

RESEARCH WORK RABI 2017-18



VEGETABLE RESEARCH INSTITUTE FAISALABAD

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1. TOMATO (Solanum lycopersicum L.)

1. TITLE	COLLECTION AND MAINTENANCE OF DETERMINATE TOMATO GERMPLASM
OBJECTIVE	Collection and maintenance of local and exotic germplasm for future use in breeding programme.
RESEARCH WORKERS	Dr. Saeed Ahmad Shah Chishti Mr. Kashif Nadeem Mr. Amir Latif Mr. Muhammad Najeebullah
LOCATION	Faisalabad
DURATION /TREATMENTS	Continuous Entries (Existing) = 109 (local and exotic).
METHODOLOGY	Nursery sowing=Mid October, 2017Transplanting= 3^{rd} week of November, 2017Experimental design=Non replicatedPlant spacing=50 cmBed width=1.25 mOff-type plants will be rouged out to maintain the purity.
PREVIOUS YEAR'S RESULTS	109 entries of determinate tomato were maintained for further use in breeding program. Selected 15 entries will be used in breeding program.
	Characteristics Range Fruit length (mm) $17.3 - 78.6$ Fruit width (mm) $15.4 - 60.2$ Fruit firmness (kg/cm ²) $1.9 - 4.5$ Fruit weight (g) $9.7 - 127$
2. TITLE	STUDY OF FILIAL GENERATIONS IN DETERMINATE TOMATO
OBJECTIVE	To develop/select high yielding, disease resistant, good quality determinate tomato purelines.
RESEARCH WORKERS	Dr. Saeed Ahmad Shah Chishti Mr. Kashif Nadeem Mr. Amir Latif Mr. Muhammad Najeebullah
LOCATION	Faisalabad
DURATION	Continuous
TREATMENTS	i) $F_2 = 26$ cross combinations

METHODOLOGY	ii) F_3 = 39 single plant progenies of 22 crossesiii) F_4 = 70 single plant progenies of 21 crossesiv) F_5 = 76 single plant progenies of 11 crossesv) F_6 = 23 single plant progenies of 7 crossesvi) F_7 = 19 single plant progenies of 5 crossesNursery sowing= Mid October, 2017Transplanting= 3 rd week of November, 2017Plant to plant distance= 50 cmExperimental design= Non-replicated $F_2 - F_6$ will be advanced by using Pedigree method. Desirable plantprogenies will be selected for further studies.								
PREVIOUS YEAR'S	S. No.	Generation	No. of Cros	ses / Progeny]				
RESULTS			Studied	Selected					
	1	F ₁	50	26	_				
	2	F ₂	25	22/39	_				
	3	F ₃ F ₄	23/34	21/70 11/76	-				
	5	F_4 F_5	7/15	7/23	_				
	6	F_6	5/11	5/19	-				
	7	F ₇	4/14	4/52	-				
3. TITLE OBJECTIVE	PURELI	NES	UATION OF D						
OBJECTIVE	generation		omato purelines	selected from ad	vanced				
RESEARCH WORKERS	Mr. Kashi	Ahmad Shah C if Nadeem Immad Najeebul							
LOCATION	Faisalaba	d							
DURATION	2017-18								
TREATMENTS	17266, 17	7258, 17259, 1 7267, 17268, 17	luding 3 checks 7260, 17261, 17 7269, 17270, 17 rande (Check).	7262, 17263, 17	7264, 17265,				
METHODOLOGY	Transplan Experime Plot size Plant Spa Repeats	Plant Spacing $= 50 \text{ cm}$							

			fruit yield will be recorded.								
PREVIOUS YEA	AR'S		During previous year 14 entries including three checks were studied. Data recorded for fruit length, fruit width, fruit firmness, fruit weight and fruit yield is given below.								
RESULTS											
	Rank	Entry		Fruit	Fruit	Fruit	Fruit	Fruit			
				length (mm)	width (mm)	firmness (kg/cm ²)	weight (g)	yield (t/ha)			
	1	16244		55.3	56.8	3.78	120.5	44.54			
	2	Nadir (Cl	neck)	57.6	49.0	3.92	83.6	43.51			
	3	16243	,	53.4	54.8	3.90	112.2	43.18			
	4	Naqeeb (Check)	58.7	50.2	3.88	82.2	39.38			
	5	16249		55.2	46.8	4.10	75.0	37.47			
	6	Rio Gran	nde (Check)	57.5	47.1	4.06	80.9	36.91			
	14	16251		48.9	45.6	3.70	67.1	22.79			
		LSD (0.05)	1				2.91			
4. TITLE				SECONDARY EVALUATION OF DETERMINATE TOMATO PURELINES							
OBJECTIVE			To evaluate the selected determinate tomato purelines for open field cultivation.								
RESEARCH WO	ORKERS		Dr. Saeed Ahmad Shah Chishti Mr. Kashif Nadeem Mr. Muhammad Najeebullah								
LOCATION			Faisalabad								
DURATION			2017-18								
TREATMENTS			Entries = 10 (including 3 checks) viz; 13229, 13234, 13239, 13240, 16245, 16249, 16252, Nadir (Check), Naqeeb (Check) & Rio Grande (Check).								
METHODOLOC	βY		Nursery sowing= Mid October, 2017Transplanting= 3^{rd} week of November, 2017Exp. Design= RCBDPlot size= 8.0×1.25 mRepeats= 3 Plant spacing= 50 cmData regarding fruit length, fruit width, fruit firmness, fruit weight and								
PREVIOUS YEA RESULTS	AR'S		fruit yield will be recorded.During previous year 11 entries including 3 checks were evaluated.Data recorded for fruit length, fruit width, fruit firmness, fruit weight								
RESULTS				ed for fruit le ld is given b	-	width, fruit fii	mness, frui	t weig			

	Rank	Entry		Fruit length (mm)	Fruit width (mm)	Fruit firmness (kg/cm ²)	Fruit weight (g)	Fruit yield (t/ha)		
	1	13240		45.7	42.7	3.58	67.1	50.17		
	2	Naqeeb (Ch	neck)	56.7	47.1	3.86	79.5	41.02		
	3	Nadir (Che		57.7	49.8	3.90	81.6	40.60		
	4	13239	,	53.6	48.3	3.98	83.7	40.39		
	5	10139			45.9	3.84	78.0	36.90		
	7	Rio Grande			50.1	4.04	87.0	35.82		
	11	13232	× /	58.5 56.9	44.8	3.58	80.4	25.17		
		LSD (0.05)					I	2.62		
OBJECTIVE To evaluate				ETERMINATE TOMATO PURELINES evaluate the selected determinate tomato purelines for open field ltivation at different locations.						
Mr. Muł Dr. Ghu Mr. Abr			Mr. Kashif Nadeem Mr. Muhammad Najeebullah Dr. Ghulam Nabi Mr. Abrar Ahmad Mr. Shoaib Liaqat							
LOCATION]	Faisalabad, S	Sheikhupura	, Multan &	Bahawalpur				
DURATION		2	2017-18							
TREATMENTS			Entries = 13198, 1323	-	0	necks) viz; 1 eb (Check) &				
METHODOLOGYNursery sowing Transplanting= Mid October, 2017 = 3^{rd} week of November, 2017 Experimental designExperimental design= RCBD Plot sizePlot size= 8.0×1.25 m Plant SpacingPlant Spacing= 50 cm = 3					, 2017					
		t	Data regarding fruit length, fruit width, fruit firmness, fruit weig fruit yield will be recorded at VRI, Faisalabad whereas; only yiel will be recorded at out-stations.							
PREVIOUS YEA							died at			

	Demle	Entur			Fr	uit yield (T/	ha)				
	Rank	Entry		FSD	S. Pura	Multan	B. Pur	Average			
	1	10139		37.70	34.40	30.67	25.01	31.95			
	2	Nadir (Che	ck)	37.10	33.45	29.62	23.50	30.92			
	3	13198		35.76	32.95	29.90	23.81	30.61			
	4	10142		34.76	32.32	27.81	23.60	29.62			
	5	Naqeeb (Cl	neck)	33.75	30.95	27.68	24.06	29.11			
	6	10173		35.47	29.92	28.42	22.23	29.01			
	7	Rio Grand	e (Check)	30.71	29.89	24.97	22.67	27.06			
	11	NB-242		19.41	15.16	14.91	13.92	15.85			
		LSD (0.05)		2.67	3.31	2.19	2.04	-			
6. TITLE					IAL EVALU S/ HYBRID						
OBJECTIVE				high yieldir / Autumn pl	ig and diseas anting.	e tolerant to	mato genoty	pes suitabl			
RESEARCH V	VORKER	S	Dr. Saeed	Dr. Saeed Ahmad Shah Chishti							
				if Nadeem ammad Naje	ebullah						
LOCATION(S	5)		Faisalaba	d & Chakwa	al						
DURATION			2017-18								
TREATMENT	ſS			Г-315, AUT	$3 \text{ checks} = A^{2}$ -318, AUT-3						
METHODOL	OGY		Nursery s	-	$=2^{nd}$ wee	k of August	, 2017				
			Transplar	-		$=2^{nd}$ week of September, 2017					
			•	ental design		= RCBD					
			Plot size			$= 8.0 \times 1.25 \text{ m}$					
		Plant Spa	cing	= 50 cm	= 50 cm						
			Repeats		= 3						
			Data rega	rding fruit v	veight and fr	uit yield will	l be recorded	1.			
PREVIOUS Y	EAR'S		12 selecte	ed lines alon	g with 3 che	cks were stu	died during	the previou			
PREVIOUS YEAR'S12 selected lines along with 3 checks were studied during theRESULTSyear. Data regarding fruit yield is presented below:											

			Det Ad	vanced Lines:		
	Rank	Entry	Det. Au		<u>.</u> ut yield (T/ha	a)
				VRI, Faisalabad	BARI, Chakwal	Average
	1	RS-1312	F ₁ (Check)	27.22	-	27.22
	2	T-1359 F ₁		21.54	15.89	18.71
	3	AUT-312	× /	18.39	13.98	16.18
	4	AUT-315		19.35	12.30	15.82
	5	AUT-318		18.77	11.81	15.29
	7	Kanwal F	1 (Check)	14.35	-	14.35
	12	AUT-330		9.65	6.97	8.31
		LSD (0.05)	2.86	1.39	-
. TITLE DBJECTIVE				OPPING STUI the suitable in		
				per unit area bas		
RESEARCH WO	RKERS		Mr. Kashif	hmad Shah Chi Nadeem 1mad Najeebulla		
LOCATION			Faisalabad			
DURATION			2017-18			
TREATMENTS			$T_1 = $ Sole cr $T_2 = $ Tomate	to be intercropp rop (Tomato) o + Peas o + Strawberry o + Onion	ed = Peas, St	rawberry &
METHODOLOG	Y		Nursery sow Transplantin Experiment Plot size Plant spacin Repeats	ng = 3 al design = F = 8	Mid October, r^{rd} week of No RCBD 3.0×1.25 m 50 cm (Tomat	ovember, 20
				dlings will be tra ach treatment) v	-	
PREVIOUS YEA RESULTS	R'S		New experi	ment		
8. TITLE				DUCTION OF VARIETIES F		
OBJECTIVE				the seed of appr	1 1	

RESEARCH WORKERS	Dr. Saeed Ahmad Shah Chishti						
	Mr. Kashif Nadeem						
LOCATION	Mr. Muhammad Najeebullah						
LOCATION	Faisalabad						
DURATION	2017-18						
TREATMENTS	Determinate variety(s) = 02						
METHODOLOGY	Nursery sowing Transplanting= Mid October, 2017 $= 3^{rd}$ week of November, 2017						
	Area = 04 Kanals						
	Spacing $= 50 \text{ cm}$						
	4.0 kg seed of approved determinate varieties will be produced (As per target of PARB Project No. 916).						
PREVIOUS YEAR'S	6.0 kg pre-basic seed of two determinate tomato varieties namely						
RESULTS	Nadir and Naqeeb was produced for further multiplication/ cultivation.						
9. TITLE	ADAPTABILITY TRIAL OF EXOTIC TOMATO VARIETIES / HYBRIDS						
OBJECTIVE	To find out high yielding, well adapted, better quality and disease						
	resistant / tolerant tomato varieties / hybrids.						
RESEARCH WORKERS	Dr. Saeed Ahmad Shah Chishti						
	Mr. Amir Latif						
	Mr. Muhammad Najeebullah						
LOCATION	Faisalabad						
DURATION	2017-18						
TREATMENTS	Varieties / hybrids will be supplied by the Seed Companies and						
	commercial cultivars will be used as standard checks.						
METHODOLOGY	Nursery sowing = Mid October, 2017						
	Transplanting $= 3^{rd}$ week of November, 2017						
	Experimental design = RCBD						
	Plot size $= 8.0 \times 1.25$ m						
	Plant Spacing $= 50 \text{ cm}$						
	Repeats = 3						
	Data regarding fruit length fruit width fruit firmness fruit weight and						
	fruit yield will be recorded.						
PREVIOUS YEAR'S	79 determinate tomato varieties / F_1 hybrids were studied in open field						
RESULTS	along with two checks in each of four sets whereas; 3 indeterminate						
	tomato F_1 hybrids along with two checks were studied under high						
	tunnel in a separate trial. Data recorded for fruit yield and quality						
	parameters is given below:						
DURATION TREATMENTS METHODOLOGY PREVIOUS YEAR'S	Faisalabad2017-18Varieties / hybrids will be supplied by the Seed Companies ar commercial cultivars will be used as standard checks.Nursery sowing= Mid October, 2017Transplanting= 3^{rd} week of November, 2017Experimental design= RCBDPlot size= 8.0×1.25 mPlant Spacing= 50 cmRepeats= 3 Data regarding fruit length, fruit width, fruit firmness, fruit we fruit yield will be recorded.79 determinate tomato varieties / F_1 hybrids were studied in o along with two checks in each of four sets whereas; 3 indetern tomato F_1 hybrids along with two checks were studied under I tunnel in a separate trial. Data recorded for fruit yield and quar						

Rank	Variety/ Hybrid	Fruit length (mm)	Fruit width (mm)	Fruit firmness (kg/cm ²)	Fruit weight (g)	Fruit yield (T/ha)
1	TAI-14-6242	50.3	48.3	3.64	76.5	58.51
2	GTH-1	65.4	46.0	2.56	80.3	58.09
3	Hiker F ₁	56.5	44.9	2.86	73.1	57.07
4	CBS-292	60.7	40.3	3.32	69.7	56.86
5	TAI-2120	47.0	44.9	2.72	64.4	55.49
10	T-1359 F ₁ (Check)	51.2	43.4	3.12	68.1	47.43
19	Nadir (Check)	57.8	50.1	3.18	82.6	40.19
23	Red Boss	49.1	41.0	2.56	61.9	34.92
	LSD (0.05)		•	•		3.28

Set-2 (Det.)

