sahiwal.		
TREATMENTS	YCMS 10 x Sudangrass		
METHODOLOGY	Lay out Reps Plot size Plant to plant Row to row Fertilizer Date of sowing	= = = = = = =	Strip Non replicated 20 m x 31.5 m 15 cm 75 cm 170-84-62 NPK (Kg/ha) 25^{th} June – 15^{th} July
	Cytoplasmic male sterile line "YCMS 10" will be planted with Sudan grass (Male) by 6:2 female: male on ridges.		
PREVIOUS YEAR'S RESULTS:	New experiment.		