

Annual Review Meet Session 2022-23

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Content

- Trials conducted and their status
- Important projects and activities
- Compiled yield of all fruit varieties
- Compiled data of qualitative analysis of fruit varieties
- Data collected
- Cost incurred in research of fruit crops.



Trials Conducted and their status

1. Effect of Ethrel dipping duration on ripening of mango fruits var. VNR Umang
2. Effect of different rooting solutions on root growth of Moringa cuttings
3. Air-layering trial in Moringa
4. Effect of pruning on bearing habit of mango plants
5. Experiment on Number of fruits v/s the size of fruits
6. Color breaking trial in Lime and Lemon fruits
7. Inducing self pollination in Guava VNR Bihi : Phase-1
8. Inducing self pollination in Guava VNR Bihi : Phase-2



Trial -1 : Effect of Ethrel dipping duration on ripening of mango fruits var. VNR Umang

- **Objective** : To study the difference in fruit color and sweetness of mango fruits var. VNR Umang with different dipping duration of Ethrel
- **3 Treatments** : T1- Quick Dip, T2- 1min, T3- 2 mins and Check (not dipped at all). Dose of Ethrel used 13ml/10 liters of water. 10-10 fruits were used for each treatment. Fruits were observed every 24 hours for 2 days.
- **Date of experiment** – 10th May, 2022.
- **Date of Observation** – 12th May, 2022
- **Conclusion** : No significant difference was observed in appearance of the fruits as such. Naturally ripened fruits had highest TSS i.e. 18.7 °B, followed by T3- 18.2°B.



Trial -2 : Effect of different rooting solutions on root growth of Moringa cuttings

- **Objective** : To find one suitable solution or combination which gives healthy and best root development for multiplication of Moringa plants
- **8 treatment solutions**, which includes 1% Sucrose, 5% Ascorbic acid, 5% Citric acid, 10% Ascorbic acid + 10% Citric acid, 200 ppm Cultar, 400 ppm cultar, 600 ppm cultar and 1500 ppm IBA + 1500 ppm NAA. 45 cuttings were planted for each treatment.
- **Date of experiment** – 27th May, 2022.
- **Date of Observation** – 4th July, 2022
- **Conclusion** : Maximum but not much significant root development was observed in case of Sucrose 1% Solution (8%).



Trial -3 : Air-layering trial in Moringa

- **Objective** : To find out suitable root promoting solution having best root growth in air layered Moringa
- **3 Treatments** : T1- NAA 3000ppm, T2- IBA- 3000ppm, T3- Sucrose 1% and Water as check. Semi lignified branches used for treatment. Variety - Thar Harsha.
- **Date of experiment** – 22nd August, 2022.
- **Date of Observation** – 25th September, 2022
- **Conclusion** : Not successfull. Every layered branch dried.



Trial -4 : Effect of pruning on bearing habit of mango plants

- **Objective** : To estimate the effect number of branches to be kept in a whorl on the bearing habit of mango plants.
- **4 treatments include** - T1- 1 branch, T2- 2 branch, T3- 3 branch, T4- 4 branch, with Check (not pruned). Every treatment have 2 replications.
- **Date of experiment** – 21st Oct, 2022.
- **Date of Observation** – 2nd March, 2023
- **Status** – Not Concluded yet.



Trial -4 : Effect of pruning on bearing habit of mango plants

Variety Name	Plant Number	Number of branches in whorl	Flowering	Fruiting
Amrapali	1P	1	No	No
Dudhpenda	2P	1	Yes	Yes
Amrapali	4P	2	No	No
Vastara	4P	2	Yes	Yes
Dudhpenda	1P	2	No	No
Dudhpenda	3P	3	Yes	Yes
Dudhpenda	4P	4	Yes	Yes
Ratna	1P	Check	Yes	Not yet



Trial -5 : Experiment on Number of fruits v/s the size of fruits

- **Objective** : To study the effect of number of fruits kept per plant on the size of the Custard Apple VNR Madhur fruits
- 7 plants selected for **7 treatments** viz, T1- 5 fruits, T2- 10 fruits, T3- 15 fruits, T4- 20 fruits, T5- 25 fruits, T6- 30 fruits and T7- 34 fruits.
- **Date of experiment** – 15th September, 2022.
- **Date of Observation** – December, 2022
- **Conclusion** : No significant different was observed in fruit weight of all the treatments.



Trial -5 : Experiment on Number of fruits v/s the size of fruits

Plant Number	Number of fruits	Average Fruit weight (kg)
13P	5	196.5
9P	10	333.3
14P	15	290.7
7P	20	252.4
2P	24	318.9
5P	30	266.2
6P	35	259.5



Trial -6 : Color breaking trial in Lime and Lemon fruits

- **Objective** : To find out a suitable method which induces uniform color development in Lime and Lemon varieties
- **3 treatments** were used to induce color breaking in fruits.- 1. Covering with news paper, 2. Covering with gunny bag, 3. Dipping in Ethrel 500 ppm solution.
- **Date of experiment** – 6th December, 2022.
- **Date of Observation** –12th December, 2022
- **Conclusion** : Earliest color development was visible in Ethrel dipped fruits (Day 3 and 4). Most uniform color development was visible in fruit covered with Gunny bags in Day-5.



Trial -7 : Inducing self pollination in Guava VNR Bihi : Phase-1

- **Objective** : To find out the success rate of self pollination in guava crop.
- Flower buds of Guava VNR bihi were selected and bagged before anthesis to induce self polliantion.
- **Date of experiment** – 28th Nov, 2022.
- **Date of Observation** –2nd Feb, 2023.
- **Conclusion** : No seed formation was seen the fruits after 30 days of fruit set.