Rank	Variety/ Hybrid	Fruit length	Fruit width	Fruit firmness	Fruit weight	Fruit yield
		(mm)	(mm)	(kg/cm^2)	(g)	(T/ha)
1	Rover F ₁	55.6	47.3	3.32	78.7	71.54
2	Avenue F ₁	57.5	47.8	3.22	71.5	70.90
3	Miracle F ₁	55.9	46.1	3.18	72.9	66.52
4	Mehran-670	50.4	46.6	2.86	67.2	63.72
5	Rani	54.7	46.2	3.54	73.5	61.47
8	T-1359 F ₁ (Check)	51.3	42.3	3.20	63.6	59.53
11	Nadir (Check)	57.0	47.9	3.44	79.8	57.87
23	TTM-503	53.1	45.3	2.98	68.1	32.68
	LSD (0.05)					4.06

<u>Set-3 (Det.)</u>

Rank	Variety/ Hybrid	Fruit length (mm)	Fruit width (mm)	Fruit firmness (kg/cm ²)	Fruit weight (g)	Fruit yield (T/ha)
1	Yaqui	61.1	51.3	3.26	97.2	71.13
2	Prasun	56.7	46.9	3.12	72.5	69.83
3	SV-3466 TE	50.5	44.6	3.40	65.9	59.64
4	Fonto	62.6	48.3	3.44	88.3	58.24
5	T-1359 F ₁ (Check)	53.8	45.5	3.50	70.2	56.28
6	SV-6605 TE	57.9	48.1	3.28	79.1	56.03
9	Nadir (Check)	59.5	51.4	3.66	88.1	46.14
23	Neon F ₁	65.5	55.5	3.46	105.7	17.76
	LSD (0.05)					4.75

<u>.</u>	Set-4 (D	et.)						
_ 	Rank	Var	iety/ Hybrid	Fruit	Fruit	Fruit	Fruit	Fruit
				length	width	firmness	weight	yield
				(mm)	(mm)	(kg/cm^2)	(g)	(T/ha
)
-	1	V-36		69.8	52.4	3.30	95.3	33.26
-	2	Albi		54.8	46.8	3.26	74.9	29.46
-	3		$\operatorname{am} F_1$	58.1	49.7	3.38	80.2	27.31
	4		Cross F ₁	50.8	46.0	3.32	61.5	26.89
-	5	Kam		60.3	49.4	3.58	77.0	24.50
-	10		359 F ₁ (Check)	50.3	44.6	3.54	62.7	22.64
-	15		ir (Check)	54.3	46.3	3.70	75.6	20.25
-	18		lette F ₁	60.9	50.6	3.72	79.3	14.89
		LSD	(0.05)					3.60
<u>I</u>	ndeterr	ninat	<u>te</u>					
	Rank	Var	riety/ Hybrid	Fruit	Fruit	Fruit	Fruit	Fruit
			e e	length	width	firmness	weight	yield
				(mm)	(mm)	(kg/cm^2)	(g)	(T/ha)
	1		ar F ₁ (Check)	57.2	48.6	3.94	82.3	145.22
	2	Sah	el F ₁ (Check)	60.6	52.0	4.06	106.7	143.20
	3		mic F ₁	59.2	50.1	3.90	96.2	120.43
		LSD	(0.05)					6.66
			T					
10. TITLE			SYNTHESIS C SUITABLE FC CULTIVATIO	OR LOW T				S
OBJECTIVES			To develop high tunnels and oper	• •		e tomato hybr	rids suitabl	e for low
RESEARCH WORKERS	\$		Dr. Saeed Ahma	ad Shah Chi	shti			
			Mr. Kashif Nad	eem				
			Mr. Amir Latif					
			Mr. Muhammad	l Najeebulla	lh			
LOCATION			Faisalabad					
DURATION			2017-18					
TREATMENTS			Parents $= 15$					
METHODOLOGY			Nursery sowing		Aid Octob			
			Transplanting			f November,		
			Plot size			m / as per re	quirements	
			Plant Spacing	= 5	0 cm			
			The crosses amonew and 20 sele	-	-		le to devel	op 30

PREVIOUS YEAR'S RESULTS	A total of 60 F_1 crosses seed (40 fresh & 20 under evaluation hybrids) was produced.
11. TITLE	PRELIMINARY EVALUATION OF DETERMINATE TOMATO HYBRIDS SUITABLE FOR LOW TUNNELS AND OPEN FIELD CULTIVATION
OBJECTIVES	To evaluate locally developed determinate tomato hybrids suitable for low tunnels and open field cultivation.
RESEARCH WORKERS	Dr. Saeed Ahmad Shah Chishti Mr. Amir Latif Mr. Muhammad Najeebullah
LOCATION	Faisalabad
DURATION	2017-18
TREATMENTS	$ \begin{array}{l} F_1 \mbox{ hybrids} = 42 \mbox{ (including 2 checks) viz; LTH-451, LTH-452, LTH-453, LTH-454, LTH-455, LTH-456, LTH-457, LTH-458, LTH-459, LTH-460, LTH-461, LTH-462, LTH-463, LTH-464, LTH-465, LTH-466, LTH-467, LTH-468, LTH-469, LTH-470, LTH-471, LTH-472, LTH-473, LTH-474, LTH-475, LTH-476, LTH-477, LTH-478, LTH-479, LTH-480, LTH-481, LTH-482, LTH-483, LTH-484, LTH-485, LTH-486, LTH-487, LTH-488, LTH-489, LTH-490, T-1359 F_1 \mbox{ (Check)} \end{tabular} $
METHODOLOGY	Nursery sowing= Mid October, 2017Transplanting= 3^{rd} week of November, 2017Experimental design= RCBDPlot size= 8.0×1.25 mPlant Spacing= 50 cmRepeats= 3 Data regarding fruit length, fruit width, fruit firmness, fruit weight and fruit yield will be recorded.
PREVIOUS YEAR'S RESULTS	40 locally developed determinate F_1 hybrids along with one check were evaluated in two different sets (20 F_1 hybrids & 1 check in each set). Data recorded for fruit length, fruit width, fruit firmness, fruit weight and fruit yield is given below.

S	Set-1							
	Rank	Entr	у	Fruit length (mm)	Fruit width (mm)	Fruit firmness (kg/cm ²)	Fruit weight (g)	Fruit yield (t/ha)
	1	LTH	-420	56.9	47.3	3.32	77.9	50.05
	2		LTH-421		47.4	3.42	82.5	47.73
	3	LTH	-418	54.5 46.2	50.7	3.76	73.4	46.81
	4	T-13	59 F ₁ (Check)	51.9	43.7	3.78	65.1	46.17
	5	LTH		52.5	57.2	3.78	88.5	46.05
	6	LTH	-423	54.1	47.9	3.72	73.2	44.53
	7	LTH	-422	61.4	50.9	3.82	90.0	43.81
	21	LTH	-426	35.9	36.4	2.42	34.8	24.21
		LSD	(0.05)					4.18
	Set-2							
	Rank	Entr	У	Fruit length	Fruit width	Fruit firmness	Fruit weight	Fruit yield
				(mm)	(mm)	(kg/cm^2)	(g)	(t/ha)
	1	LTH	-440	51.0	42.9	3.78	68.2	55.09
	2	LTH	-433	53.0	42.8	3.64	63.8	53.48
	3	LTH	-444	54.6	46.2	3.56	74.2	52.88
	4	LTH	-445	50.4	45.2	3.52	69.8	50.26
	5	LTH	-432	49.5	45.7	3.76	62.5	50.02
	9	T-13	59 F ₁ (Check)	51.3	42.2	3.84	62.5	48.18
	10	LTH	-431	41.0	43.2	3.68	54.9	48.05
	21	LTH	-435	54.5	44.7	3.68	68.1	32.81
		LSD	(0.05)					3.83
12. TITLE			SECONDARY DETERMINAT TUNNELS AN	ГЕ ТОМА	TO HYI	BRIDS SUIT	CABLE FO	OR LOW
OBJECTIVES			To evaluate the selected locally developed tomato hybrids suitable for low tunnels and open field cultivation.					suitable
RESEARCH WORKERS			Dr. Saeed Ahmad Shah Chishti Mr. Amir Latif Mr. Muhammad Najeebullah					
LOCATION			Faisalabad					
DURATION			2017-18					
TREATMENTS	TREATMENTS			F_1 hybrids = 10 (including 3 checks) viz; LTH-405, LTH-420, LTH-421, LTH-422, LTH-436, LTH-440, LTH-444, 10139, T-1359 F_1 (Check), TO-1057 F_1 (Check) and Ahmar Hybrid (Check).				
METHODOLOGY			Nursery sowing Transplanting			ber, 2017 of November	, 2017	

	3	LTH-379	48.0	44.4	3.68	67.9	47.08
	2	T-1359 F ₁ (Check)	48.2	38.8	3.80	61.2	47.66
	1	LTH-405	54.2	45.6	3.40	72.4	49.07
			(mm)	(mm)	(kg/cm^2)	(g)	(t/ha)
			length	width	firmness	weigt	yield
	Rank	Entry	Fruit	Fruit	Fruit	Fruit	Fruit
		fruit weight an			•		
RESULTS		evaluated. Dat	•	0			
PREVIOUS YEAR'S		10 determinate	F ₁ hybrids	along wit	h one exotic	check wer	e
		and fruit yield				·	e
		Data regarding	g fruit length	n, fruit wic	lth, fruit firm	ness, fruit	weight
		Repeats	=	3			
		Plant Spacing	=	50 cm			
		Plot size	=	8.0×1.25	5 m		
		Experimental	design =	RCBD			

55.6

44.4

59.1

47.6

49.9

Dr. Saeed Ahmad Shah Chishti

Mr. Muhammad Najeebullah

Mr. Kashif Nadeem Mr. Amir Latif

Dr. Ghulam Nabi Mr. Abrar Ahmad Mr. Shoaib Liaqat

2017-18

Nursery sowing

Transplanting

46.0

47.1

42.5

51.6

49.4

DETERMINATE TOMATO HYBRIDS SUITABLE FOR LOW

To evaluate the selected locally developed tomato hybrids suitable for low tunnels and open field cultivation at different locations.

Entries = 5 F_1 hybrids along with 3 checks viz; LTH-324, LTH-350, LTH-366, LTH-379, LTH-405, T-1359 F_1 (Check), TO-1057 F_1

= Mid October, 2017

 $= 3^{rd}$ week of November, 2017

MULTI-LOCATIONAL / ZONAL EVALUATION OF

TUNNELS AND OPEN FIELD CULTIVATION

Faisalabad, Sheikhupura, Multan & Bahawalpur

(Check) and Ahmar Hybrid (Check).

3.86

3.56

4.08

3.60

3.52

78.6

63.5

70.0

81.3

88.9

44.49

42.27

40.03

39.77

39.03

3.56

LTH-371

LTH-365

LTH-366

LTH-324

LTH-350

LSD (0.05)

4

5

6

7

11

13. TITLE

OBJECTIVES

LOCATION

DURATION

TREATMENTS

METHODOLOGY

RESEARCH WORKERS

			Experir	nental desig	n = RCB	D			
			Plot size $= 8.0 \times 1.25 \text{ m}$						
			Plant Spacing $= 50 \text{ cm}$						
			Repeats	Repeats = 3					
			Data re	garding fruit	length, frui	t width, fruit	firmness, fi	uit weight	
			and frui	it yield will	be recorded	at VRI, Faisa	alabad wher	eas; only	
			fruit yie	eld data will	be recorded	at out-statio	ns.		
PREVIOUS YEA	AR'S		10 F ₁ h	ybrids along	with two ch	ecks were st	udied at fou	r different	
RESULTS			location	ns. Data reco	orded for frui	it yield is pre	esented belo	w.	
			1						
	Donk	Entw			Fr	uit yield (T/	'ha)		
	Rank	Entry		FSD	S. Pura	Multan	B. Pur	Average	
	1	NBH-149		58.24	53.90	50.44	32.30	48.72	
	2	NBH-5		54.54	52.93	47.60	34.42	47.37	
	3	LTH-297		52.89	48.57	45.52	29.47	44.11	
	4	NBH-1		49.11	46.82	44.21	29.62	42.44	
	5	T-1359 F ₁ (C	heck)	48.41	46.55	42.59	31.58	42.28	
	6	LTH-291		47.32	43.77	41.14	27.03	39.82	
	7	Ahmar F ₁ (C	(heck)	45.03	40.04	38.36	28.08	37.88	
	12	LTH-324		47.52	40.88	33.87	22.17	36.11	
		LSD (0.05)		4.64	2.57	3.07	2.29	-	
14. TITLE						ENANCE (O GERMPI			
OBJECTIVE			Collection and maintenance of local and exotic germplasm for future						
			use in breeding programme.						
RESEARCH WO	ORKERS)	Dr. Sae	ed Ahmad S	hah Chishti				
			Mr. Ka	shif Nadeem	l				
			Mr. Muhammad Najeebullah						
LOCATION			Faisalabad						
DURATION /TR	REATME	ENTS	Continuous						
				Entries (Existing) = 74 (local and exotic).					
METHODOLOO	ïY		Nursers	y sowing	=	Mid Octobe	er 2017		
			Transpl	•	=		November,	2017	
			-	-				2017	
			Experimental design=Non replicatedPlant spacing=40 cm						
			Bed wi	-	=	1.50 m (on	hoth sides)		
						out to mainta	-	,	
			On-typ	c plants will	be rouged t	ui io manila	in the purity	•	

PREVIOUS YEAR'S	74 entries of indeterminate tomato	were maintained for further use		
RESULTS	in breeding program. Selected 15	entries will be used in breeding		
	program.			
	Characteristics	Range		
	Fruit length (mm)	19.6 - 90.8		
	Fruit width (mm)	16.7 - 65.4		
	Fruit firmness (kg/cm ²)	1.8 - 4.6		
	Fruit weight (g)	7.3 – 224		
15. TITLE	STUDY OF FILIAL GENERATI TOMATO	ONS IN INDETERMINATE		
OBJECTIVE	To develop/select high yielding, dis indeterminate tomato purelines.	ease resistant, good quality		
RESEARCH WORKERS Dr. Saeed Ahmad Shah Chishti				
	Mr. Kashif Nadeem			
	Mr. Amir Latif			
	Mr. Muhammad Najeebullah			
LOCATION	Faisalabad			
DURATION	Continuous			
TREATMENTS	i) $F_2 = 21$ cross combinations ii) $F_3 = 25$ single plant progenies iii) $F_4 = 17$ single plant progenies iv) $F_5 = 30$ single plant progenies v) $F_6 = 42$ single plant progenies vi) $F_7 = 30$ single plant progenies	of 10 crosses of 10 crosses of 5 crosses		
METHODOLOGY	Nursery sowing= Mid October, 2017Transplanting= 3^{rd} week of November, 2017Plant to plant distance= 50 cmExperimental design= Non-replicatedPlant spacing= 40 cmBed width= 1.50 m (on both sides) $F_2 - F_6$ will be advanced by using Pedigree method. Desirable planprogenies will be selected for further studies.			
PREVIOUS YEAR'S	S. No. Generation No. o	f Crosses / Progeny		
RESULTS	Structure Structure Stud	<u> </u>		
	$1 F_1 50$			
	2 F_2 2	18/25		
	3 F ₃ 12/	23 10/17		
	4 F ₄ 10/			
	5 F ₅ 6/1			
	$\frac{6}{F_6}$ $\frac{6}{1}$			
	7 F ₇ 3/-	4 3/5		

16. TITLE	SYNTHESIS OF INDETERMINATE TOMATO HYBRIDS SUITABLE FOR TUNNEL CULTIVATION			
OBJECTIVES	To develop high yielding indeterminate tomato hybrids suitable for tunnel cultivation.			
RESEARCH WORKERS	Dr. Saeed Ahmad Shah Chishti Mr. Kashif Nadeem Mr. Muhammad Najeebullah			
LOCATION	Faisalabad			
DURATION	2017-18			
TREATMENTS	Parents =15			
METHODOLOGY	Nursery sowing= Mid October, 2017Transplanting= 3^{rd} week of November, 2017Plot size= 4.0×1.50 m (on both sides)Plant Spacing= 40 cmThe crosses amongst desirable parents will be made to develop 30new and 20 selected/ promising F_1 hybrids.			
PREVIOUS YEAR'S RESULTS	A total of 62 F_1 crosses seed (40 fresh & 22 under evaluation hybrids) was produced.			
17. TITLE	PRELIMINARY EVALUATION OF INDETERMINATE TOMATO HYBRIDS SUITABLE FOR TUNNEL CULTIVATION			
OBJECTIVES	To evaluate locally developed indeterminate tomato hybrids suitable for tunnel cultivation.			
RESEARCH WORKERS	Dr. Saeed Ahmad Shah Chishti Mr. Kashif Nadeem Mr. Bashir Hussain Mr. Muhammad Najeebullah			
LOCATION	Faisalabad			
DURATION	2017-18			
TREATMENTS	43 F ₁ hybrids (including one exotic check) viz: LITTH-872, LITTH-873, LITTH-874, LITTH-875, LITTH-876, LITTH-877, LITTH-878, LITTH-879, LITTH-880, LITTH-881, LITTH-882, LITTH-884, LITTH-885, LITTH-886, LITTH-887, LITTH-888, LITTH-890, LITTH-891, LITTH-892, LITTH-893, LITTH-894, LITTH-895, LITTH-896, LITTH-897, LITTH-898, LITTH-899, LITTH-900, LITTH-901, LITTH-902, LITTH-903, LITTH-904, LITTH-905, LITTH-907, LITTH-908, LITTH-909, LITTH-910, LITTH-911, LITTH-912, LITTH-913, LITTH-914, LITTH-915, LITTH-916 & Sahel F ₁ (Exotic check).			
METHODOLOGY	Nursery sowing Transplanting= Mid October, 2017 $= 3^{rd}$ week of November, 2017			

	Experimental design	= RCBD		
	Plot size	$= 4.0 \times 0.75 \text{ m}$		
	Plant Spacing	= 40 cm		
	Data regarding fruit let and fruit yield will be	ngth, fruit width, fruit firmness, fruit weight recorded.		
PREVIOUS YEAR'S	42 locally developed indeterminate F ₁ hybrids along with one exotic			
RESULTS	check were evaluated in three different sets (14 F_1 hybrids & 1 check			
	<i>,</i>	ded for fruit length, fruit width, fruit		
	firmness, fruit weight a	and fruit yield is given below.		

