01	TITLE	DEVELOPMENT OF CA STORAGE PROTOCOL FOR MANGO FRUIT
	Objective	To evaluate the effect of O_2 and CO_2 concentration on shelf life
		extension of Mangoes.
	Research Workers	Faran Shamim
		Abdul Rahim Khan
		Muhammad Asghar
	Project Duration	2015 – 2018
	Location	Post Harvest Research Centre, AARI, Faisalabad
	Treatments	T ₀ Storage at Ambient condition
		$T_1 = 3\%O_2 + 4\%CO_2$
		$T_2 = 3\%O_2 + 6\%CO_2$
		$T_3 = 4\%O_2 + 5\%CO_2$
		$T_4 = 6\%O_2 + 5\%CO_2$
	Layout Design	CRD Factorial
		No. of Replications $= 3$
		No. of treatments = 5
	Plan of Work	Mango cultivar Samar bahisht (Chunsa) will be harvested at half
		maturity stage. Fruit will be de-sapped and transported in reefer
		container. After Hot Water Treatment (HWT) at 52°C for 5 minutes.
		and subsequent cooling to desired temperature, fruits will be stored in
		different combination @ $10+2^{\circ}C$ as mentioned above including an
		ambient air condition to evaluate the effect of storage under CA
		conditions Fruits will be removed from the CA chambers after five
		weeks followed by ripening with athylene For ripening fruit will be
		applied with athylene @100 ppm for 24.48 hours or as per requirement
		in ringening showhere. Quality of ringened fruit will be tested using
		In ripening chambers. Quanty of ripened fruit will be tested using
		general fruit quality analysis (155, pH, Firmness, color).
		For the purpose of statistical experimentation, three factor factorial,
		Completely Randomized Design (CRD), with triplicates will be used.
		Means will be compared using Least Significant Difference (LSD) at
		95% confidence level.
	Previous Year's	New Experiment
	Results	
02	TITLE	EFFCET OF DIFFERENT STORAGE TECHNIQUES ON
		PHYSIOLOGY OF TOMATO
	Objective	• To extend shelf life of tomatoes using different storage methods.
		• To evaluate best storage method.
	Research Workers	Zarina Yasmin
		M Asghar
		Farah Shamim
	Project Duration	2015 - 2018
	Location	Post Harvest Pesearch Centre AAPI Faisalabad
	Treatments	The Storage et Ambient condition
	Treatments	T_0 Storage at Amblent condition T CA Storage at 5% CA
		11 CA Storage at $3\%02+3\%002$
		12 INAP (Packed in polyethylene bags of 0.05mm) at ambient
		I_3 MAP (Packed in polyethylene bags of 0.05mm) + 10 °C
		14 Iow temperature storage at 10 °C

	Layout Design	CRD Factorial
		No. of Replications $= 3$
		No. of treatments = 5
	Plan of Work	Tomatoes (Nagina) will be harvested at mature green stage from VRI, Faisalabad. Fruit will be pre-cooled and washed with 200ppm sodium hypochlorite solution. After subsequent drying, fruits will be stored according to above mentioned treatments.
		Fruits will be removed from the storage chambers after ten days to test quality using physico-chemical analysis (weight loss %, color, TSS, pH, Firmness, acidity and decay %). For the purpose of statistical experimentation, two factor factorial, Completely Randomized Design (CRD), with triplicates will be used. Means will be compared using Least Significant Difference (LSD) at 95% confidence level.
	Previous Year's Results	New Experiment
03	TITLE	IMPACT OF CA STORAGE ON STORAGE BEHAVIOUR AND POST HARVEST QUALITY OF APPLES
	Objectives	 To explore the effects of CA storage on the quality of mature apples. To examine the physicochemical behavior of apple stored at controlled oxygen and carbon dioxide level and at low temperature.