Trial -8 : Inducing self pollination in Guava VNR Bihi : Phase-2

- **Objective** : To find out the success rate of self pollination in guava crop.
- Flower buds of Guava VNR bihi were selected which were about to open a day after. Such flower buds were hand emasculated and then pollinated, and some were bagged and shaken next day at the time of flower opening.
- **Date of experiment** – 11th Feb, 2023.
- **Date of Observation** - 16th March, 2023
- **Status** - Ongoing



Important projects/activities throughout year



Guava Segregating Population

- Plants under 3rd fruiting season
- 1st season – April to July
- 2nd season – October to December
- 3rd season – January to Mid March
- Total population – 1655
- Population in 3rd season – 163
- Selected this season – 22
- Arka Rashmi X VNR Rubina – 2 plants
- Arka Poorna X BARC-22 – 10 plants
- Punjab Kiran X VNR Rubina – 10 plants
- Uprooted this season – 64



Parent cross : Arka Rashmi X VNR Rubina

Plant number	Months of harvesting	Number of fruits	Average Fruit weight (gm)	TSS (°Brix)	Pulp thickness (cm)	Width of seed cavity (cm)	Diameter (cm)	Pulp color	Pulp Hardiness	Plant Color	Seed Hardiness	Seed cavity	Fruit shape
30	Nov, Jan, Feb, Mar	7	150.0	15.8	2.0	1.2	7.0	Red	Soft	Green	Soft	Small	Oval
146	Oct, Nov, Dec, Feb	6	183.8	11.6	1.8	1.7	7.4	Red	Soft	Green	Soft	Medium	Oval



Parent Cross : Punjab Kiran X VNR Rubina

Plant number	Months of harvesting	Number of fruits harvested	TSS (°Brix)	Pulp color
1497	February	1	12.8	Red
1535	February	7	18, 17.3, 15.9, 14.6, 10.9, 14.2, 12.5	Red
1536	February	2	15.2, 14.1	Red
1543	February	2	14.8, 10.1	Red
1555	February	2	11.5, 14.5	Red
1572	February	3	14.1, 13.9, 11.1	Red
1626	December, February	4	10.9, 12.9, 12.3, 11.4	Red
1627	February	2	9.3, 17.8	Red
1638	January, February	5	16.8, 9.8, 15.9, 15.7, 19.4	Red
1652	February	2	13.9, 13.2	Red



Parent Cross : Arka Poorna X BARC-22

Plant number	Months of harvesting	Number of fruits	Average Fruit weight (gm)	TSS (°Brix)	Pulp thickness (cm)	Width of seed cavity (cm)	Diameter (cm)	Pulp color	Pulp Hardiness	Seed Hardiness	Seed cavity	Fruit shape
200	March	1	N/A	14.9	N/A	N/A	N/A	White	N/A	N/A	N/A	N/A
253	Jul, Mar	3	271.0	14.4	2.4	1.7	7.6	White	Hard	Soft	Medium	Spherical
289	Oct, Nov, Dec, Feb	11	372.9	11.0	2.3	2.2	8.9	White	Hard	Hard	Medium	Spherical
291	Nov, Jan, Feb	10	547.5	12.3	2.5	2.5	11.1	White	Hard	Hard	Medium	Oval
370	Jun, Nov, Jan, Feb	5	278.8	13.7	2.3	1.9	7.5	White	Hard	Hard	Medium	Spherical
394	Nov, Feb	2	330.0	11.9	2.8	1.6	8.8	White	Soft	Soft	Small to medium	Deformed
450	Jul, Nov, Dec, Feb	8	260.6	11.3	2.2	1.8	8.6	White	Hard	Hard	Small to medium	Spherical
481	Apr, Oct, Nov, Dec, Feb	16	410.3	13.0	2.3	2.4	9.0	White	Hard	Hard	Small to medium	Spherical
551	Jul, Oct, Feb	4	214.0	11.6	2.4	1.6	8.0	White	Hard	Hard	Small	Oval
599	Jul, Nov, Dec, Feb	7	389.4	12.3	2.5	1.9	9.1	White	Hard	Hard	Small to medium	Spherical to oval



Nematode Screening

- Started with laboratory Set-up
- Analyzed two samples of Polybag media of Guava VNR Bihi and Custard apple VNR Madhur.
- Analyzed both roots as well as media of the nursery plants.

Date of Observation	Sample Name	Soil sample (g)	Volume of extract (ml)	Nematode per quarter	Nematode in 5 ml of extract	Nematode population in sample	Nematode population per kg of soil
17-02-23	Sample-1	100	40	0	0	0	0
17-02-23	Sample-2	100	42	1	4	33	330



Nematode Screening

- [Report Generated of nematode screening](#)