	<u>Set-1</u>						
	Rank	Entry	Fruit	Fruit	Fruit	Fruit	Fruit
		·	length	width	firmness	weight	yield
			(mm)	(mm)	(kg/cm ²)	(g)	(t/ha)
	1	LITTH-834	48.6	49.6	3.58	78.3	137.94
	2	Sahel F ₁ (Check)	63.2	53.9	3.94	119.7	135.49
	3	LITTH-835	59.0	52.2	3.52	92.5	133.47
	4	LITTH-841	52.2	45.6	3.66	71.9	130.47
	5	LITTH-842	67.7	46.9	3.52	96.8	128.25
	6	LITTH-832	57.9	46.5	4.12	79.6	126.00
	15	LITTH-831	56.0	44.7	3.64	68.8	82.37
		LSD (0.05)					7.03
	<u>Set-2</u>	<u>et-2</u>					
	Rank	Entry	Fruit	Fruit	Fruit	Fruit	Fruit
			length (mm)	width (mm)	firmness (kg/cm ²)	weight (g)	yield (t/ha)
	1	LITTH-857	56.3	59.4	3.52	123.1	145.20
	2	LITTH-849	47.2	56.3	3.66	93.0	144.35
	3	LITTH-854	45.6	44.5	3.76	66.8	140.20
	4	Sahel F ₁ (Check)	65.3	54.6	3.78	122.6	137.75
	5	LITTH-844	62.6	50.3	3.30	100.3	136.87
	6	LITTH-845	53.2	48.0	3.62	78.6	131.48
	15	LITTH-848	49.0	50.7	3.26	80.4	90.81
		LSD (0.05)					5.44
	<u>Set-3</u>						
	Rank	Entry	Fruit	Fruit	Fruit	Fruit	Fruit
		·	length	width	firmness	weight	yield
			(mm)	(mm)	(kg/cm^2)	(g)	(t/ha)
	1	LITTH-865	45.7	57.4	3.60	100.6	159.57
	2	LITTH-862	44.5	57.7	3.72	96.9	154.82
	3	LITTH-861	63.2	51.1	3.86	105.2	147.30
	4	LITTH-859	54.4	54.0	3.68	99.7	145.47
	5	Sahel F ₁ (Check)	62.3	53.8	3.94	118.1	143.97
	6	LITTH-869	57.3	51.5	3.82	98.5	143.86
	15	LITTH-858	49.5	48.5	3.56	81.4	90.13
		LSD (0.05)					4.89
8. TITLE		SECONDARY / INDETERMINA TUNNEL CULT	TE TOM	ATO HY	BRIDS SUI	TABLE F	
OBJECTIVE		To evaluate select tunnel cultivation.		developed	i tomato hyb	rids suitab	le for

RESEARCH WORKERS			Dr. Saeed Ahmad Shah Chishti					
		Mr. Kashif Nadeem						
		Mr. Bashir Huss		~ 1 •				
LOCATION			Mr. Muhammad	i Najeebulla	an			
LOCATION			Faisalabad					
DURATION			2017-18					
TREATMENTS			9 F ₁ Hybrids (in LITTH-842, LI F ₁ (Exotic check	ГТН-844, І	LITTH-85	2, LITTH-86		
METHODOLOGY			Nursery sowing		Mid Octo			
			Transplanting		3 rd week o	f November,	2017	
			Experimental de	-	RCBD			
			Plot size		4.0 imes 1.5 1	n		
			Plant Spacing	= 4	40 cm			
			Data regarding f fruit yield will b	-		th, fruit firmr	iess, fruit w	eight and
PREVIOUS YEAR'S			7 locally develo	ped indeter	minate F ₁	hybrids alon	g with two	checks
RESULTS			(one exotic & or	•		•	•	
			length, fruit width, fruit firmness, fruit weight and fruit yield is given					
			below.					
				-				
	Rank	Entr	у	Fruit	Fruit	Fruit	Fruit	Fruit
				length	width	firmness	weight	yield
	1		H-818	(mm) 53.1	(mm) 52.9	(kg/cm²) 3.70	(g) 103.4	(t/ha) 147.27
	1 2		$\frac{1}{\text{dal } F_1 (\text{Check})}$	62.8	52.9 57.1	3.70 3.92	103.4 126.8	147.27 146.59
	$\frac{2}{3}$		\mathbf{F}_1 (Check)	67.2	57.1	3.92	120.8	140.59
	3 4		H-779	53.1	52.3	3.72	96.1	129.54
	5		H-779 H-778	53.6	53.0	3.68	90.1 93.6	129.34
	6		H-799	63.3	50.0	3.88	91.3	110.11
	9		H-811	58.6	52.7	3.78	97.5	93.56
			(0.05) 4.84					
19. TITLE			MULTI-LOCA	TIONAT	/ 701141	FVALUAT	ION OF]
			INDETERMIN					OR
			TUNNEL CULTIVATION					
OBJECTIVE			To evaluate selected locally developed tomato hybrids suitable for					
			tunnel cultivation at different locations.					
RESEARCH WORKE	RS		Dr. Saeed Ahmad Shah Chishti					
				Mr. Kashif Nadeem				
			Mr. Muhammad Najeebullah					
			Mr. Muhammad	I Najeebull	an			

	Mr. Abrar Ahmad Mrs. Naveeda Anjum Mr. Bashir Hussain
LOCATION	Faisalabad, Sheikhupura, Multan and Chakwal
DURATION	2017-18
TREATMENTS	8 F ₁ Hybrids (including three checks) viz: LITTH-682, LITTH-710, LITTH-765, LITTH-779, LITTH-818, Sahel F ₁ (Exotic check), Salar F ₁ & Saandal F ₁ (Local checks.
METHODOLOGY	Nursery sowing= Mid October, 2017Transplanting= 3rd week of November, 2017Experimental design= RCBDPlot size= 4.0×1.50 mPlant Spacing= 40 cmData regarding fruit length, fruit width, fruit firmness, fruit weight and fruit yield will be recorded at VRI, Faisalabad whereas; only fruit yield data will be recorded at out-stations.
PREVIOUS YEAR'S RESULTS	7 F_1 tomato hybrids along with three checks were studied at four different locations. Data recorded for fruit yield is presented below.

Damla	T 4	Fruit yield (T/ha)					
Rank	Entry	FSD	S. Pura	Multan	NIAB, FSD	Average	
1	Salar F ₁ (Check)	156.35	140.34	136.97	-	144.55	
2	LITTH-691	144.25	137.39	134.59	127.83	136.02	
3	Saandal F ₁ (Check)	149.73	137.75	133.33	122.50	135.83	
4	LITTH-682	142.14	134.24	132.49	-	135.29	
5	Sahel F ₁ (Check)	142.38	136.13	134.87	124.96	134.59	
6	LITTH-765	142.54	126.47	117.44	-	128.82	
9	NBH-167	93.65	-	-	-	93.65	
10	NBH-166	86.23	-	-	-	86.23	
	LSD (0.05)	4.85	9.92	8.20	4.12	-	

20. TITLE	SECONDARY EVALUATION OF INDETERMINATE TOMATO HYBRIDS FOR EARLY PLANTING
OBJECTIVE	To select high yielding and disease tolerant tomato genotypes suitable for early / Autumn planting.
RESEARCH WORKERS	Dr. Saeed Ahmad Shah Chishti Mr. Kashif Nadeem Mr. Muhammad Najeebullah
LOCATION(S)	Faisalabad
DURATION	2017-18
TREATMENTS	3 entries = Saandal F_1 , Salar F_1 & Sahel F_1 .

METHODOLOGY	Nursery sowing Transplanting Experimental design Plant Spacing Bed width	 = 1st week of September, 2017 = 1st week of October, 2017 = Non-replicated = 40 cm = 1.50 m (on both sides)
	Data regarding fruit yie	eld will be recorded.
PREVIOUS YEAR'S RESULTS	New experiment	

2. ONION (Allium cepa L.)

DBJECTIVE Collection and maintenance of local and exotic germplasm for future use. RESEARCH Ms. MehvishTahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti Dr. Saeed Ahmad Shah Chishti LOCATION VRI, Faisalabad DURATION Continuous TREATMENTS Varieties for sets production = 20 Varieties for seed production = 30 Varieties for seed production = 30 METHODOLOGY For sets production Nursery sowing = 2nd fortnight of November, 2017 Harvesting of nursery sets = 1st fortnight of May, 2017 For seed production Transplanting of sets (In isolations) = December, 2017 Plot size = up to 5 Marla Sets and seeds will be harvested at maturity Sr. No Characters Range 1 1 Bulb diameter(cm) 5.6-11.6 2 Neck diameter 2 Neck diameter 0.62-1.4 3 Bulb weight(g) 76-107 4 Bulb color White, piazi, purple, red 5 Bulb shape Spherical, Tall, Flat 6 6 6 1 7 Centres/bulb 6-11 7	1. TITLE	COLLE	CTION AND MAINT	TENANCE OF GERMPLASM
RESEARCH Ms. MehvishTahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti Dr. Saeed Ahmad Shah Chishti LOCATION VRI, Faisalabad DURATION Continuous TREATMENTS Varieties for sets production = 20 Varieties for sets production = 30 Varieties for seed production = 30 METHODOLOGY For sets production Nursery sowing = 2nd fortnight of November, 2017 Harvesting of nursery sets = 1 st fortnight of May, 2017 For seed production Transplanting of sets (In isolations) Transplanting of sets (In isolations) = December, 2017 Plot size = up to 5 Marla Sets and seeds will be harvested at maturity Sets and seeds will be harvested at maturity Image: Set set in the set of the				
WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti				focur und exotie germprushi for future use.
Dr. Saeed Ahmad Shah ChishtiLOCATIONVRI, FaisalabadDURATIONContinuousTREATMENTSVarieties for sets production = 20 Varieties for seed production = 30METHODOLOGYFor sets production Nursery sowing Harvesting of nursery sets = 1st fortnight of November, 2017 Harvesting of nursery sets = up to 5 Marla Sets and seeds will be harvested at maturitySets and seeds will be harvested at maturitySr. NoCharactersRange1Bulb diameter(cm)5.6-11.62Neck diameter3Bulb veight(g)76-1074Bulb color4Bulb color5Bulb shape5Bulb shape6Ring/bulb6Ring/bulb7Centres/bulb7Centres/bulb7Soft betweed of phyrids/synthetic varietiesRESEARCHMs. Melvish Tahir Dr. Saeed Ahmad Shah ChishtiLOCATIONVRI, Faisalabad				
LOCATION VRI, Faisalabad DURATION Continuous TREATMENTS Varieties for sets production = 20 Varieties for seed production = 30 Varieties for seed production = 30 METHODOLOGY For sets production METHODOLOGY For sets production Nursery sowing = 2nd fortnight of November, 2017 Harvesting of nursery sets = 1st fortnight of May, 2017 For seed production Transplanting of sets (In isolations) = December, 2017 Plot size = up to 5 Marla Sets and seeds will be harvested at maturity Sr. No Characters Range 1 Bulb diameter(cm) 5.6-11.6 2 Neck diameter 0.62-1.4 3 Bulb color White, piazi, purple, red 5 Bulb shape Spherical, Tall, Flat 6 Ring/bulb 6-11 7 Centres/bulb 1-7 2. TITLE DEVELOPMENT OF ONION INBRED LINE DBJECTIVE For the development of hybrids/synthetic varieties RESEARCH Ms. Mehvish Tahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahm	() ORIERS			
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METHODOLOGY For sets production Nursery sowing = 2nd fortnight of November, 2017 Harvesting of nursery sets = 1st fortnight of May, 2017 For seed production Transplanting of sets (In isolations) = December, 2017 Plot size = up to 5 Marla Sets and seeds will be harvested at maturity Sets and seeds will be harvested at maturity Sets and seeds will be harvested at maturity Sr. No Characters Range 1 Bulb diameter(cm) 5.6-11.6 2 Neck diameter 0.62-1.4 3 Bulb weight(g) 76-107 4 Bulb color White, piazi, purple, red 5 Bulb shape Spherical, Tall, Flat 6 Ring/bulb 6-11 7 7 Centres/bulb 1.7 2. 2. TITLE DEVELOPMENT OF ONION INBRED LINE DBIECTIVE For the development of hybrids/synthetic varieties RESEARCH Ms. Mehvish Tahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Sh			1	
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Transplanting of sets (In isolations) = December, 2017 Plot size = up to 5 Marla Sets and seeds will be harvested at maturity I Bulb diameter(cm) 5.6-11.6 2 Neck diameter 0.62-1.4 3 Bulb weight(g) 76-107 4 Bulb color White, piazi, purple, red 5 Bulb shape 5 Bulb shape 6 Ring/bulb 6 Ring/bulb 7 Centres/bulb 1.7 2. TITLE DEVELOPMENT OF ONION INBRED LINE DBJECTIVE For the development of hybrids/synthetic varieties RESEARCH Ms. Mehvish Tahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti LOCATION VRI, Faisalabad				= 1st fortnight of May, 2017
Plot size = up to 5 Marla Sets and seeds will be harvested at maturity Sr. No Characters Range 1 Bulb diameter(cm) 5.6-11.6 2 Neck diameter 0.62-1.4 3 Bulb weight(g) 76-107 4 Bulb color White, piazi, purple, red 5 Bulb shape Spherical, Tall, Flat 6 Ring/bulb 6-11 7 Centres/bulb 1-7 2. TITLE DEVELOPMENT OF ONION INBRED LINE DBJECTIVE For the development of hybrids/synthetic varieties RESEARCH Ms. Mehvish Tahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti UCCATION				
Sets and seeds will be harvested at maturity Sr. No Characters Range 1 Bulb diameter(cm) 5.6-11.6 2 Neck diameter 0.62-1.4 3 Bulb weight(g) 76-107 4 Bulb color White, piazi, purple, red 5 Bulb shape Spherical, Tall, Flat 6 Ring/bulb 6-11 7 Centres/bulb 1-7 2. TITLE DEVELOPMENT OF ONION INBRED LINE OBJECTIVE For the development of hybrids/synthetic varieties RESEARCH Ms. Mehvish Tahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti LOCATION LOCATION VRI, Faisalabad		1	nting of sets (In isolation	
Sr. No Characters Range 1 Bulb diameter(cm) 5.6-11.6 2 Neck diameter 0.62-1.4 3 Bulb weight(g) 76-107 4 Bulb color White, piazi, purple, red 5 Bulb shape Spherical, Tall, Flat 6 Ring/bulb 6-11 7 Centres/bulb 1-7 2. TITLE DEVELOPMENT OF ONION INBRED LINE OBJECTIVE For the development of hybrids/synthetic varieties RESEARCH Ms. Mehvish Tahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti LOCATION LOCATION VRI, Faisalabad				
1 Bulb diameter(cm) 5.6-11.6 2 Neck diameter 0.62-1.4 3 Bulb weight(g) 76-107 4 Bulb color White, piazi, purple, red 5 Bulb shape Spherical, Tall, Flat 6 Ring/bulb 6-11 7 Centres/bulb 1-7 2. TITLE DEVELOPMENT OF ONION INBRED LINE DBJECTIVE For the development of hybrids/synthetic varieties RESEARCH Ms. Mehvish Tahir VORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti LOCATION VRI, Faisalabad		Sets and	seeds will be harvested	1 at maturity
2Neck diameter0.62-1.43Bulb weight(g)76-1074Bulb colorWhite, piazi, purple, red5Bulb shapeSpherical, Tall, Flat6Ring/bulb6-117Centres/bulb1-72. TITLEDEVELOPMENT OF ONION INBRED LINEOBJECTIVEFor the development of hybrids/synthetic varietiesRESEARCHMs. Mehvish TahirWORKERSDr. Akhter SaeedDr. Saeed Ahmad Shah ChishtiLOCATIONVRI, Faisalabad		Sr. No	Characters	Range
2Neck diameter0.62-1.43Bulb weight(g)76-1074Bulb colorWhite, piazi, purple, red5Bulb shapeSpherical, Tall, Flat6Ring/bulb6-117Centres/bulb1-72. TITLEDEVELOPMENT OF ONION INBRED LINEOBJECTIVEFor the development of hybrids/synthetic varietiesRESEARCHMs. Mehvish TahirWORKERSDr. Akhter SaeedDr. Saeed Ahmad Shah ChishtiLOCATIONVRI, Faisalabad				
3Bulb weight(g)76-1074Bulb colorWhite, piazi, purple, red5Bulb shapeSpherical, Tall, Flat6Ring/bulb6-117Centres/bulb1-72. TITLEDEVELOPMENT OF ONION INBRED LINEOBJECTIVEFor the development of hybrids/synthetic varietiesRESEARCHMs. Mehvish TahirWORKERSDr. Akhter SaeedDr. Saeed Ahmad Shah ChishtiLOCATIONVRI, Faisalabad				
4 Bulb color White, piazi, purple, red 5 Bulb shape Spherical, Tall, Flat 6 Ring/bulb 6-11 7 Centres/bulb 1-7 2. TITLE DEVELOPMENT OF ONION INBRED LINE OBJECTIVE For the development of hybrids/synthetic varieties RESEARCH Ms. Mehvish Tahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti LOCATION VRI, Faisalabad			Neck diameter	
5 Bulb shape Spherical, Tall, Flat 6 Ring/bulb 6-11 7 Centres/bulb 1-7 2. TITLE DEVELOPMENT OF ONION INBRED LINE OBJECTIVE For the development of hybrids/synthetic varieties RESEARCH Ms. Mehvish Tahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti LOCATION VRI, Faisalabad		3	Bulb weight(g)	76-107
6Ring/bulb6-117Centres/bulb1-72. TITLEDEVELOPMENT OF ONION INBRED LINEOBJECTIVEFor the development of hybrids/synthetic varietiesRESEARCHMs. Mehvish TahirWORKERSDr. Akhter SaeedDr. Saeed Ahmad Shah ChishtiLOCATIONVRI, Faisalabad		4	Bulb color	White, piazi, purple, red
7 Centres/bulb 1-7 2. TITLE DEVELOPMENT OF ONION INBRED LINE OBJECTIVE For the development of hybrids/synthetic varieties RESEARCH Ms. Mehvish Tahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti LOCATION VRI, Faisalabad		5	Bulb shape	Spherical, Tall, Flat
2. TITLE DEVELOPMENT OF ONION INBRED LINE OBJECTIVE For the development of hybrids/synthetic varieties RESEARCH Ms. Mehvish Tahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti LOCATION VRI, Faisalabad		6	Ring/bulb	6-11
OBJECTIVEFor the development of hybrids/synthetic varietiesRESEARCHMs. Mehvish TahirWORKERSDr. Akhter SaeedDr. Saeed Ahmad Shah ChishtiLOCATIONVRI, Faisalabad		7	Centres/bulb	1-7
RESEARCH Ms. Mehvish Tahir WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti LOCATION VRI, Faisalabad	2. TITLE	DEVEL	OPMENT OF ONIO	N INBRED LINE
WORKERS Dr. Akhter Saeed Dr. Saeed Ahmad Shah Chishti LOCATION VRI, Faisalabad	OBJECTIVE	For the o	levelopment of hybri	ds/synthetic varieties
Dr. Saeed Ahmad Shah Chishti LOCATION VRI, Faisalabad	RESEARCH	Ms. Meh	vish Tahir	•
LOCATION VRI, Faisalabad	WORKERS	Dr. Akht	er Saeed	
,		Dr. Saeed	d Ahmad Shah Chishti	
	LOCATION	VRI, Fais	salabad	
	DURATION	Continuo	S	
FREATMENTS	TREATMENTS			