	Research Workers	Irrum Babu Abdul Rahim Khan
		M. Asghar
	Project Duration	2015 – 2018
	Location	Post Harvest Research Centre, AARI, Faisalabad
	Treatments	T0 Control
		T1 $O_2 = 1\%, CO_2 = 1\%$
		T2 $O_2 = 2\%$, $CO_2 = 1\%$
		T3 $O_2 = 3\%$, $CO_2 = 1\%$
	Layout Design	CRD (factorial)
		No. of Replications $= 3$
		No. of treatments $= 4$
	Plan of Work	Apples (Red Delicious) will be purchased from Hill Fruit Research Station, Murree and pre-cooled by reefer container as soon as possible. Pre-cooled apples will be immersion-cleaned by chemical solutions before the preservation process. Chemical solutions
		before the preservation process. Chemical solutions are used for immersion-cleaning, including Calcium Chloride solution (3%) and Thiabendazole solution (2500mg/kg). Apples will be stored according to treatments in CA chambers at $2^{0}C \pm 2^{0}C$ and 80-85% RH for further studies. Data regarding weight loss %, firmness, pH, TSS, acidity and color will be determined after three months interval
	Previous Year's	New Experiment
	Results	•
04	TITLE	IMPACT OF CA STORAGE ON STORAGE BEHAVIOUR AND POST HARVEST QUALITY OF LITCHI

Objectives	• To explore the effects of CA storage on the storage quality of mature litchi.
	• The objective of this study will be to access the effect of the selected CA and low temperature storage condition on the post barvest quality of litchi
Research Workers	Irrum Babu
Research workers	Zarina Yasmin
	A R Khan
Project Duration	2014 - 2017
Location	Post Harvest Research Centre, AARI, Faisalabad
Treatments	T0 Control
Troutinontis	T1 $O_2 = 4\%$, $CO_2 = 5\%$
	T2 $O_2 = 4\%, CO_2 = 7.5\%$
	T3 $O_2 = 4\%$, $CO_2 = 10\%$
Lavout Design	CRD (factorial)
	No. of Replications $= 3$
	No. of treatments $= 4$
Plan of Work	Litchi will be purchased from the local market and pre-cooled by reefer
	container as soon as possible. Pre-cooled litchi will be immersed in
	200ppm thiabendazole solutions before the preservation process.
	Sorting and grading of litchi can be carried out before storage manually
	on color, size, mechanical damage, diseases and pests basis. Litchi will
	be packed in mesh bags. Then the packed litchi will be stored according
	to treatments in CA chambers at 5 ± 2^{0} C and 90-95% RH for further
	studies. Data regarding weight loss %, firmness, pH, TSS, acidity and
	skin color will be determined after four days interval.
Previous Year's	New Experiment
Results	
TITLE	EFFECT OF CHITOSAN COATING ON QUALITY
	RETENTION OF COLD STORED STRAWBERRIES
Objective	To evaluate the effect of chitosan coating on shelf life extension,
	moisture loss and fungal decay on cold stored strawberries.
Research Workers	Irrum Bahu
Research workers	
	Abdul Rahim Khan
	Abdul Rahim Khan Liagat Ali
Project Duration	Abdul Rahim Khan Liaqat Ali 2014 – 2017
Project Duration	Abdul Rahim Khan Liaqat Ali 2014 – 2017 Post Harvest Research Centre, AARI, Faisalabad
Project Duration Location Treatments	Abdul Rahim Khan Liaqat Ali 2014 – 2017 Post Harvest Research Centre, AARI, Faisalabad T ₀ Control
Project Duration Location Treatments	Abdul Rahim Khan Liaqat Ali 2014 - 2017 Post Harvest Research Centre, AARI, Faisalabad T_0 Control T_1 0.5% chitosan coating
Project Duration Location Treatments	Abdul Rahim KhanLiaqat Ali $2014 - 2017$ Post Harvest Research Centre, AARI, Faisalabad T_0 Control T_1 0.5% chitosan coating T_2 1% chitosan coating
Project Duration Location Treatments	Abdul Rahim KhanLiaqat Ali $2014 - 2017$ Post Harvest Research Centre, AARI, Faisalabad T_0 Control T_1 0.5% chitosan coating T_2 1% chitosan coating T_3 1.5% chitosan coating
Project Duration Location Treatments	Abdul Rahim KhanLiaqat Ali $2014 - 2017$ Post Harvest Research Centre, AARI, Faisalabad T_0 T_1 0.5% chitosan coating T_2 1% chitosan coating T_3 1.5% chitosan coating T_4 2% chitosan coating
Project Duration Location Treatments Layout Design	Abdul Rahim KhanLiaqat Ali $2014 - 2017$ Post Harvest Research Centre, AARI, Faisalabad T_0 Control T_1 0.5% chitosan coating T_2 1% chitosan coating T_3 1.5% chitosan coating T_4 2% chitosan coatingCRD Factorial
Project Duration Location Treatments Layout Design	Abdul Rahim KhanLiaqat Ali $2014 - 2017$ Post Harvest Research Centre, AARI, Faisalabad T_0 T_1 0.5% chitosan coating T_2 1% chitosan coating T_3 1.5% chitosan coating T_4 2% chitosan coating CRD FactorialNo. of Replications = 3

	Plan of Work	Fruit of strawberry (chandelier) was harvested from orchard of Sharqpur. Strawberries of uniform size, shape, color and free of mechanical damage or fungal decay was selected and washed with 200ppm TBZ solution prior to coating. After washing fruits were dipped into different concentration of chitosan solutions as mentioned above for 15 seconds and dried at 20 ± 2 ⁰ C for 1 hour, then packed in perforated PET boxes. Boxes were kept at 4 ⁰ C and 80% RH up to maximum acceptable period. Data was recorded for weight loss, TSS, Acidity, pH. Firmness and Color after 3 days interval
	Previous Year's	Strawberries coated with 1.5% chitosan showed best result regarding
	Results	firmness and extended storage life upto 15 days. Table 1
06	TITLE	EFFECT OF 1-MCP ON POST HARVEST OUALITY OF
		BITTER GOURD (Momordica charantia)
	Objectives	• To explore the effects of 1-MCP on delaying ripening of Bitter gourd.