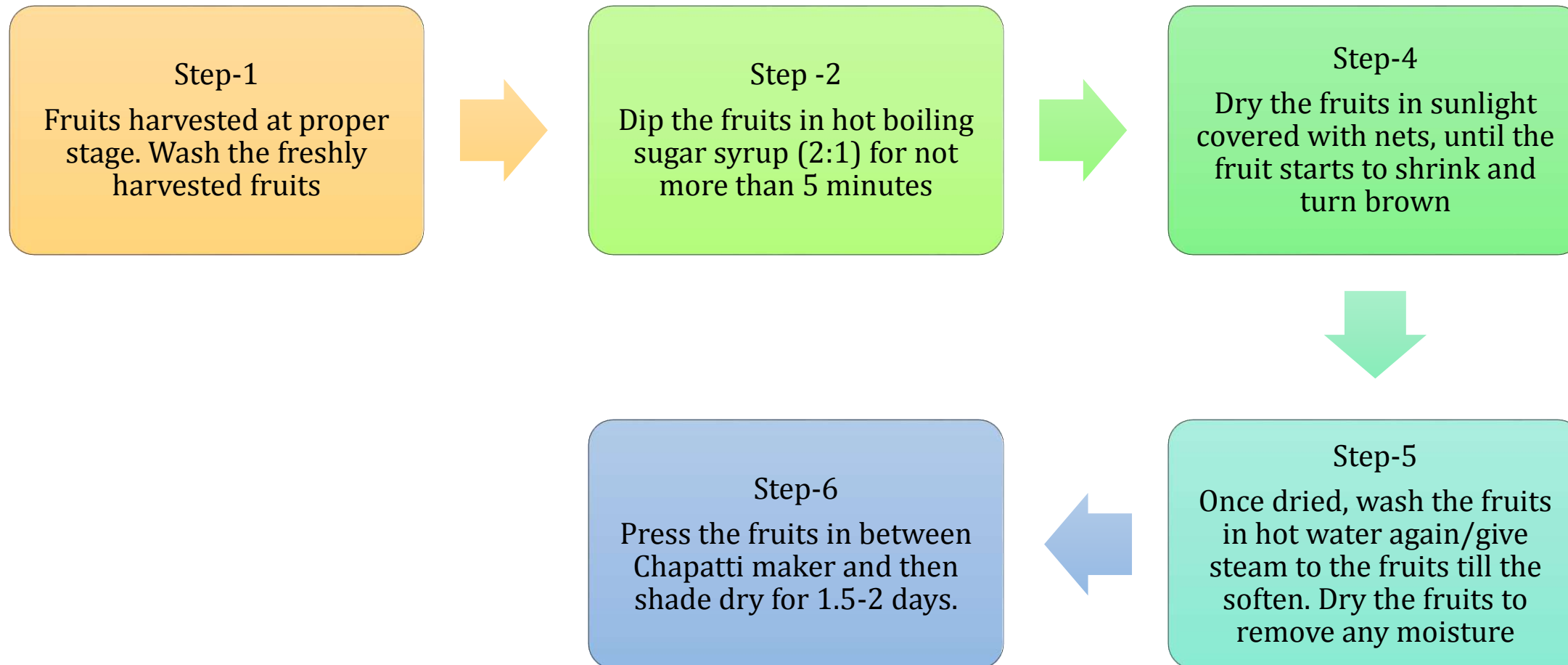
Media samples kept of extraction. Date : 15.02.23



Sample analyzed under microscope. Date : 17.02.23



Drying of Fig



Drying of Fig



Drying of fruits



Steaming the fruits



Dried, pressed fig fruits



Write-ups

- Writing content for the website
- Total varieties covered till now – 30
- Commercial varieties covered – 24
- Guava varieties covered – VNR Safal, VNR Magenta, VNR Crimson, VNR Rajat, VNR Carmine, VNR Rubina
- Custard Apple – VNR Madhur, VNR Uttam
- Lime – VNR Rasvanti, VNR Parvati, VNR Sameer, VNR-1
- Lemon – VNR Mahesh, VNR Sharbati
- Pummelo – VNR Crystal, VNR Amber
- Moringa – VNR Moringa
- Jackfruit – VNR-1, VNR Jack-E
- Starfruit – VNR Naval, Chakulia
- Bael – Goma Yashi, NB-7, NB-9, B-1 CISH
- Ber – VNR Apple Ber
- Fig – Deanna
- Grapefruit – VNR Lali

[Write-up of fruit crops](#)



Coding of Citrus Rootstocks and identification

Code assigned	Name of Rootstock	Number of fruit	Average Fruit weight (g)	Number of seeds
CR-1	Rootstock of Kinnow	9	91	170
CR-2	Rootstock of Nucellar	7	186	140
CR-3	Rangpur Lime	9	123	84
CR-4	Karna Khatta	9	112	103
CR-5	Rootstock of Lime Hybrid	N/A	N/A	N/A
CR-6	Trifoliolate	9	178	136
CR-7	Alemow	4	464	151
CR-8	Carrizo	3	61	28
CR-9	Jambheri	7	215	186
CR-10	Jamelo - 51P	5	119	146
CR-11	Jamelo - 81P	5	150	164
CR-12	Jamelo - 83P	5	160	147
CR-13	Jamelo - 87P	5	101	138



Coding of Citrus Rootstocks and identification



Cuttings of Citrus Rootstocks

Code	Date of Cutting	No. of Planting	Date of Shifting	Total Success	Success %	Discard Date	Cuttings Discarded
Code-1	25-Jan-2023	95	18-Mar-2023	14	15%	7-Mar-2023	81
Code-1	18-Jan-2023	104	18-Mar-2023	10	10%	7-Mar-2023	94
Code-2	18-Jan-2023	111	18-Mar-2023	24	22%	7-Mar-2023	87
Code-2	25-Jan-2023	105	18-Mar-2023	1	1%	7-Mar-2023	104
Code-3	24-Jan-2023	105	15-Mar-2023	17	16%	7-Mar-2023	88
Code-3	19-Jan-2023	104	16-Mar-2023	44	42%	7-Mar-2023	60
Code-4	24-Jan-2023	106	15-Mar-2023	26	25%	7-Mar-2023	76
Code-4	19-Jan-2023	102	16-Mar-2023	47	46%	7-Mar-2023	55
Code-5	19-Jan-2023	105	18-Mar-2023	22	21%	7-Mar-2023	83
Code-6	1-Jan-2023	110	15-Mar-2023	1	1%	7-Mar-2023	109
Code-6	19-Jan-2023	105	15-Mar-2023	1	1%	7-Mar-2023	104
Code-7	24-Jan-2023	104	16-Mar-2023	32	31%	7-Mar-2023	72
Code-7	19-Jan-2023	106	18-Mar-2023	61	58%	7-Mar-2023	45
Code-8	19-Jan-2023	99	18-Mar-2023	0	0%	7-Mar-2023	99
Code-9	24-Jan-2023	100	15-Mar-2023	1	1%	7-Mar-2023	99
Code-9	18-Nov-2022	104	16-Mar-2023	3	3%	7-Mar-2023	101
Code-9	19-Jan-2023	105	18-Mar-2023	11	10%	7-Mar-2023	94
Code-10	23-Jan-2023	171	15-Mar-2023	25	15%	7-Mar-2023	146
Code-11	23-Jan-2023	131	15-Mar-2023	10	8%	7-Mar-2023	121
Code-11	12-Jan-2023	105	18-Mar-2023	9	9%	7-Mar-2023	96
Code-12	23-Jan-2023	173	15-Mar-2023	9	5%	7-Mar-2023	164
Code-13	23-Jan-2023	174	15-Mar-2023	24	14%	7-Mar-2023	150