	S_{0} Sets = 10 varieties
	-
	S_1 Sets = 3 varieties
	S_1 Seed = 6 varieties
	S_2 Sets = 5 varieties
	S_2 Seed = 2 varieties
	S_3 Sets = 3 varieties
	S_3 Seed = 6 varieties
	S_4 Sets = 2 varieties
	S_4 Seed = 6 varieties
	The nursery sets (harvested during May 2017) has been planted in August for
METHODOLOGY	bulb formation. The bulb of S_1 , S_2 , S_3 and S_4 generation will be planted during December 2017 for seed production. At flowering (March-April) 25 single umbels will be bagged with butter paper bag in each variety. At maturity seed will be collected for further selfing to develop inbred lines. S_1 , S_2 and S_3 Seed will be planted during 2nd fortnight of November 2017 to produce bulblets during spring 2017-18 for bulb production in next season.
PREVIOUS YEAR'S	Following selfed material was harvested. S_1 Sets = 3 varieties
RESULTS	$S_1 \text{ Sets} = 5 \text{ varieties}$ $S_1 \text{ Seed} = 6 \text{ varieties}$
	S_1 Seed = 0 varieties S_2 Sets = 5 varieties
	$S_2 \text{ Sets} = 3 \text{ varieties}$ $S_2 \text{ Seed} = 2 \text{ varieties}$
	S_2 Sect = 2 varieties S_3 Sets = 3 varieties
	$S_3 \text{Sets} = 5 \text{ varieties}$ $S_3 \text{Seed} = 6 \text{ varieties}$
	S_3 Seed = 0 varieties S_4 Sets = 2 varieties
	S_4 Sets = 2 varieties S_4 Seed = 6 varieties
3. TITLE	DEVELOPMENT OF OPEN POLLINATED ONION VARIETIES
OBJECTIVE	To develop high yielding, disease resistant/tolerant and better adapted open
ODJECTIVE	pollinated onion varieties.
RESEARCH	Ms. Mehvish Tahir
WORKERS	Dr. Akhter Saeed
WORRERS	Dr. Saeed Ahmad Shah Chishti
LOCATION	VRI, Faisalabad.
DURATION	Continuous
TREATMENTS	A. Seed of two source population
	B. Sets of 20 varieties
METHODOLOGY	A. Seed of one source population will be planted during 2nd fortnight of
	October and transplanted during December. At maturity desirable bulbs will be
	selected.
	B. Sets will be harvested and replanted during December to facilitate random
	mating. Seed will be harvested at maturity.
PREVIOUS YEAR'S	A. One source population was developed.
RESULTS	B . Sets exotic varieties were produced.

4. TITLE		EVALUATION OF EXOTIC VARIETIES/HYBRIDS IN ADAPTABILTY TRIAL						
OBJECTIVE		st adaptability of		varieties				
RESEARCH		Aehvish Tahir	I · · · ·					
WORKERS		khter Saeed						
		Dr. Saeed Ahmad Shah Chishti						
LOCATION		Faisalabad						
DURATION	Conti							
TREATMENTS		ties provided by i	mporters					
METHODOLOGY		ry sowing = 2nd		of Octob	per. 2017			
		planting = Dec	0					
	Desig							
	U	cation $= 3$						
	Plot s		1.5 m					
	Data	on Bulb diameter	, neck diai	neter, a	verage bu	lb weigh	it, numbe	r of rings
		ulb and yield will			e	U		U
PREVIOUS YEAR'S		rmance of Varieti			ows			
RESULTS								
		Entries	PH(cm)	BD	ND	NOR	BW(g)	Y (t/ha)
	Sr.	Entries			(cm)	NOK	DW(g)	
	No			(cm)	(cm)			
	1	Hybrid Yellow Granex	63.1	8.3	0.93	9.4	234.6	40
	2	Red King F1	61.37	8.29	1.09	9.33	234.8	36
	3	Pink Panther	57.97	7.89	0.93	8.15	236.5	35
	4	Texas Early Grano	60.73	8.05	1.02	8.05	230.3	34
	10	White Pearl	49.33	7.79	0.92	7.88	233.9	32
	11	Golden ORB	56.33	7.91	0.94	8.63	241.3	31
	15	1122 F1 Hybrid	62.47	8.18	0.92	8.33	243.3	30
	17	Onion Red Crystal	57.07	7.63	0.93	7.5	200.3	28
	18	Barkeel	62.6	7.95	1.08	8.83	224.6	26
	20	Anoki	64.23	7.86	1.16	9.09	182.0	23
	27	Phulkara	63.43	7.14	1.49	9.1	137.3	18

	32	Super Sarl F1	had 72.7	6.31	1.82	9.37	115.8	14
		LSD	4.82	0.64	0.3	0.89	44	6
	BW=t	oulb weight,	, PH =plant h	eight, NOR=	number of 1	rings per	bulb, BD	=bulb
	diame	ter, ND =nec	ck diameter,	Y =yield				
5. TITLE		LUATION NG SEAS		I YIELDIN	G ONION	VARI	ETIES F	OR
OBJECTIVE	To sci	reen out hig	gh yielding	onion variet	ies for spri	ng seas	ons.	
RESEARCH	Ms. N	Iehvish Ta	hir					
WORKERS	Dr. A	khter Saee	d					
	Dr. Sa	aeed Ahma	d Shah Chi	shti				
LOCATION		Faisalabad.						
DURATION	Conti							
TREATMENTS				rio-2, Vrio-		Dark re	ed, Phulka	ara, Robina,
				d Red Nasik				
METHODOLOGY		• •		ight of Octol	ber, 2017			
			= Decembe	r, 2017				
	Desig		= RCBD					
	-		= 3					
	Plot s	ize	$= 7 \times 1.5 \text{ m}$					G
	Plot s Data o	ize on bolting ^o	$= 7 \times 1.5 \text{ m}$ %, diameter	of the bulb		plant he	eight, no.o	of
PREVIOUS VEAR	Plot s Data o rings/	ize on bolting ^o bulb, bulb	$= 7 \times 1.5 \text{ m}$ %, diameter weigh and y	of the bulb yield will be	recorded.	plant he	eight, no.o	of
PREVIOUS YEAR' RESULTS	Plot s Data o rings/	ize on bolting ^o bulb, bulb	$= 7 \times 1.5 \text{ m}$ %, diameter weigh and y	of the bulb	recorded.	plant he	eight, no.o	of
	Plot s Data o rings/	ize on bolting ^o bulb, bulb	$= 7 \times 1.5 \text{ m}$ %, diameter weigh and y	of the bulb yield will be	recorded.	plant he	eight, no.	
RESULTS	Plot s Data o rings/ S Perfo	ize on bolting (bulb, bulb rmance of	$= 7 \times 1.5$ m %, diameter weigh and y Varieties /s	of the bulb yield will be strains is as	recorded. follows			
RESULTS Entries	Plot s Data o rings/ S Perfo PH(cm)	ize on bolting (bulb, bulb rmance of NOL	$= 7 \times 1.5 \text{ m}$ %, diameter weigh and y Varieties /s BW(g)	by of the bulb by ield will be strains is as BD(cm)	recorded. follows ND(cm)	NOR	YIELD	
RESULTS Entries Dark Red	Plot s Data o rings/ S Perfo PH(cm) 60.47	ize on bolting o bulb, bulb rmance of NOL 17.87	= 7 × 1.5 m %, diameter weigh and y ? Varieties/s BW(g) 119.33	b of the bulb yield will be strains is as BD(cm) 6.85	recorded. follows ND(cm) 1.50	NOR 9.40	YIELD 21.82	
RESULTS Entries Dark Red Phulkara	Plot s Data o rings/ S Perfo PH(cm) 60.47 59.20	ize on bolting o bulb, bulb rmance of NOL 17.87 19.93	= 7 × 1.5 m %, diameter weigh and y ? Varieties/s BW(g) 119.33 71.93	b of the bulb yield will be strains is as BD(cm) 6.85 6.96	ND(cm) 1.50 1.30	NOR 9.40 9.87	YIELD 21.82 21.01	
RESULTS Entries Dark Red Phulkara VRIO-1	Plot s Data o rings/ S Perfo PH(cm) 60.47 59.20 57.47	ize on bolting 6 bulb, bulb rmance of NOL 17.87 19.93 15.13	= 7 × 1.5 m %, diameter weigh and y ? Varieties/s BW(g) 119.33 71.93 116.67	BD(cm) 6.85 6.69	recorded. follows ND(cm) 1.50 1.30 1.17	NOR 9.40 9.87 9.07	YIELD 21.82 21.01 20.33	
RESULTS Entries Dark Red Phulkara VRIO-1 Mirpur Khas	Plot s Data o rings/ S Perfo PH(cm) 60.47 59.20 57.47 64.20	ize on bolting o bulb, bulb rmance of NOL 17.87 19.93 15.13 15.80	= 7 × 1.5 m %, diameter weigh and y Varieties/s Varieties/s 119.33 71.93 116.67 123.33	of the bulb yield will be strains is as BD(cm) 6.85 6.96 6.69 6.90	recorded. follows ND(cm) 1.50 1.30 1.17 1.34	NOR 9.40 9.87 9.07 8.67	YIELD 21.82 21.01 20.33 20.23	
RESULTS Entries Dark Red Phulkara VRIO-1 Mirpur Khas Husri	Plot s Data o rings/ S Perfo PH(cm) 60.47 59.20 57.47 64.20 60.40	ize on bolting o bulb, bulb rmance of NOL 17.87 19.93 15.13 15.80 14.33	= 7 × 1.5 m %, diameter weigh and y ? Varieties/s BW(g) 119.33 71.93 116.67 123.33 123.33	of the bulb yield will be strains is as BD(cm) 6.85 6.96 6.69 6.90 6.61	recorded. follows ND(cm) 1.50 1.30 1.17 1.34 1.42	NOR 9.40 9.87 9.07 8.67 9.73	YIELD 21.82 21.01 20.33 20.23 20.09	

VRIO-6	56.20	18.27	123.92	6.66	1.21	8.	47	18.43				
Red Nasic	64.00	16.13	133.00	6.49	1.34	8.	33	18.23				
LSD	5.00	3.90	40.00	0.89	0.20) 1.	30 3	3.57				
PH=plant height, NO		aved/plan	t, BW=bulb	weight, F	BD =bulb d	liameter,	ND=ne	eck diameter	· ,			
NOR=number of ring		~~~~										
6.TITLE			ION OF BI				-	1 • 1 • 1	1			
OBJECTIVE		2	combination	n of sowi	ng techn	iques for	gettin	ig high yiel	d			
RESEARCH		hvish Tal ter Saeec										
WORKERS			d Shah Chis	hti								
LOCATION		isalabad.		51111								
DURATION	2017-20											
TREATMENTS		verses rid	σe									
			, line sowin	g of seed	l and tran	splantin	g of ni	irserv				
METHODOLOGY	Replicat		,			1		<u> </u>				
	Design:		torial RCB D	Design								
	Treatme	ents: A a		U								
	Plot size	e: 7 ×	3 m									
	A. Sowi	A. Sowing of seed will be done both on ridges and flat experimental units in										
	2nd fort	2nd fortnight of October.										
		0										
	B. Seed	sowing v	will be done	0		0		0	ll the			
	B. Seed replicati	sowing vons and i	will be done nursery will	be plan	ted on the	e same da	ate and	d will be	ll the			
	B. Seed replicati transpla	sowing v ons and i nted after	vill be done nursery will r 45 days bo	be plant oth on ric	ted on the lges and t	e same da flat expe	ate and riment	d will be tal units.	ll the			
	B. Seed replicati transpla Data wi	sowing volume solution on s and in the second secon	will be done nursery will	be plant oth on ric	ted on the lges and t	e same da flat expe	ate and riment	d will be tal units.	ll the			
	B. Seed replicati transpla Data wi 1.	sowing v ons and i nted after ill be take Yield	will be done nursery will r 45 days bo en after harv	be plant oth on ric	ted on the lges and t	e same da flat expe	ate and riment	d will be tal units.	ll the			
	B. Seed replicati transpla Data wi 1.	sowing v ons and i nted after ill be take Yield Bulb diar	vill be done nursery will r 45 days bo en after harv neter	be plant oth on ric	ted on the lges and t	e same da flat expe	ate and riment	d will be tal units.	ll the			
	B. Seed replicati transpla Data wi 1. 2. 1 3.	sowing v ons and r nted after ill be take Yield Bulb diar Bulb weig	will be done nursery will r 45 days bo en after harv neter ght	be plant oth on ric	ted on the lges and t	e same da flat expe	ate and riment	d will be tal units.	ll the			
	B. Seed replicati transpla Data wi 1. 2. 1 3. 1 4. 1	sowing v ons and i nted after ill be take Yield Bulb diar Bulb wei No.of bul	vill be done nursery will r 45 days bo en after harv neter ght bs/Kg	be plant oth on ric vesting c	ted on the lges and t	e same da flat expe	ate and riment	d will be tal units.	ll the			
	B. Seed replicati transpla Data wi 1. 2. 1 3. 1 4. 1 5.	sowing v ons and r nted after ill be take Yield Bulb diar Bulb weig No.of bul No. of pla	will be done nursery will r 45 days bo en after harv neter ght bs/Kg ants per plot	be plant oth on ric vesting c	ted on the lges and t	e same da flat expe	ate and riment	d will be tal units.	ll the			
PREVIOUS YEAR	B. Seed replicati transpla Data wi 1. 2. 1 3. 1 4. 1 5. 1 6.	sowing v ons and i nted after ill be take Yield Bulb diar Bulb wei No.of bul	will be done nursery will r 45 days bo en after harv neter ght bs/Kg ants per plot	be plant oth on ric vesting c	ted on the lges and t	e same da flat expe	ate and riment	d will be tal units.	ll the			
	B. Seed replicati transpla Data wi 1. 2. 1 3. 1 4. 1 5. 1 6.	sowing v ons and r nted after ill be take Yield Bulb diar Bulb weig No. of bul No. of pla Bolting %	will be done nursery will r 45 days bo en after harv neter ght bs/Kg ants per plot bage BW (G)	be plant oth on ric vesting c	ted on the lges and t	e same da flat expe owing pa	ate and riment aramet	d will be tal units. ters				
	B. Seed replicati transpla Data wi 1. 7 2. 1 3. 1 4. 1 5. 1 6. 1	sowing v ons and i nted after ill be take Yield Bulb diar Bulb weig No. of bul No. of pla Bolting %	will be done nursery will r 45 days bo en after harv neter ght bs/Kg ants per plot bage BW (G)	be plant oth on ric vesting o t PH	ted on the lges and t f the follo	e same da flat expe owing pa	ate and riment aramet	d will be tal units. ters				
PREVIOUS YEAR RESULTS	B. Seed replicati transpla Data wi 1. 7 2. 1 3. 1 4. 1 5. 1 6. 1	sowing v ons and r nted after ill be take Yield Bulb diar Bulb weig No. of bul No. of pla Bolting %	will be done nursery will r 45 days bo en after harv neter ght bs/Kg ants per plot bage BW (G)	be plant oth on ric vesting o t PH	ted on the lges and t f the follo	e same da flat expe owing pa	ate and riment aramet	d will be tal units. ters				
	B. Seed replicati transpla Data wi 1. 7 2. 1 3. 1 4. 1 5. 1 6. 1	sowing v ons and i nted after ill be take Yield Bulb diar Bulb weig No. of bul No. of pla Bolting % B Broadca t	will be done nursery will r 45 days be en after harv neter ght bs/Kg ants per plot bage BW (G) s 94.50	t PH (cm) 65.77	not for the following states and the following	Bolt (%) 28.33	ate and riment aramet BD (cm) 5.67	d will be tal units. ters NOB /kg 16.11	Y(t/ha) 22.14			
	B. Seed replicati transpla Data wi 1. 2. 1 3. 1 4. 1 5. 1 6. 1 7 8 A	sowing v ons and i nted after ill be take Yield Bulb diar Bulb wei Bulb wei No. of bul No. of pla Bolting %	will be done nursery will r 45 days bo en after harv neter ght bs/Kg ants per plot bage BW (G) s	t be plant oth on ric vesting c t PH (cm)	ted on the lges and t f the follo NOL	e same da flat expe owing pa Bolt (%)	ate and riment aramet BD (cm)	d will be tal units. ters NOB /kg 16.11	Y(t/ha)			
	B. Seed replicati transpla Data wi 1. 2. 1 3. 1 4. 1 5. 1 6. 1 7 8 A	sowing v ons and r nted after ill be take Yield Bulb diar Bulb weig No. of bul No. of pla Bolting % B Broadca t Lines	will be done nursery will r 45 days be en after harv neter ght bs/Kg ants per plot bage BW (G) s 94.50 70.50	t PH (cm) 65.77	not for the following states and the following	Bolt (%) 28.33	ate and riment aramet BD (cm) 5.67	d will be tal units. ters NOB /kg 16.11	Y(t/ha) 22.14			
	B. Seed replicati transpla Data wi 1. 2. 1 3. 1 4. 1 5. 1 6. 1 7 8 A	sowing v ons and i nted after ill be take Yield Bulb diar Bulb weig No. of bul No. of pla Bolting % B Broadca t Lines	will be done nursery will r 45 days be en after harv neter ght bs/Kg ants per plot bage BW (G) s 94.50 70.50	t PH (cm) 65.77 64.67	NOL 16.60 18.67	Bolt (%) 28.33	BD (cm) 5.67	4 will be tal units. ers NOB /kg 16.11 13.56	Y(t/ha) 22.14 15.26			
	B. Seed replicati transpla Data wi 1. 2. 1 3. 1 4. 1 5. 1 6. 1 7 8 A	sowing v ons and r nted after ill be take Yield Bulb diar Bulb weig No. of bul No. of pla Bolting % B Broadca t Lines	will be done nursery will r 45 days be en after harv neter ght bs/Kg ants per plot bage BW (G) s 94.50 70.50	t PH (cm) 65.77	not for the following states and the following	Bolt (%) 28.33	ate and riment aramet BD (cm) 5.67	d will be tal units. ters NOB /kg 16.11	Y(t/ha) 22.14			
	B. Seed replicati transpla Data wi 1. 2. 1 3. 1 4. 1 5. 1 6. 1 7 8 A	sowing v ons and i nted after ill be take Yield Bulb diar Bulb weig No. of bul No. of pla Bolting % B Broadca t Lines	will be done nursery will r 45 days be en after harve neter ght bs/Kg ants per plot bage BW (G) s 94.50 70.50 a 93.00	t PH (cm) 65.77 64.67	NOL 16.60 18.67	Bolt (%) 28.33	BD (cm) 5.67	4 will be tal units. ers NOB /kg 16.11 13.56	Y(t/ha) 22.14 15.26			
	B. Seed replicati transpla Data wi 1. 2. 1 3. 1 4. 1 5. 1 6. 1 7 8 A	sowing v ons and r nted after ill be take Yield Bulb diar Bulb weig No. of bul No. of pla Bolting % B Broadca t Lines Transpla nting	will be done nursery will r 45 days be en after harve neter ght bs/Kg ants per plot bage BW (G) s 94.50 70.50 a 93.00	t PH (cm) 65.77 64.67	NOL 16.60 18.67	Bolt (%) 28.33	BD (cm) 5.67	4 will be tal units. ers NOB /kg 16.11 13.56	Y(t/ha) 22.14 15.26			
	B. Seed replicati transpla Data wi 1. 7 2. 1 3. 1 4. 1 5. 1 6. 1 7S A Flat	sowing v ons and i nted after ill be take Yield Bulb diar Bulb weig No. of bul No. of pla Bolting % B Broadca t Lines Transpla nting Broadca	will be done nursery will r 45 days be en after harv neter ght bs/Kg ants per plot bage \overline{BW} (G) s 94.50 70.50 a 93.00 s	t PH (cm) 65.77 64.67 59.57	NOL 16.60 11.53	e same di flat expe owing pa Bolt (%) 28.33 11.67 0.37	ate and rimentaramet aramet 5.67 5.03 5.83	4 will be tal units. ers NOB /kg 16.11 13.56 12.67 12.33	Y(t/ha) 22.14 15.26 16.85			