		• To examine the physicochemical behavior of Bitter gourd stored at low temperature
	Research Workers	Farah Shamim
		M. Asghar
		Zareena Yasmin
	Project Duration	2014 - 2017
	Location	Post Harvest Research Centre, AARI, Faisalabad
	Treatments	T ₀ Control
		$T_1 = 10 ppm$
		T ₂ 20ppm
		T ₃ 30ppm
	Layout Design	CRD (factorial)
		No. of Replications $= 3$
		No. of treatments $= 4$
	Plan of Work	Bitter gourd (Faisalabad long) was harvested from the field of Vegetable Research Institute, AARI at immature stage. After manual
		grading and sorting, fruit was cleaned with muslin cloth. Above
		mentioned treatments were applied for 24 hours at 25 ± 2^{0} C, then
		packing was done in perforated plastic bags (22 perforations) and stored
		at 15°C with 80-85% RH for further studies. Data regarding weight loss
		%, firmness, fiber, TSS, decay % and color was determined after two
		days interval.
	Previous Year's	Bitter gourd treated with 20 ppm 1-MCP showed best results regarding
07	Results	decay percent, firmness and extend storage life for 18 days. Table 2.
07	IIILE	DEVELOPMENT OF RIPENING PROTOCOL FOR BANANA
	Obiestives	FRUIT (<i>Musa acuminate L</i>) To develop a complete protocol to extend the shelf life of honone fruit
	Objectives	To develop a complete protocol to extend the shell life of bahana fruit.
	Pesearch Workers	Zarina Vasmin
		M Asohar
		Irrum Babu
	Project Duration	2014 - 2017
	Location	Post-Harvest Research Centre, AARI, Faisalabad
	-	, , ,

	Treatments	T_0 Control T_1 HWT (50°C for 15 minutes)
		 T₂ Sodium hypochlorite (150 ppm) T₃ HWT (50°C for 10 minutes)+ sodium hypochlorite (150 ppm)
	Layout Design	CRD (factorial)
		No. of Replications $= 3$
		No. of treatments $= 6$
	Plan of Work	Fully matured green Banana (Cavendish) was procured from the market. Fruit hands was cut from the bunches and dipped into water along with potassium aluminum sulphate (1.5 %) to control latex problem. Fruit was subjected to above mentioned treatments and then air dried. Fruit was exposed to ethylene gas (200 ppm) at 25°C for 24 hours and packed in polyethylene bags (22 gauge) then stored at 14°C \pm 2°C with 90-95% RH for further studies. Data regarding weight loss %, firmness, pH, TSS and color was determined after two days interval.
	Previous Year's	Bananas dipped in hot water along with fungicide solution (T_3)
	Results	maintained their quality up to two weeks as little peel blackening and
		crown browning was observed. Table- 3
08	TITLE	EFFECT OF ETHYLENE ANTAGONISTIC CALCIUM SALTS
		ON CONSERVATION OF GUAVA FRUIT(<i>Psidium guajava</i>)
	Objectives	To delay the onset of ripening and senescence process and evaluate the
		effect of post-harvest application of calcium salts on the post-harvest
		life of guava fruit.