Compiled Yield of all the fruit varieties



Yield of Guava Varieties – Inplot

Plot Name	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing (ft.)	Number of pickings	Number of fruits	Quantity KG	Yield per plant (kg)	Yield per acre (kg)
A	VNR Bihi	L-49	31-May-2018	15	12 x 8 ft.	56	407	143.613	9.57	4337
A	VNR Magenta	L-49	26-Aug-2021	5	12 x 8 ft.	3	6	1.358	0.27	123
B	VNR Safal	L-49	20-Apr-2020	24	12 x 8 ft.	34	154	46.787	1.95	883
B	VNR Safal	L-49	20-Apr-2020	24	12 x 8 ft.	90	350	107.481	4.48	2029
C	Punjab Kiran	L-49	13-Sep-2017	1	12 x 8 ft.	23	36	6.936	6.94	3142
C	Hisar Surkha	L-49	10-May-2011	2	12 x 8 ft.	4	7	1.272	0.64	288
C	L - 49 Layering	Air layered	12-Feb-2014	1	12 x 8 ft.	5	12	1.885	1.89	854
C	Lalit	L-49	25-May-2012	1	12 x 8 ft.	10	15	1.984	1.98	899
C	Hisar Safeda	L-49	10-May-2011	1	12 x 8 ft.	3	5	0.81	0.81	367
C	Arka Kiran	L-49	10-May-2022	1	12 x 8 ft.	2	3	0.694	0.69	314
C	Arka Mridula	L-49	10-May-2022	1	12 x 8 ft.	1	2	0.302	0.30	137
D	VNR Safal	L-49	28-Dec-2018	2	12 x 8 ft.	7	25	6.508	3.25	1474
E	VNR Sahil	L-49	15-Dec-2019	5	12 x 8 ft.	27	110	40.136	8.03	201
E	VNR Rajat	L-49	30-Jan-2019	3	12 x 8 ft.	55	324	47.71	15.90	7204
E	Maxico	L-49	12-Sep-2020	1	12 x 8 ft.	9	45	2.024	2.02	917
E	VNR Rubina	L-49	30-Jan-2019	3	12 x 8 ft.	63	400	71.78	23.93	10839
E	Arka Pooran	L-49	21-Feb-2020	1	12 x 8 ft.	14	37	4.964	4.96	2249
E	Arka Rashmi	L-49	21-Feb-2020	1	12 x 8 ft.	12	23	3.763	3.76	1705
E	VNR Magenta 1P	Seedling	18-Feb-2020	1	12 x 8 ft.	16	43	8.594	8.59	3893
F	Thai Pink	L-49	13-Jul-2021	2	12 x 8 ft.	8	38	15.095	7.55	3419



Yield of Guava Varieties – Bharri Plot

Plot Name	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing	Number of pickings	Number of fruits	Quantity (Kg)	Average fruit weight (kg)	Yield per plant (kg)	Yield per acre (kg)
G	Aishwarya	L-49	24-Jan-2020	5	12 x 8 ft.	49	230	32.578	0.142	6.5	2952
J	Aishwarya	L-49	18-Feb-2021	9	12 x 8 ft	82	294	53.805	0.18	6.0	2708
J	Arka Poorna	L-49	18-Feb-2021	14	12 x 8 ft	85	287	63.294	0.22	4.5	2048
J	Arka Rashmi	L-49	3-Apr-2021	2	12 x 8 ft.	20	36	11.055	0.31	5.5	2504
G	Barafkhan	L-49	24-Jan-2020	1	12 x 8 ft.	10	38	3.788	0.10	3.8	1716
G	Dhawal	L-49	24-Jan-2020	5	12 x 8 ft.	56	253	38.158	0.15	7.6	3457
H	K - 9	L-49	30-May-2020	5	12 x 8 ft.	13	59	15.421	0.26	3.1	1397
G	L-49	Seedling	12-Apr-2017	2	12 x 8 ft	31	641	49.651	0.18	24.8	11246
H	Mexico	Seedling	27-Feb-2018	1	12 x 8 ft.	1	9	0.727	0.08	0.7	329
G	RS-1	Seedling	N/A	11	12 x 8 ft.	86	N/A	115.88	N/A	10.5	4772
G	VNR - TH	Seedling	2-Jan-2020	2	12 x 8 ft	6	14	2.549	0.18	1.3	577
J	VNR Carmine	L-49	18-Jan-2021	14	12 x 8 ft.	143	280	97.419	0.31	7.0	3152
G	VNR Crimson	L-49	14-Sep-2019	4	12 x 8 ft.	53	272	44.465	0.16	11.1	5036
G	VNR Safal	L-49	21-Apr-2020	10	12 x 8 ft.	18	35	9.93	0.28	1.0	450
J	VNR Safal	L-49	22-Sep-2020	33	12 x 8 ft.	17	18	7.562	0.42	0.2	104
J	VNR Sahil	L-49	22-Sep-2020	15	12 x 8 ft.	21	36	17.727	0.49	1.2	535
G	VNR Sahil	L-49	21-Apr-2020	15	12 x 8 ft	68	283	79.664	0.28	5.3	2406
H	Punjab Kiran	L-49	1-Jan-2020	5	12 x 8 ft.	26	187	21.039	0.11	4.2	1906