	Transpla nting	107.00	67.10	12.33	2.13	6.21	9.44	23.84	23
LSD	Α	11.33	3.96	1.60	2.17	0.57	3.26	3.09	3.
	В	13.00	4.85	2.04	2.66	0.69	4.00	3.70	3.
	A*B	19.61	6.80	2.89	3.76	0.98	5.65	5.35	5.
	lb weight, PH ge, BD=bult		0			1	it, Bol=bo	lting	

3. PEAS (Pisum sativum L.)

1. TITLE	COLLE	ECTION AND MAINTENAN	NCE OF PEA	S GERMPLA	SM
OBJECTIVE	To main	tain and evaluate lines/varietie	es of pea to be	used in future	
	breeding	g program.			
RESEARCH	Ghazanf	far Hammad			
WORKERS	Dr. Muh	ammad Iqbal			
	Muham	mad Najeebullah			
LOCATION	Faisalab	ad			
DURATION	Continu	ous			
TREATMENTS	Varietie	s/lines = 75			
METHODOLOGY	Sowing	date = First week of No	ovember, 2017	7	
	Plot size	$e = 5.0 \times 1.25 \text{ m}$			
	Design	= Observational p	lot		
	Off-type	e plants will be roughed out	from each li	ne/variety to r	naintain
	purity.				
PREVIOUS YEAR'S	74 lines	varieties were evaluated and	d maintained	by selecting d	esirable
RESULTS	plants an	nd roughing off-type plants.			
	C.N.	TD • 4	Ъ.Г. ·	N <i>T</i> . •	7
	S. No	Traits	Minimum	Maximum	_
	1.	Days to 50 % Flowering	29	81	_
	2.	No. of Seeds/pod	5	9	
	3.	Pod Length (cm)	6	11	_
	4.	Pod Width (cm)	1.4	2.1	_
	5.	Plant Height (cm)	32	110	
	6.	Fresh 100- Seed Weight (g)	14	65	
2. TITLE	HYBRI PEAS	DIZATION AND STUDY O	F FILIAL G	ENERATIONS	S IN

OBJECTIVE	To combine desirable	traits for the development	t of high yielding, early
		resistant/tolerant varietie	
RESEARCH	Ghazanfar Hammad		
WORKERS	Dr. Muhammad Iqbal		
	Muhammad Najeebull	lah	
LOCATION	Faisalabad		
DURATION	Continuous		
TREATMENTS/	Hybridization: Four c	rosses will be made to indu	ce powdery mildew tolerance
METHODOLOGY	in desirable parents.		
	 High yielding Powdery mildew to 	= Peas 2009, 9374, Sarsabz Derant line = PTL 1,3,6	
	b) Study of Filial Gene	erations	
	The segregating popul further studies.	ations will be advanced by	selecting desirable plants for
	Generation	Cross	No. of selected plants in each generation/cross
		9800-5 × 9374	Bulk seed
	F ₁	9200-1× 9374	Bulk seed
		Safeer \times 9374	Bulk seed
		Meteor × 9374	Bulk seed
	F ₂	Lina pak × 9374	Bulk seed
		1300-8 × 9374	Bulk seed
	F ₃	Meteor \times 2001-40	Bulk seed
		9374 × 2001-40	Bulk seed
	F ₄	9800-10 × 2001-40	14
		2001-20 × 2001-40	29
		Lina Pak × 2001-40	18
	F ₅	9375 × 2001-40	12

			
		Pea-2009 × 2001-40	8
		9200-1 × 2001-40	10
		9375 × 9374	10
	F ₆	9200-1 × 2001-60	14
	F ₇	Pea-09 × 2001-60	13
		9800-10 × 2001-60	19
		Meteor Fsd \times 2001-60	11
	F ₈	a) 2001-20 × It-96	52
		b) 9200-1 × No. 267	11
		c) $2001-35 \times$ No. 267	19
	be rouged out. Seed of ex- crosses and single select F_6 will be sown on both plant distance of 10 cm and desirable plants w generation. Seed of select	be planted along with their p ach F_1 cross will be harvested red plants of different segreg a sides of the raised beds made to raise next generation by ill be selected and bulked	parents and selfed plants will d separately as bulk. Seeds of gating generations from F_2 to de 1.25 m apart with plant to using modified bulk method for each cross from each eneration will be planted as es will be selected.
PREVIOUS YEAR'S	Seed of following gene	erations were harvested	
RESULTS			

Generation	Cross	No. of selected plants in each generation
	Meteor × 9374	Bulk seed
\mathbf{F}_1	Lina pak × 9374	Bulk seed
	1300-8 × 9374	Bulk seed
F ₂	Meteor × 2001-40	Bulk seed
	9374 × 2001-40	Bulk seed
F ₃	9800-10 × 2001-40	14
	2001-20 × 2001-40	29
	Lina Pak × 2001-40	18
F ₄	9375 × 2001-40	12
	Pea-2009 × 2001-40	8
	9200-1 × 2001-40	10
	9375 × 9374	10
F ₅	9200-1 × 2001-60	14
F ₆	Pea-09 × 2001-60	13
	9800-10 × 2001-60	19
	Meteor Fsd \times 2001-60	11
\mathbf{F}_7	a) 2001-20 × It-96	52
	b) 9200-1 × No. 267	11
	c) 2001-35 × No. 267	19
F ₈	a) GRW-45 × It-96	19
	b) 9800-5 × No. 267	14
	c) PF-400 × No. 267	5

3. TITLE	SECC	NDARY EV	VALUAT	ION OF	F FOR EA	ARLY PEAS	PLANTING
OBJECTIVE	To fin	d out high yi	elding pe	a varietie	s/lines su	itable for ear	ly peas planting
RESEARCH	Ghazar	nfar Hammad					
WORKERS	Dr. Mu	ıhammad Iqba	ıl				
	Muhar	nmad Najeebu	ıllah				
LOCATION	Faisal	abad					
DURATION	2017-	18					
TREATMENTS/	Varieti	es/ lines	=	9 Incluc	ling 2 che	cks (Meteor F	sd, Pea-2009)
METHODOLOGY	Replic	ations	=	3			
	Design	l	=	RCB			
	Sowin	g Dates	=	1st wee	k of Octob	er, 2017	
	Plot Si	ze	=	$5.0 \times 1.$	50 m		
	Spacin	g	=	5 cm (plant to pla	ant)	
			=	75 cm (row to row	/)	
		0 0 0	to flowering	ng (50%),	100-seed	weight and gro	een pod yield will
	recorde	ed.					
PREVIOUS YEAR'S	Dorfor	nance of varie	tios/strain	s in oorly	non voriati	1 trial	
	renon	nance of varie	511CS/ Sti aiii	s in earry	pea varieta	ai tilai	
RESULTS							
		1			1		
	R.	Variety	Days	No.	Seeds/	100-	Green Pod
	No.		to 50 %	of node/	pod	Seed Weight	Yield (T/ba)
			flower	pods/ plant		Weight Fresh (g)	(T/ha)
	1	Pea-2009	nower	pluit		i i con (g)	
		(check)	44.33	54.0	4.6	66.7	8.0
	2	1300-8	44 00	52.0	57	49.0	74
	2	1300-8	44.00	52.0	5.7	49.0	7.4
	2	1300-8 Sarsabz	44.00	52.0	5.7	49.0	7.4
			44.00 44.00	52.0 61.1	5.7 8.8	49.0 70.1	7.4 7.0
		Sarsabz					
	3	Sarsabz (check) Lina pak	44.00 42.00	61.1 30.3	8.8 3	70.1 39.4	7.0 6.7
	3	Sarsabz (check)	44.00	61.1	8.8	70.1	7.0
	3	Sarsabz (check) Lina pak	44.00 42.00	61.1 30.3	8.8 3	70.1 39.4	7.0 6.7
	3 4 5 11	Sarsabz (check) Lina pak Strike Meteor	44.00 42.00 37.00 41.00	61.1 30.3 37.5 41.3	8.8 3 2.9 4.1	70.1 39.4 41.1 41.0	7.0 6.7 5.6 5.5
	3 4 5 11	Sarsabz (check) Lina pak Strike	44.00 42.00 37.00	61.1 30.3 37.5	8.8 3 2.9	70.1 39.4 41.1	7.0 6.7 5.6
4. TITLE	3 4 5 11 LSD	Sarsabz (check) Lina pak Strike Meteor (0.05)	44.00 42.00 37.00 41.00 0.76	61.1 30.3 37.5 41.3 5.67	8.8 3 2.9 4.1 1.08	70.1 39.4 41.1 41.0	7.0 6.7 5.6 5.5 4.68
	3 4 5 11 LSD SECC	Sarsabz (check) Lina pak Strike Meteor (0.05) NDARY EV	44.00 42.00 37.00 41.00 0.76	61.1 30.3 37.5 41.3 5.67 TION OF	8.8 3 2.9 4.1 1.08 F PEA FC	70.1 39.4 41.1 41.0 1.06 DR NORMA	7.0 6.7 5.6 5.5 4.68 L SEASON
OBJECTIVE	3 4 5 11 LSD SECC	Sarsabz (check) Lina pak Strike Meteor (0.05) NDARY EV	44.00 42.00 37.00 41.00 0.76 VALUAT	61.1 30.3 37.5 41.3 5.67 TION OF	8.8 3 2.9 4.1 1.08 F PEA FC	70.1 39.4 41.1 41.0 1.06	7.0 6.7 5.6 5.5 4.68 L SEASON
	3 4 5 11 LSD SECC To fin Ghaza	Sarsabz (check) Lina pak Strike Meteor (0.05) NDARY EV	44.00 42.00 37.00 41.00 0.76 VALUAT	61.1 30.3 37.5 41.3 5.67 TION OF	8.8 3 2.9 4.1 1.08 F PEA FC	70.1 39.4 41.1 41.0 1.06 DR NORMA	7.0 6.7 5.6 5.5 4.68 L SEASON

	Muhammad Najeebullah							
LOCATION	Faisalabad							
DURATION	2017-18							
TREATMENTS/	Varieties/ lines = 13 Including checks (Climax, Pea-2009)							
METHODOLOGY	Replic	cation =	3					
	Desig		RCB					
		ng Date =		•	November,	2017		
	Plot Size = $5.0 \text{ m} \times 2.5 \text{ m}$ Spacing = 10 cm plant to plant distance on both sides of 125 cm beds							
	Spacin	ng =	10 cm	n plant to j	plant distanc	ce on both side	s of 125 cm beds	
PREVIOUS YEAR'S RESULTS	Performance of varieties/strains in peas varietal trial in normal planting.							
	R.	Variety	Days	No.	Seeds/	100-	Green Pod	
	No.		to	of	pod	Seed	Yield	
			50%	pods/		Weight	(T/ha)	
	1	1300-8	flowering 50.0	plant 12.0	7.5	Fresh (g) 45.93	10.88	
	1							
	2	Pea-2009	54.0	11.8	7.4	60.20	10.67	
	3	Lina pak	43.0	10.7	7.4	44.67	10.64	
	4	Super lina	43.0	6.8	6.4	48.53	9.13	
	5	2001-40	55.3	15.0	6.4	48.33	9.04	
	12	PTL-7	59.0	13.8	7.8	39.67	4.27	
	LSD (0.05)		0.68	5.08	0.82	5.3	1.37	
5. TITLE	MUL	MULTI-LOCATIONAL PEAS YIELD TRIALS						
OBJECTIVE	To fir	To find out high yielding and well adapted variety/line of Pea						
RESEARCH	Mr. Ghazanfar Hammad							
WORKERS	Dr. Ghulam Nabi							
	Mr. Abrar Ahmad							
	Dr. Umbreen Shahzad							
LOCATION	Faisalabad, Sheikhupura, Multan and Layyah							
DURATION	2017-18							
TREATMENTS/	Varieties/Entries = 6 including one checks							
METHODOLOGY	Replications = 3							
	Design = RCB							
	Sowing Dates = Second week of October, 2017							
	Plot Size = 6.0×1.50 m Spacing = 5 cm (Plant to plant) = 75 cm (Row to row)							
	Spacin	-			-			
	Data 1	regarding da	ys to flowe	ering (50%	%), 100-see	a weight and	green pod yield	

	will be recorded.							
PREVIOUS YEAR'S	New Experiment							
RESULTS								
6. TITLE	ADAPTABILITY TRIAL OF PEA EXOTIC VARIETIES							
OBJECTIVE	To see the adaptability of exotic pea varieties for yield.							
RESEARCH	Ghazanfar Hammad							
WORKERS	Dr. Muhammad Iqbal							
	Muhammad Najeebullah							
LOCATION	Faisalabad							
DURATION	2017-18							
TREATMENTS/ME	Varieties will be provided by different seed companies							
THODOLOGY	Replication	n = 3						
	Design	= RCB						
	Sowing D	Date = 1st wee	k of November	, 2017				
	Plot Size	$=$ 6.0 m \times	< 1.5m					
	$\mathbf{P} \times \mathbf{P}$	= 5 cm						
	$\mathbf{R} imes \mathbf{R}$	= 75 cm						
	Data regarding yield and its parameters will be recorded.							
PREVIOUS YEAR'S	Performance of strains/varieties in peas adaptability trail at Vegetable Research							
RESULTS	Institute, F	Faisalabad during 2016	5-17.					
		T T 0 / 0 /		400 1				
	Rank	Varieties/ Line	Days to 50%	100 seed	Green			
		Line	50% flowering	weight Fresh (g)	pod yield (T/ha)			
			nowering	ritish (g)	(1/11a)			
	1	Super polo	37.67	37.83	7.92			
	_	Super polo	37.07	57.05	1.52			
	2 summer plus		64.00	26.13	7.89			
		summer prus	0.000	20.12	1.05			
	3	Anmol	60.00	37.00	7.63			
		7 minor	00.00	57.00	7.05			
	4	Pea-2009	46.00	<0.2 7				
	4	(Check)	46.00	69.37	7.04			
	5	Polo pak	48.00	34.83	6.97			
	6	Meteor (Check)	44.00	38.33	6.94			
	7	Mission	44.00	47.27	5.17			
	8	Polo pak	45.00	49.43	5.05			