	Research Workers	Zarina Yasmin
		M Asgnar
		Faran Shamim
	Project Duration	2014 – 2017
	Location	Post-Harvest Research Centre, AARI, Faisaladad
	Treatments	T_0 Control T $C_0(NO) = 10$
		$T_1 = C_1 C_1 C_2 C_1 C_2 C_2 C_2 C_2 C_2 C_2 C_2 C_2 C_2 C_2$
		$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	Lavout Design	$\begin{array}{c} \mathbf{CPD} \text{ (fastorial)} \\ \end{array}$
	Layout Design	No. of Penlications $= 3$
		No. of treatments $-A$
	Plan of Work	Guava fruit of gola/sofaida variety was harvested at light green mature stage from the selected trees of Horticultural Research Institute, AARI in collaboration with Entomological Research Center AARI for pre-
		harvest fruit fly infestation. After sorting and grading the fruit was weaked with TPZ 100ppm and dipped into Hot water at 46°C for 25
		min. Then fruit was subjected to treatments mentioned above, air dried
		and subsequently packed in newspaper. Both treated and untreated truit samples will be placed at ambient temperature. Quality parameters like
		weight loss %. TSS Firmness, pulp acidity. Vit C, reducing & non-
		reducing sugar and pH will be recorded after three days interval.
		Residual effects of pre/post-harvest spravs will be determined by the
		biochemistry section, AARI, FSD.
	Previous Year's	Guava fruit treated with Ca(NO_3) ₂ maintained their quality attributes
	Results	up to one week at ambient temperature followed by $CaCl_2$ and $CaSO_4$ respectively. Table 4

09	TITLE	EVALUATION OF POST HARVEST STORAGE QUALITY OF IRRADIATED MOSAMBI (<i>Citrus sinesis</i>)
	Objective	To control decay and maintain quality attributes of Mosambi for longer
	Dessent Werling	Forsh Shamim
	Research workers	Faran Shamim Zaning Magnin
		Zarina Yasmin
		Malik Asghar
	Project Duration	2014 – 2017
	Location	Post Harvest Research Centre, AARI, Faisalabad
	Treatments	1_0 Control
		T_1 Gamma radiation @ 0.5kGray
		T ₂ Gamma radiation @ IkGray
		T_3 Gamma radiation @ 1.5kGray
	Layout Design	CRD Factorial
		No. of Replications $= 3$
		No. of treatments $= 4$
	Plan of Work	Citrus fruit (Mosambi variety) was harvested from Horticultural Research Institute, AARI, Faisalabad. After manual grading, sorting and washing, fruits were subjected to radiation treatments as mentioned above from PARAS foods (PVT) Lahore. Fruits were stored at $5\pm2^{\circ}$ C with 90-95 RH. Data was recorded for TSS, Acidity, pH, Firmness, vit C and decay % after one week interval up to maximum acceptable pariod
	Durriana Varia	period. Measurable impediated with 1.51 Gray showed botton results recording
	Previous year s	Mosambi irradiated with 1.5kGray showed better results regarding
10	Kesults	Weight loss and firmness. Table 5.
10	IIILE	APPLICATION OF SPROUT SUPPRESSENT
	Objectives	To control pea pods sprouting during low temperature storage.
	Research Workers	Abdul Rahim Khan
		Farah Shamim
		Irrum Babu
	Project Duration	2014 - 2017
	Location	Post Harvest Research Centre, AARI, Faisalabad
	Treatments	T ₀ Control
		T ₁ Packing in polyethylene bag (22 gauge)
		T ₂ Potassium permanganate (1.5g)+ Packing in polyethylene bag (22 gauge)
		T_3 Mint oil (1%) + Packing in polyethylene bag (22 gauge)
	Layout Design	CRD (factorial)
		No. of Replications $= 3$
		No. of treatments $= 4$
	Plan of Work	Pea pods were harvested from the Vegetable Research Institute, AARI
		at mature green stage. After manual grading and sorting, peas were washed with potassium sorbate (1500ppm). Then above mentioned
		treatments were applied, stored at $0\pm 2^{\circ}$ C with 80-85% RH for further studies. Data regarding weight loss %, firmness, sprouting % and color of pea pods were determined after three days interval.
	Previous Year's	treatments were applied, stored at 0±2°C with 80-85% RH for further studies. Data regarding weight loss %, firmness, sprouting % and color of pea pods were determined after three days interval. Peas packed in polyethylene bag (22 gauge) predicted good quality for

11	TITLE	EFFECT OF ALOE VERA GEL ON QUALITY AND STORAGABLITY OF CRAPES UNDER LOW TEMPERATURE
	Objectives	Use of natural edible coating to prolong the quality and shelf life of
	Objectives	fresh produce.