Yield of Lime Varieties – Bharri and Inplot

Plot Name	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing	Number of picking	Number of fruits	Quantity (kg)	Average fruit weight (kg)	Yield per plant (kg)	Yield per acre (kg)
H	PDKV - 1	(Seedling)	3-Jul-2018	3	12 x 8 ft.	3	30	1.142	0.038	0.38	172
H	Balaji	Seedling	22-May-2018	2	12 x 8 ft.	3	23	1.574	0.068	0.79	357
L	PDKV Bahar -1P	KN	25-Oct-2020	16	12 x 8 ft.	12	78	3.566	0.046	0.22	101
G	Rasraj	KK	7-Jul-2019	5	12 x 8 ft.	24	33	27.918	0.099	5.58	2529
G	Rasraj	Alemow	28-Aug-2019	2	12 x 8 ft.	10	33	4.218	0.128	2.11	955
G	Rasraj	Cutting	23-Dec-2017	3	12 x 8 ft.	4	8	2.018	0.125	0.67	305
G	Rasraj	JB	31-Aug-2017	1	12 x 8 ft.	4	14	2.22	0.170	2.22	1006
K	VNR Sameer	Seedling	2-Jan-2017	11	12 x 8 ft.	39	3024	183.061	0.061	16.64	7539
G	TH - BIG SIZE - 1P	KK	7-Jul-2019	5	12 x 8 ft.	21	638	42.304	0.066	8.46	3833
G	TH - BIG SIZE - 2P	KK	7-Jul-2019	5	12 x 8 ft.	29	565	44.642	0.079	8.93	4045
G	TH - BIG SIZE - 2P	Alemow	28-Aug-2019	2	12 x 8 ft.	12	121	8.829	0.073	4.41	2000
G	TH - BIG SIZE - 6P	KK	7-Jul-2019	5	12 x 8 ft.	35	734	60.699	0.083	12.14	5499
G	TH - LIME - PHICHIT	KK	7-Jul-2019	5	12 x 8 ft.	31	549	39.08	0.071	7.82	3541
G	TH - LIME - PHICHIT	Alemow	28-Aug-2019	2	12 x 8 ft.	5	41	2.362	0.058	1.18	535
G	VNR G2	NC	22-Apr-2020	7	12 x 8 ft.	48	1285	83.381	0.065	11.91	5396
L	VNR K-2	KN	25-Oct-2020	16	12 x 8 ft.	16	148	7.374	0.050	0.46	209
K	K-2	Seedling	18-Nov-2017	1	12 x 8 ft.	7	25	1.313	0.208	1.31	595



Yield of Lime Varieties – Bharri and Inplot

Plot Name	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing	Number of picking	Number of fruits	Quantity (kg)	Average fruit weight (kg)	Yield per plant (kg)	Yield per acre (kg)
K	K - 8	Seedling	18-Nov-2017	1	12 x 8 ft	14	210	10.025	0.050	10.03	4541
G	VNR K-10	NC	22-Apr-2020	4	12 x 8 ft	5	33	1.628	0.049	0.41	184
G	VNR Parvati	KK	7-Jul-2019	8	12 x 8 ft.	36	39	56.286	1.443	7.04	3187
G	VNR Parvati	Alemow	28-Aug-2019	2	12 x 8 ft.	10	50	7.414	0.148	3.71	1679
L	VNR Parvati -5P	KK	26-Oct-2020	16	12 x 8 ft.	10	63	7.211	0.114	0.45	204
G	VNR Parvati -5P	JB	4-Nov-2017	1	12 x 8 ft.	4	19	2.67	0.141	2.67	1210
B	VNR Parvati	Trifolate	1-Jun-2020	5	12 X 8ft	22	220	33.665	0.15	7.0	3050
G	VNR Rasvanti	KK	6-Aug-2019	3	12 x 8 ft.	14	9	14.438	1.604	4.81	2180
G	VNR Rasvanti	NC	6-Aug-2019	3	12 x 8 ft.	16	310	13.978	0.045	4.66	2111
G	VNR Rasvanti	JB	14-Nov-2017	2	12 x 8 ft.	14	237	0.464	0.026	0.23	105
H	Chakradhar	NC	20-Jan-2020	1	12 x 8 ft.	16	68	16.297	0.190	16.30	7383
G	NRCC-7	KK	7-Jul-2019	5	12 x 8 ft.	15	160	9.414	0.059	1.88	853
H	Phule Sharbati	Seedling	3-Jul-2018	3	12 x 8 ft.	9	122	9.886	0.081	3.30	1493
H	Pramalini	Seedling	3-Jul-2018	2	12 x 8 ft.	4	18	1.155	0.064	0.58	262
G	Sai Sharbati	KK	7-Jul-2019	3	12 x 8 ft.	6	32	1.734	0.054	0.58	262
K	T-Lime-4	Seedling	2-Jan-2017	1	12 x 8 ft.	19	134	8.57	0.064	8.57	3882
H	Vikram-1P	KN	8-Aug-2020	6	12 x 8 ft.	4	34	0.795	0.023	0.13	60