	9	Summer Plus	60.00	36.60	4.36		
		LSD (0.05)	0.45	4.84	1.20		
7. TITLE	PRELIMINARY YIELD TRIAL FOR EARLY PEA PLANTING						
OBJECTIVE	To find out high yielding pea varieties/lines suitable for early peas planting						
RESEARCH	Ghazanfa	ar Hammad					
WORKERS	Dr. Muhammad Iqbal Muhammad Najeebullah						
LOCATION	Faisalaba						
DURATION	2017-18						
TREATMENTS/ METHODOLOGY	Varieties	/ lines =	6 Including 3ch Sarsabz)	necks (Meteor]	Fsd, Pea-2009 &		
	Replicati	ons =	3				
	Design	=	RCB				
	Sowing Dates = 1st week of October, 2017						
	Plot Size= $5.0 \times 1.50 \text{ m}$ Spacing= 5 cm (Plant to plant)						
	= 75 cm (Row to row) Data regarding days to flowering (50%), 100-seed weight and green poweight will be recorded.						
PREVIOUS YEAR'S	New Exp	periment					
RESULTS							
8. TITLE	PRELIMINARY YIELD TRIAL FOR NORMAL PEA PLANTING						
OBJECTIVE	To find out the high yielding varieties suitable for normal planting						
RESEARCH	Ghazanfar Hammad						
WORKERS	Dr. Muhammad Iqbal						
	Muhamn	nad Najeebullah					
LOCATION	Faisalabad						
DURATION	2017-18						

TREATMENTS/	Varieties/ lines =		9 Including checks (Climax & Pea-09)		
METHODOLOGY	Replication	=	3		
	Design	=	RCB		
	Sowing Date	=	1st week of November, 2017		
	Plot Size	=	$5.0 \text{ m} \times 2.5 \text{ m}$		
	Spacing	=	10 cm plant to plant distance on both sides of 125 cm		
	beds				
	The line suitable for mid-season will be selected and data regarding yield and				
	yield compone	ents wi	ll be recorded.		
PREVIOUS YEAR'S	New Experiment				
RESULTS					

4. CARROT (Daucus carota L.)

1. TITLE	COLLECTION AND MAINTENANCE OF CARROT GERMPLASM				
OBJECTIVE	Collection and Maintenance of exotic and local germplasm for use in breeding				
	program				
RESEARCH	Abdul Sattar				
WORKERS	Muneeb Munawar				
	Dr. Muhammad Tasdiq Hussain Shahid				
	Muhammad Najeebullah				
LOCATION	Faisalabad				
DURATION	Continuous				
TREATMENTS	Genotype = 7				
	1. Red Genotype = $5 viz$; DC-3, DC-4, DC-90, DC-W,T-29				
	2. Purple genotype $= 1viz$; DC-B (Kanji)				
	3. Orange genotype = Orange 2007				
METHODOLOGY	Sowing Date = 07.09.2017				
	Transplantation of stacklings = December, 2017				
	Roots will be selected on the basis of root flesh color, core color and their				
	shape. The selected roots will be transplanted and maintained in isolation.				
PREVIOUS YEAR'S	Genotypes (DC-3, DC-4, DC-90, DC-W, DC-B, Orange 2007 and T-29) were				
RESULTS	selected and maintained in isolation. Small quantity seed of each genotype is available for future use.				

2. TITLE	DEVELOPMENT OF CARROT VARIETIES FOR EARLY SOWING			
OBJECTIVE	To select lines suitable for early planting and early availability of better marketable roots.			
RESEARCH	Abdul Sattar			
WORKERS	Dr. Muhammad Tasdiq Hussain Shahid			
	Muneeb Munawar			
	Muhammad Najeebullah			
LOCATION	Faisalabad			
DURATION	Continuous			
TREATMENTS	Populations = 5 viz ; DC-3, DC-4, DC-90, Population 1 (DC-90 × DCPRC) and Pop-2 (DC-3 and DCPRC).			
METHODOLOGY	Sowing date=07.09.2017Plot Size=60 m²DC-90 and Population-1 will be harvested after 90 days of sowing. DC-3 and population-2 will be harvested after 100 days of sowing. Selection will be done on the basis of marketable roots, roots shape and color Selected roots of each genotype will be transplanted in isolation to produce seed for next selection cycle.			
PREVIOUS YEAR'S	DC-90 is early bulking with variable root flesh and core color. DC-3 is slightly			
RESULTS	early genotypes with good taste but light flesh color. Therefore, these genotypes were crossed with DCPRC to improve their quality, plant structure, root color and shape.			
3. TITLE	DEVELOPMENT OF CARROT VARIETIES SUITABLE FOR LATE PLANTING			
OBJECTIVE	To select lines suitable for late planting and prolonged supply of marketable carrot.			
RESEARCH	Abdul Sattar			
WORKERS	Muneeb Munawar			
	Dr. Muhammad Tasdiq Hussain Shahid			
	Muhammad Najeebullah			
LOCATION	Faisalabad			
DURATION	Continuous			
TREATMENTS	Population = $3 viz$; DC-4 and Orange-2007			
METHODOLOGY	Sowing date=November, 2017Plot size= 60 m^2 Transplanting=March, 2018Selection will be based on resistance to cold/frost, marketable root developmentand non bolting behavior till the end of March particularly for DC-4.			

To develop a frost tolerant and late bolting variety for longer supply, selection
against bolting remained in progress till March 2017. The plants having resistance
against frost cum good root were selected and transplanted in isolation which gave
1.5kg of seed to continue the selection cycl.
Tisky of seed to continue the selection eyel.
DEVELOPMENT OF CMS LINES
To develop CMS, Maintainer and Restorer lines
Abdul Sattar
Muneeb Munawar
Dr. Muhammad Tasdiq Hussain Shahid
Muhammad Najeebullah
Faisalabad
Continuous
160 genotypes <i>viz</i> ;
BC_4 female lines = 80
Det remare mies – 60
F_5 Male lines =80
(Both maintainer and restorer)
Sowing date = 07.09.2017
Design = Plant to progeny
Male sterile plants will be identified and classified as Brown anther type and
Petaloid type (pt). Crosses will be made to study inheritance of male sterility.
Out of 199 genotypes, 160 genotypes comprising BC_3 and F_4 were harvested to
advance the generations to develop new cycle of three line breeding system.
ADAPTABILITY TRIAL OF CARROT EXOTIC VARIETIES
To evaluate exotic varieties/hybrids under Faisalabad condition.
Dr. Muhammad Ikram
Muneeb Munawar
Dr. Muhammad Tasdiq Hussain Shahid
Muhammad Najeebullah
Faisalabad

TREATMENTS/	Genotype =	= 1	Maxamial AS 725	DC-4, DC-W, DC-90 and T-2 (check)
				DC-4, DC-W, DC-90 and 1-2 (check)
METHODOLOGY	Date of sowing		21.09.2017	
	0		RCBD	
			$7 \text{ x } 1.5 \text{ m}^2$	
	Replications =	= ()3	
	Data on root yiel	d will be	e recorded after 100	days of sowing
PREVIOUS YEAR'S				
RESULTS		Rank	Entry	Yield (T/Ha)
		1	AS 725	59
		2	Nayab	57
		2	Inayab	57
		3	Sweety F ₁	57
		5		
		4	T-29 (Check)	54
			× ,	
		5	Pukhraj	47
		6	Hermoso F ₁	47
		-		
		7	Kirti Rose	46
		8	Lakshmi F ₁	43
		0		45
		9	Red Pearl	38
		Í		
		10	Best Choice F ₁	13
			LSD (α = 0.05)	3.4

5. CAULIFLOWER (Brassica oleracea var. botrytis)

1. TITLE	ADAPTABILITY TRIAL FOR 2nd EARLY SEASON
	CAULIFLOWER
OBJECTIVE	To evaluate cauliflower varieties suitable for production during high
	temperature.
RESEARCH WORKERS	Dr. Muhammad Sarwar
	Dr. Muhammad Tasdiq Hussain Shahid
	Muhammad Najeebullah
LOCATION	Faisalabad
DURATION	2017-18

TREATMENTS	Varieties = 10						
METHODOLOGY	Nursery sowing date= 22-07-2017Nursery transplanting date= 31-08-2017Plot size = 7 × 3 mDesign = RCBDReplications = 3Row to row distance = 75 cmPlant to plant distance = 30 cmData regarding curd weight, plant weight and curd yield will be recorded.						
PREVIOUS YEAR'S		e I: Yield per		of hybrid	/varieties (2nd EARLY	
RESULTS		n) during 2016	1		1		
	Sr. No	Varieties/hy brid	Average Curd weight	Average Plant Weight	Biomass (t/ha)	Curd Yield (t/ha)	
			(kg)	(kg)			
	1	CFH-1522	0.94	1.88	62.07	31	
	2	HCF-12	0.93	1.79	59.71	30	
	3	CKD-1924	0.81	1.60	53.40	27	
	4	CKD-2014	0.82	1.68	56.91	27	
	5	HCF-13	0.78	1.67	55.91	26	
	6	C-6099	0.84	1.69	50.97	25	
	7	CKD-1425	0.75	1.53	51.16	25	
	8	White Glow	0.84	1.16	35.20	24	
	9	C-6015	0.71	1.61	53.81	24	
	10	FD-II	0.70	1.47	49.13	23	
	11	HCF-11	0.77	1.75	52.35	23	
		LSD 5%			2.70	3.67	
2. TITLE	ADA	PTABILITY T	RIAL OF	MID SEAS	SON CAUL	IFLOWER	
OBJECTIVE	To ev	aluate cauliflov	ver varieties	s suitable fo	r mid seasor	n.	

RESEARCH WORKERS	Dr. Muhammad Sarwar							
	Dr. Muhammad Tasdiq Hussain Shahid							
		mmad Najeebulla	ah					
LOCATION		labad						
DURATION	2017-	-18						
TREATMENTS	Varie	ties will be rece	ived from s	seed compar	nies.			
METHODOLOGY	Nursery sowing date = August, 2017							
		ery transplanting	g date = Mi	d Septembe	r			
		size = $7 \times 3 \text{ m}$						
	-	gn = RCBD						
	-	cations = 3						
		to row distance						
	Plant	to plant distanc	e = 45 cm					
	Data	regarding curd v	weight, plai	nt weight an	d yield will	be recorded.		
PREVIOUS YEAR'S		e I: Yield perfo		hybrid/var	rieties (Mid	Season)		
RESULTS	durir	ng 2016-17 (Set	-I)					
	Sr.	Varieties/hy	Average	Average	Biomass	Curd Yield		
	No	brid	Curd	Plant	(t/ha)	(t/ha)		
			weight	Weight				
			(kg)	(kg)				
	1	Greta-F ₁	2.03	3.11	89.09	58		
	2	HCF-23	1.24	2.22	73.87	41		
	3	На	1.34	2.52	76.87	41		
		nsa						
	4	Whistler	1.28	2.76	84.05	39		
	5	White Mountain	1.35	2.72	77.60	38		
	6	RS-5340	0.87	1.94	64.81	29		
	7	Remi-F ₁	0.86	1.60	48.84	26		
	8	HCF-22	0.79	1.58	52.77	26		
	9	White-270	0.75	1.77	59.19	25		
	10	FD-III	0.79	2.60	79.26	24		

	11	HCF-21	0,87	1.70	51.81	24
	11	1101-21	0,87	1.70	51.01	24
	12	SV4051AC	0.45	0.92	30.81	15
	LSI) 5%			8.31	4.58
		e II: Yield pe ng 2016-17 (Set		of hybrid	varieties (I	Mid season)
	Sr. No	Varieties/hyb rid	Average Curd weight (kg)	Average Plant Weight (kg)	(t/ha)	s Curd Yield (t/ha)
	1	CF-38-42	1.88	3.69	98.48	50
	2	Meigetsu 55- F ₁	0.95	1.13	37.83	32
	3	G-CF-1	0.95	1.88	62.72	32
	4	Snow Mountain	0.82	1.78	59.62	28
	5	FD-III	0.86	2.28	69.71	26
	6	Snow Muffin	0.65	1.52	50.76	22
	LSI) 5%			7.03	4.8
3. TITLE	ADA	PTABILITY T	RIAL OF	LATE SEA	SON CAUL	IFLOWER
OBJECTIVE	To ev	valuate cauliflow	ver varieties	suitable for	late season.	
RESEARCH WORKERS	Dr. M	luhammad Sarwar luhammad Tasdiq mmad Najeebulla	Hussain Sha	ahid		
LOCATION		labad				
DURATION	2017-	-18				
TREATMENTS	Varie	ties received fro	om the priva	ite seed com	panies.	
METHODOLOGY	Nurse Nurse Plot s	ery sowing date ery transplanting size = 7×3 m gn = RCBD	= Oc	tober, 2017		
	-	cations $= 03$				

	Row to row distance = 75 cm							
		o plant distance						
	Data regarding curd weight, plant weight and curd yield will be							
	recorded.							
PREVIOUS YEAR'S RESULTS	Table I :Yield performance of hybrid/varieties (Late season)during 2016-17 (Set-I)							
	Sr.	Varieties/hy	Average	Average	Biomas	Curd		
	No	brid	Curd weight	Plant Weight	(t/ha)	Yield (t/ha)		
			(kg)	(kg)		(1111)		
	1	Giewont	1.18	1.74	62.1	39		
	2	Whistler	1.03	1.52	54.7	37		
	3	White Queen	1.05	1.61	51.7	33		
	4	SARA-F ₁	1.10	1.78	54.3	33		
	5	Hansa	0.79	1.38	50.6	27		
	6		0.67	1.52	512	23		
	0	FD-IV	0.67	1.32	54.3	23		
	LSD		0.67	1.32	54.5 5.80	4.2		
	LSD		rmance of 2016-17 (S	cauliflow	5.80	4.2 /arieties		
	LSD Table (Late Sr.	II : Yield perfo season) during Varieties/hyb	rmance of 2016-17 (S Average Curd weight	cauliflowe et-II) Average Plant Weight	5.80 er hybrid/v Biomass	4.2 varieties Curd Yield		
	LSD Table (Late Sr. No	5% II : Yield perfo season) during Varieties/hyb rid	rmance of 2016-17 (S Average Curd weight (kg)	cauliflowe et-II) Average Plant Weight (kg)	5.80 er hybrid/v Biomass (t/ha)	4.2 varieties Curd Yield (t/ha)		
	LSD Table (Late Sr. No 1	5% II : Yield perfo season) during Varieties/hyb rid Carona-F ₁	rmance of 2016-17 (S Average Curd weight (kg) 0.76	cauliflowe et-II) Average Plant Weight (kg) 1.33	5.80 er hybrid/v Biomass (t/ha) 38.0	4.2 varieties Curd Yield (t/ha) 22		
	LSD Table (Late Sr. No 1 2	5% II : Yield perfo season) during : Varieties/hyb rid Carona-F ₁ Vanesa-F ₁	rmance of 2016-17 (S Average Curd weight (kg) 0.76 0.75	cauliflowe et-II) Average Plant Weight (kg) 1.33 1.29	5.80 er hybrid/v Biomass (t/ha) 38.0 37.0	4.2 varieties Curd Yield (t/ha) 22 22		

		e III : Yield perfe e season) during 2			er hybrid/	varieties			
	Sr. No	Varieties/hybr id	1	Average Plant Weight (kg)	Biomass (t/ha)	Curd Yield (t/ha)			
	1	TCF-601	0.59	1.47	42.0	17			
	2	Star Cauliflower-02	0.58	1.43	40.7	17			
	3	Classic-F ₁	0.57	1.24	35.6	16			
	4	Bushra ACS	0.57	1.36	39.1	16			
	5	Kipper ACS	0.54	1.31	37.4	15			
	6	FD-IV(Check)	0.49	1.18	33.7	14			
	7 8	7	7	7	Leo-F ₁	0.48	1.03	29.5	13
		Star Cauliflower-01	0.46	1.07	30.7	13			
	LSI) 5%			3.80	1.61			
4. TITLE	DEV	ELOPMENT OI	F OPEN P	OLLINAT	ED VARI	TIES			
OBJECTIVE	To d	evelop high yield	ing and dis	ease resista	nt cauliflo	wer varieties.			
RESEARCH WORKERS	Dr. M	Iuhammad Sarwa Iuhammad Tasdic ammad Najeebulla	Hussain S	Shahid					
LOCATION	Faisa	labad							
DURATION	Conti	nuous							
TREATMENTS	Seed	obtained from op	en pollinat	ed population	on.				
METHODOLOGY	Nurse	ery sowing date =	August, 20)17					
	Nurse	ery Transplanting	date = Sep	tember, 201	17				
	The s	seed obtained from	m random	matted pop	pulation w	ill be sown in			