	Research Workers	Irrum Babu
		Farah Shamim
		M Asghar
	Project Duration	2013 – 2016
	Location	Post Harvest Research Centre, AARL Faisalabad
	Treatments	T_0 Control
	Troutinentis	T_1 Dipping in 1% Aloe Vera gel
		T_2 Dipping in 5% Aloe Vera gel
		T_2 Dipping in 10% Aloe Vera gel
	Lavout Design	CRD (factorial)
	Edyout Design	No. of Replications -3
		No. of treatments $-\Lambda$
	Plan of Work	Grapes (gola) were procured from the market Δ fter manual grading and
	r lan of work	sorting, fruit was washed with water. The water drops were removed, from the surface of fruit by fresh air blow. Matured leaves of Aloe Vera were collected and washed with 10% sodium hypochlorite solution. Aloe Vera matrix was separated from the outer cortex of leaves and this colorless hydro parenchyma was grind in a blender. The resulting mixture was filtered to remove fiber and pasteurized at 70 ^o C for 45 minutes and allowed to cool immediately to an ambient temperature. Ascorbic acid and citric acid was added to maintain its pH at 4. Viscosity of Aloe Vera was improved by using 1% commercial gelling agent. Gel was stored in brown amber bottle to prevent oxidation of gel. Nutritional analysis of gel was done. Fruits were dipped in different concentration of gel for 2-3 sec as mentioned above and stored at 1 ^o C with 85-90% RH for further studies. Data regarding weight loss %, firmness, pH, TSS, acidity and color was determined after three days interval.
	Previous Vear's	Grapes dipped in 10 % Aloe yers gel showed firm texture and fresh
	Results	color for a period of fifteen days (T_2) Table -7
12		DE STOPACE SALICYLIC ACID DIPPING OF TOMATOES
14		TO ALLEVIATE DOST HADVEST INTEDNAL REAKDOWN
	Objectives	Tomatoes have a short post harvest life due to rapid ripening and
	Objectives	microhial decay Salicylic acid (SA) is a natural phenolic acid. It has
		notential to maintain quality by suppressing enzyme activity
	Research Workers	Zareena Yasmin
	Research workers	$M \Delta z har \Delta li$
		Farah Shamim
	Project Duration	2013 - 2016
	Location	Post Harvest Research Centre AARI Faisalahad
	Treatments	T_0 Control
		T ₁ dipping in 0.5mM Salicylic acid solution for 5 minutes
		T ₂ dipping in 1 mM Salicylic acid solution for 5 minutes
		T_3 dipping in 1.5mM Salicylic acid solution for 5 minutes
		T ₄ dipping in 2mM Salicylic acid solution for 5 minutes
		·· · · ·

	Layout Design	CRD (Factorial)
		No. of Replications $= 3$
		No. of treatments $= 5$
	Plan of Work	Tomatoes (hybrid) were harvested at breaker stage from the selected
		orchard. After sorting and grading fruit was washed. After this fruit was
		dipped in different solution of Salicylic acid as mentioned above and
		stored at 8×10^{9} C and PH 00 + 5% for maximum accontable pariod
		Stored at 8-10 C and KH $90 \pm 3\%$ for maximum acceptable period.
		Data regarding 155, weight loss, 70 Actury, Finnness and Skin Color
	D	Was recorded after four days interval.
	Previous rear s	Tomatoes dipped in 0.5mW Sancync acid solution for 5 minutes
10	Results	predicted firm texture and color for a period of forty days. (I_1) Table-8
13	TITLE	SODIUM CARBONATE APPLICATION ALONG WITH
		CURING ON LEMON AGAINST GREEN AND BLUE MOLDS
	Objectives	• To retain Lemon quality during storage at low temperature.
		 To control post-harvest fungal decay.
	Research Workers	M. Asghar
		Zarina Yasmin
		Farah Shamim
	Project Duration	2013 - 2016
	Location	Post Harvest Research Centre, AARI, Faisalabad
	Treatments	T ₀ Control
		T_1 Curing at 33°C for 24 hours
		T ₂ Dipping in Sodium Carbonate solution 2000ppm for 3 min
		T_3 Curing at 33°C and dipping in Sodium Carbonate solution
		2000ppm for 3 min
	Lavout Design	CRD (Factorial)
	2009 0 00 2 00181	No of Replications = 3
		No of treatments = 4
	Plan of Work	Lemons (Fureka) were harvested from the orchard of Horticultural
	I full of Work	Research Institute Faisalabad Fruits were washed and sorted After
		washing subjected to above-mentioned treatments and then stored at
		washing, subjected to above-mentioned treatments and then stored at $10^{\circ}C_{\pm}$ 2 ⁰ C with relative humidity (00.05) % up to maximum accortable
		$10 \text{ C} \pm 2 \text{ C}$ with relative humidity (90-93) % up to maximum acceptable
		period. Data regarding skill color, minness, acturty, pri and weight loss
	D	was recorded after 5 days interval.