Yield of Lemon Varieties – Bharri and Inplot

Plot Name	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing	Number of pickings	Number of fruits	Quantity	Average fruit weight (kg)	Yield per plant (kg)	Yield per acre (kg)
G	Kagzi Kalan	RS	31-Aug-2017	2	12 x 10 ft.	10	142	12.262	0.053	6.13	2226
G	Konkan Lemon	KK	12-Nov-2017	7	12 x 10 ft.	13	1308	195.243	0.082	27.89	10125
G	Konkan Lemon	Alemow	28-Aug-2019	2	12 x 10 ft.	38	521	63.581	0.080	31.79	11540
G	Konkan Lemon	JB	24-Sep-2017	5	12 x 10 ft.	12	672	173.794	0.095	34.76	12617
G	Konkan Lemon	RL	24-Sep-2017	3	12 x 10 ft.	9	402	72.848	0.093	24.28	8815
G	Konkan Lemon	Cutting	12-Nov-2017	5	12 x 10 ft.	12	722	135.542	0.078	27.11	9840
G	Lemino	KK	6-Aug-2019	2	12 x 10 ft.	23	143	54.08	0.093	27.04	9816
G	Lemino	NC	6-Aug-2019	3	12 x 10 ft.	19	312	58.135	0.086	19.38	7034
G	Sharbati	KK	7-Jul-2019	5	12 x 10 ft.	24	521	43.722	0.084	8.74	3174
G	Sharbati	Alemow	28-Aug-2019	2	12 x 10 ft.	6	24	1.452	0.061	0.73	264
G	VNR Mahesh	KK	7-Jul-2019	10	12 x 10 ft.	34	405	63.746	0.157	6.37	2314
L	VNR Mahesh	KK	26-Oct-2020	16	12 x 10 ft.	24	280	50.299	0.180	3.14	1141
G	VNR Mahesh	Alemow	28-Aug-2019	2	12 x 10 ft.	10	99	11.236	0.113	5.62	2039
B	VNR Mahesh	Trifoliata	28-Apr-2020	5	12 x 10 ft.	18	776	116.959	0.15	23.4	8491
G	VNR Mahesh	JB	23-Dec-2017	1	12 x 10 ft.	13	174	24.279	0.140	24.28	8813
G	Hill Lemon	RS	23-Nov-2016	3	12 x 10 ft.	24	122	48.236	0.395	16.08	5837
H	Gandhraj Tripura	KK	15-May-2021	1	12 x 10 ft.	11	40	7.194	0.190	7.194	2611
Boundary	Pant Lemon	RS	9-Nov-2013	1	12 x 10 ft.	12	344	45.595	0.133	45.595	16551
D	VNR Sharbati		10-Jul-2011	1	12 x 10 ft.	3	5	1.272	0.2544	0.6	231



Yield of Pummelo Varieties – Bharri and Inplot

Plot Name	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing	Number of pickings	Number of fruits	Quantity	Average fruit weight (kg)	Yield per plant (kg)	Yield per acre (kg)
H	NP-1	RS	12-Dec-2018	4	15 X 10ft	13	37	29.756	0.804	7.44	2157
I	NP-1	NC	18-Apr-2020	25	15 X 10ft	8	19	19.225	1.012	0.77	223
G	VNR Amber	Alemow	28-Aug-2019	1	15 X 10ft	6	9	8.252	0.917	8.25	2393
B	VNR Amber	NC	18-Apr-2022	2	15 x 10 ft	13	29	36.37	1.25	18.19	5274
B	VNR Amber	KN	18-Apr-2022	2	15 x 10 ft	8	27	28.762	1.07	14.38	4170
H	VNR Crystal	JB	2-Nov-2018	5	15 X 10ft	32	73	78.753	1.079	15.75	4568
B	VNR Crystal	NC	18-Apr-2020	2	15 x 10 ft	6	10	14.467	1.45	7.23	2098
B	VNR Crystal	KN	18-Apr-2020	2	15 x 10 ft	4	5	6.718	1.34	3.36	974
H	NRCC - 5	RS	2-Sep-2018	4	15 X 10ft	26	77	64.633	0.839	16.16	4686
H	NRCC -5-2P	KN	3-Sep-2020	20	15 X 10ft	12	19	19.211	1.026	0.96055	279
H	VP - 1	RS	2-Sep-2018	3	15 X 10ft	6	7	7.422	1.060	2.47	717
G	NRCC -145	RS	28-Jul-2017	3	15 X 10ft	18	107	48.712	0.455	16.24	4709
G	NRCC - 145	KK	7-Jul-2019	5	15 X 10ft	1	9	5.947	0.661	1.1894	345
Boundary	Crystal-2	N/A	25-Mar-2011	1	15 X 10ft	6	23	29.318	1.193	29.318	8502