PREVIOUS YEAR'S	cm, respectively desirable heads of selected to get hi At maturity seed	Morphologically sin on the basis of color, s gh yielding genotypes will be harvested and b	to row distance of 45 and 75 nilar and healthy plants with hape and compactness will be to start second selection cycle. pulked for further studies.			
RESULTS	500 gm seed of random mated population was produced.					
5. TITLE	IDENTIFICATION OF SELF-INCOMPATIBLE PLANTS IN					
	2nd EARLY AN	ND MID GROUPS.				
OBJECTIVE	To develop self-	incompatible inbred lin	es for hybrid production.			
RESEARCH WORKER (S)	Dr. Muhammad					
		TasdiqHussainShahid				
	Muhammad Naj	eebullah				
LOCATION	Faisalabad					
DURATION	2017-18					
TREATMENTS	Varieties	= 02 viz; FD-II and	l FD-III			
METHODOLOGY		Courie	ng Data 2017			
	Group		ng Date 2017			
	2nd Early	Nursery2nd fortnight July	Transplanting2nd fortnight of August			
	Mid	2nd fortnight	2nd fortnight of Sept			
	IVIIU	2nd fortingin	2nd fortingin of Sept			
		August				
	practice and area 2nd Early and M the selected pl pollination. At m and bud pollinat	the varieties will be p a availability. 30 desira Aid season cauliflower ants will be selfed naturity, seeds obtained	planted according to standard able plants will be selected in . Four to five branches of all normally and through bud I from normal pollinated pods d and self-incompatibility will			

6. CABBAGE (Brassica oleracea L. var. capitata)

1. TITLE	ADAPTABILITY HYBRIDS	TRIAL	ON	CABBAGE	VARIETIES/
OBJECTIVE	To evaluate exotic ca	bbage varie	eties/hy	brids for yield p	erformance
RESEARCH WORKERS	Dr. Muhammad Sarwa	r			
	Dr. Muhammad Tasdic	l Hussain Sh	ahid		

	Muhan	nmad Najeebullah					
LOCATION	Faisal	abad					
DURATION	2017-1	18					
TREATMENTS	Variet	ies/Hybrids = Vari	ieties that w	ill be rece	ived from t	he private	
	seed c	ompanies	r				
METHODOLOGY	Nurse	ry sowing date = S	September, 2	2017			
	Nurse	ry transplanting da	te = Octobe	er, 2017			
	Plot si	$ze = 7 \times 3 m$					
	Design	n = RCBD					
	Replic	ations = 3					
	Row t	o row distance $= 7$	5 cm				
	Plant t	to plant distance =	30 cm				
	Data r	egarding head wei	ght, plant w	eight and	head yield	will be	
	record	ed.					
PREVIOUS YEAR'S	Yield p	performance of cab	bage hybrid	/varieties	during 201	6-17 (Set-I)	
RESULTS	Sr.	Varieties/hybrid	Biomass	Average	Average	Head Yield	
	No.	v arreates, ny orra		_	_		
			(t/ha)	Head	Plant	(t/ha)	
				weight	Weight		
				(kg)	(kg)		
						1.5	
	1	Veneeza F ₁	60.3	1.81	1.35	45	
	2	Green Stone F ₁	65.4	1.96	1.35	45	
	3	G-CB-1	62.7	1.78	1.27	45	
	4	Ever Green F ₁	61.8	1.85	1.24	41	
	5	Cabbage No. 1 F ₁	55.1	1.65	1.09	36	
	LSD	5%	5.71			3.84	
	Yield performance of cabbage hybrid/varieties during 2016-17 (Set-II)						
		-			uui ilig 201	· · ·	
	Sr.	Varieties/hybrid	Biomass	Average	Average	Head Yield	
	No.		(t/ha)	Plant	Head	(t/ha)	
				Weight	weight		
				(kg)	(kg)		
	1	Summer Highland	69.89	2.29	1.50	46	

LSD	5%	6.67			3.4
4	Red Ball-F ₁	58.2	1.92	0.91	28
3	Austin-F ₁	43.9	1.44	0.99	30
2	Roca-F ₁	49.0	1.61	1.12	34
1	Marco-F ₁	52.1	1.71	1.13	34
			(kg)	(kg)	
			Weight	weight	
110.		(t/ha)	Plant	Head	(t/ha)
Sr. No.	Varieties/hybrid	Biomass	Average	Average	Head Yield
X ² -1-1	performance of cab		/		(17 (S-4 III)
LSD	5%	7.9			3.39
4	Red Flama	53.00	1.85	1.18	34
3	Saint	57.30	1.71	1.11	37
2	Tropicana	66.20	1.97	1.23	41

7. BROCCOLI (Brassica oleracea var. italica)

1. TITLE	ADAPTABILITY TRIAL ON BROCCOLI VARIETIES/ HYBRIDS			
OBJECTIVE	To evaluate exotic broccoli varieties/hybrids for yield performance			
RESEARCH	Dr. Muhammad Sarwar			
WORKERS	Dr. Muhammad Tasdiq Hussain Shahid			
	Muhammad Najeebullah			
LOCATION	Faisalabad			
DURATION	2017-18			
TREATMENTS	Varieties/Hybrids = Varieties received from the private seed companies			
METHODOLOGY	Nursery sowing date = Mid September, 2017			
	Nursery Transplanting date = October, 2017			
	Plot size = 7×3 m			
	Design = RCBD			
	Replications $= 3$			
	Row to row distance =75 cm			
	Plant to plant distance =30 cm			

	Data regarding head yield will be recorded.				
PREVIOUS YEAR'S RESULTS	Yield performance of Brocolli hybrid/varieties during 2016-17 (Set-I)				
KESULIS	Sr.	Varieties/hybrid	Head Yield		
	No.		(t/ha)		
	1	Paraiso	18.6		
	2	Green Pia	15.6		
	3	Baro Star	13.9		
	LSD	5%	2.97		

8. RADISH (Raphanus sativus L.)

1. TITLE	MAINTENANCE OF GERMPLASM		
OBJECTIVE	To maintain the genotypes/lines for their subsequent inclusion in the		
	breeding programme		
RESEARCH	Dr. Kaiser Latif Cheema		
WORKERS	Dr. Tasdiq Hussain Shahid		
	Muhammad Najeebullah		
LOCATION	Faisalabad		
DURATION	Continuous		
TREATMENTS	Varieties/lines = 8		
METHODOLOGY	Sowing date = Second fortnight of October		
	Plot size = 7×1.5 m		
	Row to row spacing $=$ 75 cm		
	Plant to plant spacing = 5 cm		
PREVIOUS YEAR'S	Green Neck, Mino Local, Mino Selection, Purple Neck, Desi White,		
RESULTS	Lalpari, 40Days and Gang Seong		
2. TITLE	DEVELOPMENT OF BETTER VARIETIES OF RADISH		
OBJECTIVE	To develop early and non-pithy variety.		
RESEARCH	Dr. Kaiser Latif Cheema		
WORKERS	Dr. Tasdiq Hussain Shahid		
	Muhammad Najeebullah		
LOCATION	Faisalabad		
DURATION	Continuous		
TREATMENTS/	Seed of Selected group		
METHODOLOGY	Seed of selected plant will be sown in observational plots, containing		
	about 1000 -1500 plants, during the month of July with row to row spacing		
	of 75 cm. Morphologically similar and healthy plants with desirable roots		

	will be selected to get high yield and non-pithy genotypes suitable for			
	earliness to start 1st selection cycle.			
PREVIOUS YEAR'S	Non pithy roots after 30 days were harvested.			
RESULTS	Tion phily roots and so days were harvested.			
3. TITL	DEVELOPMENTOF RED FLESH WITH LONG ROOT RADISH			
5. 111L	VARIETY			
OBJECTIVE	To develop longer rooted Lal Pari			
RESEARCH	Dr. Kaiser Latif Cheema			
WORKERS	Dr. Tasdiq Hussain Shahid			
	Muhammad Najeebullah			
LOCATION	Faisalabad			
DURATION	Continuous			
TREATMENTS	Random mated population (6 th cycle)			
	Red root (flesh color) and long rooted.			
METHODOLOGY	A population of 100-200 plants will be developed after sowing during 2nd			
	fortnight of October. The selection of desirable root will be made at			
	maturity. The steckling of selected root will be plant at maturity to start			
	4th selection cycle.			
PREVIOUS YEAR'S	500 gram seed desirable root flesh color and long root were selected			
RESULTS				
4. TITLE	DEVELOPMENT OF VARIETY FOR KITCHEN GARDENING			
OBJECTIVE	To develop short duration and fascinating variety			
RESEARCH	Dr. Kaiser Latif Cheema			
WORKERS	Dr. Tasdiq Hussain Shahid			
	Muhammad Najeebullah			
LOCATION	Faisalabd			
DURATION	2017-2018			
TREATMENTS	One group from Random population. Out of two one group was selected.			
METHODOLOGY	The sowing was done during 2nd fortnight of October. The selection of			
	desirable root will be made at maturity .The steckling of selected root will			
	be plant at maturity to develop random population.			
PREVIOUS YEAR'S	20 gram of two group random population.			
RESULTS				
5. TITLE	EVALUATION OF RADISH VARIETIES FOR LATE SEASON			
OBJECTIVE	To select varieties possessing high yield potential and better root quality			
	suitable for late planting.			
RESEARCH	Dr. Kaiser Latif Cheema			
WORKERS	Dr. Tasdiq Hussain Shahid			
	Muhammad Najeebullah			
LOCATION	Faisalabad			
DURATION	2017-18			
TREATMENTS	Varieties = 10 viz; Green Neck, Lal Pari, Purple Neck, Gang Seong,			
	Mino local, Mino (selection), Desi White, Lal Pari, Red Prince F ₁ and			

	No.025.				
METHODOLOGY	Date of sowing.=Plot size=Replications=Design=		Second fortnight of September 8 x 0.75 m 3 RCB		
		eld and	l root shape will be recorded		
PREVIOUS YEAR'S RESULTS		Sr. No.	Variety	Root + Leave yield (t/ha)	
			Purple Neck	70	
		2	Mino Local	66	
		3	Green Neck	66	
		4	Desi White	65	
		5	Mino Selection	58	
		6	Gang Seong	57	
		7	Lal Pari	48	
			L.S.D	5.25	
			CV	4.01	
6. TITLE	PRE -BA	SIC SE	ED PRODUCTION IN RA	ADISH	
OBJECTIVE To supply the pure seed to public / private seed companies and interested growers.			ed companies and		
RESEARCH WORKE	RS Dr. Kaiser	Latif	Cheema		
		-	ain Shahid		
Interview Muhammad Najeebullah LOCATION Faisalabad					
DURATION	Continuou				
TREATMENTSVarieties = Mino Selection, 40-Days, and Lal Pari			al Pari		
METHODOLOGY	practices steckling p root shape Days will varieties Rouging o late bolter	Seed of each variety will be sown according to the recommended practices during second fortnight of September. At the time of steckling preparation, true to type roots will be selected on the basis of root shape, root length, root girth and leaf shape. Stecklings of 40- Days will be transplanted during the month of November while other varieties will be transplanted during December in isolated plots. Rouging of off-type plants will be done at different stages. Early and late bolter plants will be rogued out .At maturity seed of healthy and true to type plants will be harvested separately.			
PREVIOUS YEAR'S RESULTS	The following quantity of pre-basic seed was produced.				

	S. No.	Varieties	Quantity (g)	
	1	Mino Local	100	
	2	40 Days	4000	
	3	Desi White	150	
	4	Lal Pari	2000	
	5	Mino Selection	2000	
7. TITLE	FLOWFRI	NDUCTION IN R	ADISH I ATE VARIETV	
OBJECTIVE		FLOWER INDUCTION IN RADISH LATE VARIETY To get seed development in late radish variety		
RESEARCH WORKERS	Dr. Kaiser Latif Cheema			
	Dr. Tasdiq Hussain Shahid			
		Najeebullah		
LOCATION	Faisalabad			
DURATION	2017-18			
TREATMENTS	Radish variety : No.6 and All season.			
	GA3 ; 1000 ppm, 1500 ppm , 2000 ppm, No spray (Control)			
METHODOLOGY	The steckling of radish will be planted in 2 nd fortnight of November			
			pplied on 15 th , 21 th and 28 th January,	
	-		e growth. The treatment will repeated	
	thrice with span of 7 days.			
PREVIOUS YEAR'S RESULTS	New experiment			

9. TURNIP (Brassica campestris L. var. rapa)

1. TITLE	MAINTENANCE OF GERMPLASM		
OBJECTIVE	To maintain the genotypes/lines for their subsequent inclusion		
	in the breeding programme.		
RESEARCH WORKERS	Kaiser Latif Cheema		
	Dr. Tasdiq Hussain Shahid		
	Muhammad Najeebullah		
LOCATION	Faisalabad		
DURATION	Continuous		
TREATMENTS	Strains = 6 viz; Golden, Purple Top, Green Top,		

	White, Whit (Late) and White Apple.
METHODOLOGY	Sowing date=Second fortnight of SeptemberRow to row spacing=75 cmPlant to plant spacing=5 cmThese varieties will be transplant in Isolation additionally these varieties will be maintained through bud pollination.
PREVIOUS YEAR'S RESULTS	Turnip Purple (20 g) and Turnip Green top (200 g) was harvested and all varieties were maintained.
2. TITLE	EVALUATION OF HEAT TOLERANT VARIETY
OBJECTIVE	To develop high yielding, early and better tasted variety.
RESEARCH WORKERS	Kaiser Latif Cheema Dr. Tasdiq Hussain Shahid Muhammad Najeebullah
LOCATION	Faisalabad
DURATION	2017-18
TREATMENTS/	Five Genotypes: Golden, Green Top, Purple Top Local, Purple Top (Agita) and Purple (exotic).
METHODOLOGY	Date of sowing = 15 July - 15 August Plot size = 8×0.75 m Replications = 3 Design = RCB Data on root yield will be recorded.
PREVIOUS YEAR'SRESULTS	100 grams seed of 5 selected plants having tolerance against heat were harvested.
3. TITLE	DEVELOPMENT OF LATE BOLTING AND SHORT DURATION VARIETIES
OBJECTIVE	To develop high yielding, late bolting and better tasted variety.
RESEARCH WORKERS	Dr. Kaiser Latif Cheema Dr. Tasdiq Hussain Shahid Muhammad Najeebullah
LOCATION	Faisalabad
DURATION	Continuous
TREATMENTS	Random mated population (8 th cycle)

			4		
METHODOLOGY			lation (7 th cycle) will be sown in		
	plant to p	rogeny row method duri	ing second fortnight of September.		
	Plants wi	thin the progeny will	be selected on the basis of late		
	bolting, root shape, single root weight, taste and single plant weight.				
	Harvestin	g will be done at maturit	y for marketable roots and selected		
			l production under random mating		
	system for 5 th cycle selection. The seed of only those plants will				
	retained v	which bolted late. Selec	tion will continue until to fix the		
	gene for la	ate bolting			
PREVIOUS YEAR'S	100 grams	seed of 5 selected plants	s was harvested.		
RESULTS					
4. TITLE	EVALUA	TION OF TURNIP VA	RIETIES		
OBJECTIVE	To select w	variety with high yield po	otential and better root quality.		
RESEARCH WORKERS	Dr. Kaiser	Latif Cheema			
	Dr. Tasdiq	Hussain Shahid			
	Muhamma	d Najeebullah			
LOCATION	Faisalabad	Faisalabad			
DURATION	2017-18				
TREATMENTS	Varieties = 7 <i>viz</i> ; Golden, Purple Top, Desi Red, Green Top,				
	Golden W	orld F ₁ , Kansas F ₁ and St	tylo.		
METHODOLOGY	Date of so	wing = Last week of	f September		
	Plot size	$=$ 8 \times 0.75 m			
	Replications = 3				
	Design	= RCB			
	Data on ro	ot yield will be recorded			
PREVIOUS YEAR'S	Performance of turnip varieties				
RESULTS					
	S.NO.	VARIETY	Root +leave		
	5.110.		YIELD (T/ha)		
	1	Desi Red	61.68a		
	2	Green Top	60.49a		