	Previous year's	Lemons projected storage life of twenty one days after curing at 33°C
	Results	and dipping in 2000ppm Sodium Carbonate solution for 3 min. (T_3)
		Table-9
14	TITLE	CONTROL OF CHILLING INJURY AND QUALITY
		RETENTION IN PLUM BY THE USE OF 1-MCP
	Objectives	Application of 1-MCP could provide adequate post storage quality,
		avoid cold storage disorders of Plum,
	Project duration	2013-2016
	Research Workers	Farah Shamim
		M.Asghar
		Zarina Yasmin
	Location	Post Harvest Research Centre, AARI, Faisalabad

	Treatments	T ₀ Control
		$T_1 = 0.5 \mu L/L 1$ -MCP at 0° C for 24 hours
		T ₂ 0 5µL/L 1-MCP at 0° C for 6 hours
		$T_3 = 0.5 \mu L/L$ 1-MCP at 10 ^o C for 24 hours
		$T_4 = 0.5 \mu L/L 1$ -MCP at 10 ^o C for 6 hours
	Layout Design	CRD (Factorial)
	Lujour Dosign	No. of Replications $=$ 3
		No. of treatments $= 5$
	Plan of Work	Plums (Santa Roza) was purchased at hard mature stage from local marke, and then shifted to the Post harvest Laboratory. After sorting and grading, soft plum was discarded. Washing was done with TBZ (200ppm for 2 min) then fruits were subjected to above-mentioned treatments and stored at $4^{\circ}C \pm 2^{\circ}C$ up to maximum acceptable period. Data regarding color, total sugar, firmness, TSS, weight loss was recorded after 2 days interval
	Previous Vear's	Plums treated with 0 5 μ /L 1-MCP at 10 ⁰ C for 24 hours and stored at
	Results	4^{0} C presented maintained quality for a period of twenty seven days. (T ₃) Table 10
15	TITLE	IMPACT OF OXALIC ACID ON POST HARVEST OUALITY OF
15		PFACH FRUIT
	Objectives	To evaluate the effects of oxalic acid on physiology of Peach fruit
	objectives	during storage at room temperature
	Research Workers	Irrum Babu
		Farah Shamim
		M Asghar
		M Liagat Ali
	Project Duration	2012 - 2015
	Location	Post Harvest Research Centre, AARI, Faisalabad
	Treatments	T ₀ Control
		T_1 5 mM Oxalic acid
		T ₂ 7 mM Oxalic acid
		T_3 10 mM Oxalic acid
	Layout Design	CRD (Factorial)
		No. of Replications $= 3$
		No. of treatments $= 4$
	Plan of Work	Peach fruit (sun crest) was collected from local market. After sorting and grading, fruit was dipped into different concentrations of oxalic acid for 10 min as mentioned above, packed in polyethylene bags (0.2mm thickness, 20perforations/bag) and stored at $4^{0}C\pm 2^{0}C$ up to maximum acceptable period. Data regarding skin color, firmness, Vitamin C, acidity, TSS and weight loss was recorded after two days interval
	Previous Year's	Fruit treated with 5mM Oxalic acid was found good in storability and
	Results	eating quality. (T_1) Table – 11
16	TITLE	IMPACT OF CHITOSAN FILM COATINGS COMBINED WITH PACKING ON QUALITY ATTRIBUTES OF CARROTS (<i>Daucus</i> <i>carota</i>)
	Objectives	To limit transpiration rate and to minimize adverse changes that lower the market value and taste properties of Carrot.