Yield of Citrus Varieties – Bharri and Inplot

Crop	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing	Number of pickings	Number of fruits	Quantity	Average fruit weight (kg)	Yield per plant (kg)	Yield per acre (kg)
Sweet Orange	Hamlin	RS	12-Dec-2018	5	15 X 10ft	6	12	1.435	0.103	0.29	83
Sweet Orange	Natal	RS	12-Dec-2018	5	15 X 10ft	3	3	0.739	0.246	0.15	43
Sweet Orange	Valencia	RS	12-Dec-2018	5	15 X 10ft	2	2	0.827	0.414	0.17	48
Sweet Orange	Cutter Valencia -3P	NC	28-Aug-2020	3	15 X 10ft	5	13	1.875	0.144	0.63	181
Sweet Orange	Cutter Valencia	Alemow	28-Aug-2020	2	15 X 10ft	5	15	1.869	0.125	0.93	271
Sweet Orange	Cutter Valencia	KK	7-Jul-2019	5	15 X 10ft	13	31	7	0.226	1.40	406
Sweet Orange	Katol Gold	Alemow	28-Aug-2019	2	15 X 10ft	9	20	3.849	0.192	1.92	558
Mandarin Orange	Daisy	Alemow	28-Aug-2019	2	15 X 10ft	8	45	5.061	0.105	2.53	734
Mandarin Orange	Daisy	NC	31-Jul-2019	4	15 X 10ft	12	49	8.928	0.096	2.23	647
Mandarin Orange	Daisy	RS	23-Nov-2016	5	15 X 10ft	16	215	14.966	0.070	2.99	868
Orange	Blood Red	RS	23-Nov-2016	5	15 X 10ft	24	209	32.509	0.147	6.50	1886
Orange	Blood Red - 2P	NC	26-Aug-2019	3	15 X 10ft	5	13	1.704	0.131	0.57	165
Orange	Blood Red - 5P	NC	26-Aug-2019	3	15 X 10ft	1	24	5.25	0.219	1.75	508
Orange	Tangelo	NC	17-Apr-2020	24	15 X 10ft	28	59	14.822	0.251	0.62	179
Orange	Orange TH Sweet	RS	6-Nov-2019	5	15 X 10ft	20	296	10.628	0.036	2.13	616
Orange	Nagpuri Santra	Alemow	28-Aug-2019	2	15 X 10ft	3	23	1.604	0.075	0.80	233
Orange	Kinnow	Alemow	28-Aug-2019	2	15 X 10ft	6	24	2.54	0.108	1.27	368
Orange	Kinnow	RS	23-Nov-2016	5	15 X 10ft	5	43	3.164	0.078	0.63	184
Sweet Lime	Nucellar	RS	9-Nov-2013	2	15 X 10ft	16	137	18.917	0.138	9.46	2743



Yield of Jackfruit Varieties – Bharri and Inplot

Plot Name	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing	Number of pickings	Number of fruits	Quantity	Average fruit weight (kg)	Yield per plant (kg)	Yield per acre (kg)
G	VNR - 1	Jackfruit	31-Aug-2017	2	15 x 10 ft.	18	23	140.044	6.09	70.0	20306
Boundary	VNR - 1	Jackfruit	19-Nov-2014	2	15 x 10 ft.	13	15	89.496	5.97	44.7	12977
I	VNR Jack - E	Jackfruit	2-Nov-2019	2	15 x 10 ft.	5	8	9.991	1.25	5.0	1449
I	Plant No. 386	Jackfruit	30-Oct-2019	1	15 x 10 ft.	13	14	32.628	2.33	32.6	9462
I	Plant No. 248	Jackfruit	30-Oct-2019	1	15 x 10 ft.	10	14	12.53	0.90	12.5	3634
G	Keral Varieties	Seedling	1-Sep-2017	7	15 x 10 ft.	2	2	9.92	4.96	1.4	411
C	Poloor - No - 1	Jackfruit	10-Feb-2012	1	15 x 10 ft.	5	11	69.854	6.35	69.85	20258
D	konkan Prolific	Jackfruit	19-Apr-2011	1	15 x 10 ft.	4	6	48.249	8.04	48.25	13992



Yield of Custard Apple Varieties – Bharri and Inplot

Plot Name	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing	Number of pickings	Number of fruits	Quantity	Average fruit weight (kg)	Yield per plant	Yield per acre (kg)
H	VS - 1	Balanagar	8-May-2018	19	12 x 8 ft.	47	182	55.382	0.304	2.91	1320
H	VNR MAdhur	Balanagar	5-Jun-2018	45	12 x 8 ft.	25	465	121.019	0.260	2.69	1218
H	VS - 2	Balanagar	8-May-2018	22	12 x 8 ft.	30	102	25.18	0.247	1.14	518
H	VNR Uttam	Balanagar	12-Jun-2018	25	12 x 8 ft.	20	210	70.772	0.337	2.83	1282
G	Trissure TN-3	Balanagar	28-Mar-2019	6	12 x 8 ft.	20	29	11.706	0.404	1.95	884



Yield of Starfruit Varieties – Bharri and Inplot

Plot Name	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing	Number of pickings	Number of fruits	Quantity (kg)	Yield per plant (kg)	Number of plants per acre	Yield per acre (kg)
H	VNR Naval	RS	28-Oct-2018	5	15 x 10 ft	32		190.21	38.0	290	11032
H	Sweet - 4	RS	8-Nov-2019	1	15 x 10 ft	11		20.69	20.7	290	6000
H	Kamrakh	RS		5	15 x 10 ft	16		406.536	81.3	290	23579
H	Big Size	Seedling	7-Jan-2019	6	15 x 10 ft	8		35.74	6.0	290	1727
B	Tripura	(Seedling)	13-Jun-2020	2	15 x 10 ft.	18	233	20.391	10.1955	290.4	2961
E	VNR Sweet - 4		8-Nov-2019	1	15 x 10 ft.	11	110	10.001	10.001	290.4	2904
F	Chakulia		10-Apr-2013	1	15 x 10 ft.	26	662	41.665	41.665	290	12083