1	Desi Red	61.68a		
2	Green Top	60.49a		
3	Kansar	56.25ab		
4	Purple Top	52.70ab		
5	Golden	50.32b		
6	Stylo	49.60b		

	7	Golden World F1	37.27c	
		LSD	13.53	
5. TITLE	PRE- BA	ASIC SEED PRODUCT	TION IN TURNIP	
OBJECTIVE	To produ	ice genetically pure and g	good quality turnip variety seed.	
RESEARCH WORKERS	Dr. Kais	er Latif Cheema		
	Dr. Tasd	iq Hussain Shahid		
	Muhammad Najeebullah			
LOCATION	Faisalabad			
DURATION	Continuous			
TREATMENTS	Varieties = 2 <i>viz</i> ; Purple top and Golden			
METHODOLOGY	Single plant progenies of Purple top and Golden varieties will be sown during 2^{nd} week of September on both sides of ridges made 75 cm apart in row length of 7 meters. Progenies with off-type plants will be rogued out at different stages of crop growth. True to type and sweet tasted progenies will be selected and bulked for the production of pre-basic seed.			
PREVIOUS YEAR'S	Seed of Purple Top (500 g) and Golden (400g) was obtained.			
RESULTS				

10. GARLIC (Allium sativum L.)

1. TITLE	GERMPLASM COLLECTION EVALUATION AND			
	MAINTANAINENCE IN GARLIC			
OBJECTIVE	To find out high yielding and having better shelf life			
RESEARCH WORKERS	Tahir Iqbal Shah			
	Muhammad Najeebullah			
DURATION	2017-18			
TREATMENTS	Variety = G-1701, G-1702, G-1703, G-1704			
METHODOLOGY	Date of Sowing = 1st Week of October			
	Design $= RCB$			
	Replication = 4			
	Plot Size $= 5 \times 2 \text{ m}$			
	PxP Distance $= 10$ cm			
	RxR Distance = 20cm			
	The crop will be observed for disease plants that will be rouged			
	out to produce pure seed. The data regarding bulb weight, clove weight,			
	no of cloves / bulb and bulb size will be recorded.			

PREVIOUS YEAR'S	Performance	e of Garlic Genotyp	es during 2016-1	.7
RESULTS	Sr. NO	Genotypes	Clove formation	Yield
	1	G-16014	100%	25
	2	Wi-16	100%	15
	3	G3-16	100%	14
	4	Lehssan	100%	12
		Gulabi		
		(Check)		
	5	G2-16	50%	8
	6	G-16005	40%	7
	7	W2-16	40%	6
	8	G-16020	30%	5
			1.04	
	Gulabi in yi 16020, G2-16 clones also	eld Comparison bu 5 and W2-16 took 33	t the clones G-1 days more to ma as regards to cl	ed the check Lehssan 16014, G-16005, G- ture. These aforesaid love formation. The

11. SPINACH (Spinacia oleracea L.)

1. TITLE	MAINTENANCE OF GENEPOOL IN SPINACH
OBJECTIVE	To maintain genetic purity of existing varieties of Desi and Lahori
	palak
RESEARCH WORKERS	Tahir Iqbal Shah
	Muhammad Najeebullah
LOCATION	Faisalabad
DURATION	Continuous
TREATMENTS	Desi and Lahori Palak
METHODOLOGY	About 10 Marla's each of "Desi and Lahori Palak" will be sown during 2 nd fortnight of October in rows 75 cm apart in isolation. After germination, crop will be thinned keeping plant to plant distance of 15 cm. At 20-25 cm plants height, the plants will be keenly observed regarding leaf & stem color and plants having minute ting of redness and red color midrib will be roughed out. At bolting stage all early bolters will also be rough out. Remaining full green and late bolting plants will be kept to produce BNS seed.
PREVIOUS YEAR'S	Desi and Lahori Palak in isolations were maintained.
RESULTS	

12. CORIANDER (Coriandrum sativum L.)

1. TITLE	MAINTENANCE OF GENEPOOL IN CORIANDER			
OBJECTIVE	To maintain genetic purity of existing varieties of coriander.			
RESEARCH WORKERS	Tahir Iqbal Shah			
	Muhammad Najeebullah			
LOCATION	Faisalabad			
DURATION	Continuous			
TREATMENTS	Kandhari And Desi			
METHODOLOGY	About 10 Marla's each of "Qandhari and Desi" will be sown during			
	last week of October in rows 75 cm apart in isolation on well prepare			
	soil in watter condition. After germination, crop will be thinned			
	keeping plant to plant distance of 15 cm. At 20-25 cm plants height, the			
	plants will keenly be observed regarding leaf & stem color and plants			
	having purple color will be roughed out. At bolting stage all early			
	bolters will also be rough out. Remaining full green and late bolting			
	plants will be kept to produce BNS seed.			
PREVIOUS YEAR'S	Desi & Qandhari coriander were maintained.			
RESULTS				

13. LETTUCE (Lactuca sativa L.)

1. TITLE	ADAPTABILITY TRIAL IN LETTUCE			
OBJECTIVE	Maintenance for future use and bulk seed multiplication. To study the			
	adaptability of exotic varieties.			
RESEARCH WORKERS	Ghazanfar Hammad			
	Raja Javed ur Rehman			
	Dr.M. Tasdiq Hussain Shahid			
LOCATION	Faisalabad			
DURATION	2017-18			
TREATMENTS	Seed provided by private seed companies.			
METHODOLOGY	Sowing date for nursery = 2nd fortnight of October, 2017			
	Transplanting date = 2nd fortnight of November, 2017			
	Plot Size = 5 Marla's each			
PREVIOUS YEAR'S	New Experiment			
RESULTS				
2. TITLE	COLLECTION AND MAINTENANCE OF LETTUCE			
	GERMPLASM			
OBJECTIVE	Collection and maintenance of local and exotic germplasm for future			
	use in breeding programme.			

RESEARCH WORKERS	Ghazanfar Hammad			
	Raja Javed ur Rehman			
	Dr. M. Tasdiq Hussain Shahid			
LOCATION	Faisalabad			
DURATION	Continuous			
TREATMENTS	Entries (Existing) = 2 (ICE-BERG-Red and ICE-BERG-Green)			
METHODOLOGY	Sowing date for nursery = 2nd fortnight of October, 2017			
	Transplanting date = 2nd fortnight of October, 2017			
	Plot Size = 5 Marla's each.			
PREVIOUS YEAR'S	The seeds of the existing entries were harvested and maintained.			
RESULTS				

14. SEED PRODUCTION

1. TITLE	BREEDER, PRE B	ASIC AND	BASIC SEED PRODUCTION OF		
	RABI VEGETABLES				
OBJECTIVE	To fulfill the seed requirements of Pre-basic and basic types of seed for				
	Foundation Seed Cel	1			
RESEARCH	Respective Scientists	s of each crop)		
WORKERS					
LOCATION	Faisalabad and Sub-s	stations			
DURATION	Continuous				
TREATMENTS	Crop varieties of the	following wi	inter vegetables		
	Cauiflower FD-I	Radish	Tomato		
	Cauiflower FD-II	Carrot	Fenugreek		
	Cauiflower FD-III	Onion			
	Coriander	Turnip			
	Spinach	Peas			
METHODOLOGY	All the crop varieties	s/plants will	be sown/ planted in suitable seasons for		
	seed production of specific variety according to standards of BNS and				
	Pre-basic seed. Rouging of all off type plants will be carried out at				
	specified stages of the crop and selection of the plants will be conducted				
	keeping in view th	e traits of	the variety. At ripening of the crops		
	harvesting and seed collection will be carried out accordingly.				
PREVIOUS YEAR'S	The following seeds	of winter veg	getables were produced during the year		
RESULTS	2016-17.				

,	<u>п</u>	1	T	′
	Sr. No.	Сгор	Pre-Basic Seed (Kg)	Basic Seed (Kg)
	1	Cauiflower FD-I	-	3
	2	Cauliflower FD-II	-	40
	3	Cauliflower FD-III	-	39
	4	Coriander	100	312
	5	Spinach	600	3221
	6	Radish (40 Days)	120	557
	7	Radish (Mino)	100	533
	8	Radish (Lal Pari)	175	657
	9	Turnip (Golden)	100	574
	10	Turnip (Purple Top)	140	831
	11	Carrot	2250	941
	12	Peas	1484	-
	13	Onion	120	79
	14	Fenugreek	-	455
	15	Tomato (OPV)	8	4.9
	3 4 5 6 7 8 9 10 11 12 13 14	Cauliflower FD-III Coriander Spinach Spinach Radish (40 Days) Radish (Mino) Radish (Lal Pari) Turnip (Golden) Turnip (Purple Top) Carrot Peas Onion Fenugreek	- 100 600 120 120 100 175 100 140 2250 1484 120 -	39 312 312 3221 557 557 533 657 574 831 941 - - 79 455 55

15. Weeds Trials

1.	TITLE	Weed Management in Cauliflower				
	OBJECTIVE	To investigate the most practicable package of weed management in cauliflower Waseem Abbas Muhammad Ashiq				
	RESEARCH					
	WORKERS					
		M. Najeebullah				
	DURATION	2017-18				
	LOCATION	Faisalabad				
	TREATMENTS					
	Sr. No.	Treatment	Active ingredient	Dose/ha	Time of application	
	1	Stomp 455 g/l CS	Pendimethalin	2000 ml	Pre emergence plus one hand weeding	
	2	Stomp 455 g/l CS	Pendimethalin	2500 ml	Pre emergence plus one hand weeding	
	3	Dual gold 960 EC	S metolachlor	1500 ml	Pre emergence plus one hand weeding	
	4	Dual gold 960 EC	S metolachlor	2000 ml	Pre emergence plus one hand weeding	
	5	Pert	Metazachlor	750 ml	Post emergence for BL weeds plus one hand weeding	
	6	Pert	Metazachlor	1000 ml	Post emergence for BL weeds plus one hand weeding	
	7	G Max lite 15 EC	Quizalofop	650 ml	Post emergence for grassy weeds plus one hand weeding	
	8	Axial 050 EC	Penoxaden	825 ml	Post emergence for grassy weeds plus one hand	
	9	3-4 Hand weeding				
	10	10ControlMETHODOLOGYDesign= RCBReplication= 3Plot Size= 3×5 mN:P:K= 160:115:63 kg/haWeed counts & weed biomass before and 30 days after spray of weedicides, yield and dry yield data will be collected				
	METHODOLOGY					
2.	TITLE	Weed Managemen				

RESEARCH	Waseem Abbas				
WORKERS	Muhammad Ashiq				
	M. Najeebullah				
DURATION	2017-18				
LOCATION	Faisalabad				
TREATMENTS	Taisaiabad				
		A (*			
Sr. No.	Treatment	Active ingredient	Dose/ha	Time of application	
1	Stomp 455 g/l CS	Pendimethalin	2000 ml	Pre emergence plus one hand weeding	
2	Stomp 455 g/l CS	Pendimethalin	2500 ml	Pre emergence plus one hand weeding	
3	Dual gold 960 EC	S metolachlor	1500 ml	Pre emergence plus one hand weeding	
4	Dual gold 960 EC	S metolachlor	2000 ml	Pre emergence plus one hand weeding	
5	Pert	Metazachlor	750 ml	Post emergence for BI weeds plus one hand weeding	
6	Pert	Metazachlor	1000 ml	Post emergence for BI weeds plus one hand weeding	
7	G Max lite 15 EC	Quizalofop	650 ml	Post emergence for grassy weeds plus one hand weeding	
8	Axial 050 EC	Penoxaden	825 ml	Post emergence for grass weeds plus one hand	
9	3-4 Hand weeding				
10	Control				
METHODOLOGY	Replication=Plot Size= 3N:P:K= 1	3 × 5 m 60:115:63 kg/ha	and 30 days af	ter spray of weedicides, fre	

3.	TITLE	Weed Management in Onion
	OBJECTIVE	To investigate the most practicable package of weed management in onion
	RESEARCH	Waseem Abbas

	WORKERS	Muhammad Ashio]			
		M. Najeebullah	•			
	DURATION	2017-18				
	LOCATION	Faisalabad				
	TREATMENTS					
	Sr. No.	Treatment	Active	Dose/ha	Time of application	
	51. 110.	Treatment	ingredient	DOSCIIIA		
	1	Stomp 455 g/l CS	Pendimethalin	2.5 lit	Pre emergence + one hand weeding 45 days after sowing	
	2	Dual gold 960 EC	S- metolachlor	2.0 lit	Pre emergence + one hand weeding 45 days after sowing	
	3	Axifin 24 EW	Oxyfluorfen	750 ml	Pre emergence + one hand weeding 45 days after sowing	
	4	Axifin 24 EW	Oxyfluorfen	750 ml	Post emergence (30 DAS + one hand weeding 60 days after sowing	
	5	G Max Lite 15 EC	Quizalofop	625 ml	Post emergence (30 DAS + one hand weeding 60 days after sowing	
	6	Axial 050 EC	Penoxaden	825 ml	Post emergence for grassy weeds plus one hand weeding	
	7	Axifin 24 EW+ G Max Lite 15 EC	Oxyfluorfen+ Quizalofop	750 ml+ 625 ml	Post emergence for all weeds plus one hand weeding	
	8	Hand weedingThr	rice or more			
	9	Control				
	METHODOLOGY	U	RCB			
		1	= 3			
			$1 \times 5 \text{ m}$			
			160:115:63 kg/ha		days after spray of weedicides,	
			ry yield data will			
4.	TITLE	Weed Manageme			*	
	OBJECTIVE	To investigate the	most practicable pa	ackage of we	ed management in garlic.	
	RESEARCH	Waseem Abbas				
	WORKERS	Muhammad Ashio	1			
		M. Najeebullah	1			
	DURATION	2017-18				
	LOCATION	Faisalabad				

Sr.No.	Treatment	Active ingredient	Dose/ha	Time of application		
1	Stomp 455 g/l	Pendimethalin	2.5 lit	Pre emergence+ one hand		
	CS			weeding 45 days after sowing		
2	Dual gold 960	S- metolachlor	2.0 lit	Pre emergence+ one hand		
	EC			weeding 45 days after sowing		
3	Axifin 24 EW	Oxyfluorfen	750 ml	Pre emergence+ one has weeding 45 days after sowing		
4	Axifin 24 EW	Oxyfluorfen	750 ml	Post emergence (30 DAS one hand weeding 60 day after sowing		
5	G Max Lite 15 EC	Quizalofop	625 ml	Post emergence (30 DAS + one hand weeding 60 days after sowing		
6	Axial 050 EC	Penoxaden	825 ml	Post emergence for grassy weeds plus one hand weeding		
7	Axifin 24 EW+	Oxyfluorfen+	750 ml+	Post emergence for all		
	G Max Lite 15	Quizalofop	625 ml	weeds plus one hand		
	EC			weeding		
8	Hand weedingTh	rice or more				
9	Control					
METHODOLOGY	U	= RCB				
	Replication					
		= 1 × 5 m				
		= 160:115:63 kg/h				
	Weed counts & v	Weed counts & weed biomass before and 30 days after spray of weedicides				
	yield data will be	collected				

5.	TITLE	Weed Management in Carrot
	OBJECTIVE	To investigate the most practicable package of weed management in
		carrot
	RESEARCH	Waseem Abbas
	WORKERS	Muhammad Ashiq
		M. Najeebullah
	DURATION	2017-18
	LOCATION	Faisalabad

Sr. No.	Treatment	Active ingredient	Dose/ha	Time of application		
1	Stomp 455 g/l CS	Pendimethalin	2000 ml	Pre emergence plus one hand weeding		
2	Dual gold 960 EC	S metolachlor	2000 ml	Pre emergence plus one hand weeding		
3	Topmax 96 EC	Pendimethalin+ metolachlor	2250 ml	Pre emergence plus one hand weeding		
4	Linex 75 WDG	Linuron	750 g	Pre emergence for all weeds plus one hand weeding		
5	Linex 75 WDG	Linuron	750 g	Post emergence for all weeds plus one hand weeding		
6	G Max lite 15 EC	Quizalofop	650 ml	Post emergence for grassy weeds plus one hand weeding		
7	Axial 050 EC	Penoxaden	825 ml	Post emergence for grass weeds plus one hand		
8	3-4 Hand weeding					
9	Control					
METHODOLOGY	Design $= RCB$ Replication $= 3$ Plot Size $= 3 \times 5 \text{ m}$ N:P:K $= 160:115:63 \text{ kg/ha}$ Weed counts & weed biomass before and 30 days after spray of weedicides andyield data will be collected.					