Research Workers	Farah Shamim
	Irrum Babu
	M. Liagat Ali
Project Duration	2012 - 2015
Location	Post Harvest Research Centre, AARI, Faisalabad
Treatments	T ₀ Control
	T_1 1% Chitosan Coating + packing in polyethylene bags
	$T_2 = 0.5\%$ Chitosan Coating + packing in polyethylene bags
	T_3 1% Chitosan Coating + packing in Styrofoam trays wrapped
	with PVC shrink film
	T_4 0.5% Chitosan Coating + packing in Styrofoam trays wrapped
	with PVC shrink film
Layout Design	CRD (Factorial)
, ,	No. of Replications $= 3$
	No. of treatments $= 5$
Plan of Work	Carrots (1-29) were procured from Vegetable Research Institute. After
	sorting and grading carrois was wasned with chiorinated water and
	subjected to treatments mentioned above. After treatment, vegetables
	were stored at $4 C \pm 2 C$ and $90-95 \%$ KH up to maximum acceptable
	yes recorded after 2 days interval
Dravious Vear's	Carrots treated with 1% Chitosan and packed in polyethylene bags were
	Carlots treated with 1% Cintosan and packed in polyentylene bags were
Doculto	found best in quality for 24 days (T.) Table 12
Results	found best in quality for 24 days. (T ₁) Table -12
Results TITLE	found best in quality for 24 days. (T ₁) Table – 12 APPLICATION OF DIFFERENT POST HARVEST
Results TITLE	found best in quality for 24 days. (T ₁) Table – 12 APPLICATION OF DIFFERENT POST HARVEST TREATMENTS ON QUALITY RETENTION OF BELL PEPPER
Results TITLE Objectives	found best in quality for 24 days. (T1)Table – 12APPLICATIONOFDIFFERENTPOSTHARVESTTREATMENTS ON QUALITY RETENTION OF BELL PEPPERTo prolong post harvest life by maintaining skin firmness and lowering
Results TITLE Objectives	 found best in quality for 24 days. (T₁) Table – 12 APPLICATION OF DIFFERENT POST HARVEST TREATMENTS ON QUALITY RETENTION OF BELL PEPPER To prolong post harvest life by maintaining skin firmness and lowering pathogenic load in Bell pepper.
Results TITLE Objectives Research Workers	found best in quality for 24 days. (T ₁) Table – 12 APPLICATION OF DIFFERENT POST HARVEST TREATMENTS ON QUALITY RETENTION OF BELL PEPPER To prolong post harvest life by maintaining skin firmness and lowering pathogenic load in Bell pepper. Zarina Yasmeen
Results TITLE Objectives Research Workers	found best in quality for 24 days. (T ₁) Table – 12 APPLICATION OF DIFFERENT POST HARVEST TREATMENTS ON QUALITY RETENTION OF BELL PEPPER To prolong post harvest life by maintaining skin firmness and lowering pathogenic load in Bell pepper. Zarina Yasmeen Farah Shamim
Results TITLE Objectives Research Workers	 found best in quality for 24 days. (T₁) Table – 12 APPLICATION OF DIFFERENT POST HARVEST TREATMENTS ON QUALITY RETENTION OF BELL PEPPER To prolong post harvest life by maintaining skin firmness and lowering pathogenic load in Bell pepper. Zarina Yasmeen Farah Shamim Malik Asghar
Results TITLE Objectives Research Workers Project Duration	found best in quality for 24 days. (T ₁) Table – 12 APPLICATION OF DIFFERENT POST HARVEST TREATMENTS ON QUALITY RETENTION OF BELL PEPPER To prolong post harvest life by maintaining skin firmness and lowering pathogenic load in Bell pepper. Zarina Yasmeen Farah Shamim Malik Asghar 2012 – 2015
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Results TITLE Objectives Research Workers Project Duration Location Treatments	found best in quality for 24 days. (T ₁) Table – 12 APPLICATION OF DIFFERENT POST HARVEST TREATMENTS ON QUALITY RETENTION OF BELL PEPPER To prolong post harvest life by maintaining skin firmness and lowering pathogenic load in Bell pepper. Zarina Yasmeen Farah Shamim Malik Asghar 2012 – 2015 Post Harvest Research Centre, AARI, Faisalabad T ₀ Control T ₁ HWT at 65 ^o C for 3min + packed in PE bags (20 µm) T ₂ Calcium chloride dipping (2%) + packed in PE bags (20 µm) T ₃ HWT at 65 ^o C for 3min + Calcium chloride dipping (2%) + packed in PE bags (20 µm) T ₄ HWT at 65 ^o C for 3min + packed in Polystyrene trays T ₅ Calcium chloride dipping (2%) + packed in Polystyrene trays
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Results TITLE Objectives Research Workers Project Duration Location Treatments	found best in quality for 24 days. (T ₁) Table – 12 APPLICATION OF DIFFERENT POST HARVEST TREATMENTS ON QUALITY RETENTION OF BELL PEPPER To prolong post harvest life by maintaining skin firmness and lowering pathogenic load in Bell pepper. Zarina Yasmeen Farah Shamim Malik Asghar 2012 – 2015 Post Harvest Research Centre, AARI, Faisalabad T ₀ Control T ₁ HWT at 65 ⁰ C for 3min + packed in PE bags (20 µm) T ₂ Calcium chloride dipping (2%) + packed in PE bags (20 µm) T ₃ HWT at 65 ⁰ C for 3min + Calcium chloride dipping (2%) + packed in PE bags (20 µm) T ₄ HWT at 65 ⁰ C for 3min + packed in Polystyrene trays T ₅ Calcium chloride dipping (2%) + packed in Polystyrene trays T ₆ HWT at 65 ⁰ C for 3min + Calcium chloride dipping (2%) + packed in Polystyrene trays
Results TITLE Objectives Research Workers Project Duration Location Treatments Layout Design	found best in quality for 24 days. (T ₁) Table – 12 APPLICATION OF DIFFERENT POST HARVEST TREATMENTS ON QUALITY RETENTION OF BELL PEPPER To prolong post harvest life by maintaining skin firmness and lowering pathogenic load in Bell pepper. Zarina Yasmeen Farah Shamim Malik Asghar 2012 – 2015 Post Harvest Research Centre, AARI, Faisalabad T ₀ Control T ₁ HWT at 65 ⁰ C for 3min + packed in PE bags (20 μ m) T ₂ Calcium chloride dipping (2%) + packed in PE bags (20 μ m) T ₃ HWT at 65 ⁰ C for 3min + calcium chloride dipping (2%) + packed in PE bags (20 μ m) T ₄ HWT at 65 ⁰ C for 3min + packed in Polystyrene trays T ₅ Calcium chloride dipping (2%) + packed in Polystyrene trays T ₆ HWT at 65 ⁰ C for 3min + Calcium chloride dipping (2%) + packed in Polystyrene trays CRD (Factorial)
Results TITLE Objectives Research Workers Project Duration Location Treatments Layout Design	found best in quality for 24 days. (T ₁) Table – 12 APPLICATION OF DIFFERENT POST HARVEST TREATMENTS ON QUALITY RETENTION OF BELL PEPPER To prolong post harvest life by maintaining skin firmness and lowering pathogenic load in Bell pepper. Zarina Yasmeen Farah Shamim Malik Asghar 2012 – 2015 Post Harvest Research Centre, AARI, Faisalabad T ₀ Control T ₁ HWT at 65 ^o C for 3min + packed in PE bags (20 µm) T ₂ Calcium chloride dipping (2%) + packed in PE bags (20 µm) T ₃ HWT at 65 ^o C for 3min + Calcium chloride dipping (2%) + packed in PE bags (20 µm) T ₄ HWT at 65 ^o C for 3min + packed in Polystyrene trays T ₅ Calcium chloride dipping (2%) + packed in Polystyrene trays T ₆ HWT at 65 ^o C for 3min + Calcium chloride dipping (2%) + packed in Polystyrene trays CRD (Factorial) No. of Replications = 3

	Plan of Work	Bell peppers (California Wonder) at mature green stage were procured from Progress Farmer (Haji Sons) Chinot. After manual grading and sorting, above mentioned treatments was applied along with anti fungal solution (Sodium Hypochlorite 1%) and stored at $10^{0}C\pm 2^{0}C$ with 85- 90% RH for further studies. Data regarding weight loss percentage, Color, firmness, acidity, TSS, Vitamin C and decay incidence % was determined after five days interval.
	Previous Year's	Bell pepper treated with Hot water, dipped in Calcium chloride and
	Results	packed in Polystyrene trays were found best for 16 days. (T_5) Table -13
18	TITLE	TRAINING ON POST HARVEST TECHNOLOGY OF FRUITS
		AND VEGETABLES
	Objectives	To educate the trainers for training (TOT), training of farmers (TOF) and community relating to trade of horticulture sector harvesting, handling, grading, packing, storage and marketing techniques of different fruits & vegetables.
	Research Workers	All technical staff
	Project Duration	Continuous
	Location	Major fruit and vegetable growing areas of the Punjab province Post Harvest Research Centre, AARI, Faisalabad
	Plan of Work	Different training programs will be arranged and conducted in the collaboration of other stake holders. The training will include lectures and practical demonstrations in respect of harvesting, handling, grading, packing, storage and processing techniques of fruits and vegetables
	Previous Year's Results	Training programmes/workshops at 10 different places were arranged throughout the Punjab on post harvest technology of fruits and vegetables and 682 participants benefited.