Yield of Mango Varieties – Bharri and Inplot

Plot Name	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing	Number of pickings	Number of fruits	Quantity	Average fruit weight (kg)	Yield per plant (kg)	Yield per acre (kg)
H	Amrapali	Mango	15-Dec-2018	5	12 x 8 ft	11	28	5.099	0.18	1.0	462
G	Arka Aruna	Mango	14-Nov-2019	1	12 x 8 ft.	4	5	1.354	0.27	1.4	613
H	Anarkali	Mango	24-Jul-2019	2	12 x 8 ft.	7	18	3.462	0.19	1.7	784
H	BAIS - 15	Mango	4-Aug-2021	3	12 x 8 ft.	6	10	2.61	0.26	0.9	394
H	BAIS Baramasi	Mango	4-Aug-2020	2	12 x 8 ft.	7	26	4.801	0.18	2.4	1087
I	Dadamio	Mango	12-Jul-2021	5	12 x 8 ft.	7	11	2.822	0.27	0.6	256
H	Gulabkhas	Mango	24-Jul-2019	1	12 x 8 ft.	3	27	3.599	0.13	3.6	1630
H	Pusa Arunima	Mango	5-Oct-2018	3	12 x 8 ft.	12	38	9.474	0.25	3.2	1431
H	Pusa Lalima	Mango	27-Jul-2018	1	12 x 8 ft.	12	62	9.138	0.15	9.1	4140
H	Pusa Pratibha	Mango	27-Jul-2018	1	12 x 8 ft.	13	86	18.559	0.22	18.6	8407
G	Pusa Surya	Mango	14-Nov-2019	4	12 x 8 ft.	15	43	7.051	0.16	1.8	799
G	Ratna	Mango	14-Nov-2019	1	12 x 8 ft.	7	10	1.839	0.18	1.8	833
G	Rumani	Mango	14-Nov-2019	2	12 x 8 ft.	7	12	1.556	0.13	0.8	352
H	Sichan	Mango	24-Jul-2019	2	12 x 8 ft.	11	30	9.525	0.32	4.8	2157
G	VNR Mogra	Mango	5-Jan-2021	8	12 x 8 ft	4	16	2.768	0.17	0.3	157
H	VNR Suvarna	Mango	13-Dec-2018	1	12 x 8 ft.	6	40	7.476	0.19	7.5	3387
G	13-1 Rootstock	Mango	12-Jan-2020	9	12 x 8 ft.	9	19	3.426	0.18	0.38	172
H	Hushn Aara	Mango	24-Jul-2019	2	12 x 8 ft.	6	14	1.783	0.13	0.8915	404
H	Langra	Mango	24-Jul-2019	2	12 x 8 ft.	3	8	2.006	0.25	1.003	454
I	Neelam	Mango	12-Jul-2021	5	12 x 8 ft.	6	7	0.938	0.13	0.1876	85
H	Nandiraj	Mango	15-Dec-2018	1	12 x 8 ft.	2	11	1.638	0.15	1.638	742
Lawn	VNR Umang	Seedling	N/A	1	12 x 8 ft.	5	488	78.565	0.16	78.6	35649
Lawn	VNR Suvarna	Seedling	N/A	1	12 x 8 ft	4	221	63.71	0.29	63.7	28861
I	Pachhatio	Mango	12-Jul-2021	5	12 x 8 ft.	5	5	0.805	0.16	0.161	73

Yield of Jamun Varieties – Bharri and Inplot

Plot Name	Variety	Rootstock	Date of Plantation	Total Number of Plants	Spacing	Number of pickings	Quantity	Yield per plant (kg)	Yield per acre (kg)
G	CISH - J - 37	Jamun	1-Aug-2017	4	15 x 8 ft.	11	9.646	2.41	875
G	NDAU - J-6	Jamun	1-Aug-2017	4	15 x 8 ft.	4	1.282	0.32	116
Boundary	Goma Priyanka	Jamun	9-Nov-2013	4	15 x 8 ft.	10	20.044	5.01	1819
Boundary	Konkan BAHADOLI	Jamun	21-Nov-2009	1	15 x 8 ft.	4	10.12	10.12	3674
E	Chakuliya	Jamun	10-May-2007	1	15 x 8 ft.	5	2.026	2.026	735



Compiled Data of Qualitative Analysis of fruit varieties

- **Guava** – Aishwarya, Arka Poorna, Barafkhan, Dhawal, Hisar Surkha, KG-1, Lai-Ma-Lat, Mexico, Punjab Kiran, Thai Pink, VNR-TH, VNR Crimson, VNR Carmine, VNR Bihi, VNR Magenta, VNR Rajat, VNR Safal, VNR Sahil, Lalit
- **Lime** – VNR Parvati, VNR Rasvanti, VNR Sameer, K-2, K-4, K-8, K-18, VNR G-2, T-Lime-4, TH-Big Size, Rasraj, PDKV Bahar, Balaji, Chakradhar, Fule Sharbati, Sai Sharbati, Chinese, Lime Hybrid
- **Lemon** – VNR Mahesh, Kagzi Kalan, Gandhraj Tripura, Lemon Baramasi, Konkan, Lemino, Italian Seedless.
- **Pummelo**- VNR Crystal, VNR Amber, Crystal-2, NP-1, SPS-3P, NRCC-5
- **Mango** - Dadmio (1P), Arunika, Lal Mohan, Nandiraj, 13-1 Rootstock, Stina, Gulabkhas, VNR Umang, Amrapali, Himsagar, Hushn-aara, Bangan Palli, Dudh Penda, Pusa Surya, Chousa, BAIS-Baramasi, Sichan, Vastara (4P), Himayat, VNR Mongra, Ambika, Kesar, Vastara(3P), Pusa Pratibha, Amrapali, Baramasi, Anarkali, Pusa Lalima



Compiled Data of Qualitative Analysis of fruit varieties

- **Custard Apple** – VNR Madhur, VNR Uttam, VS-1, Lal Sitaphal, Trissur, VNR Yoga
- **Oranges** – Hamlin, Natal, Valencia, Katol Gold, Nucellar, JSO, Tangelo
- **Wax apple** – VNR Maroon
- **Bael** – Goma Yashi, NB-7, NB-9, B-1 CISH
- **Starfruit** – Chakuliya, VNR Naval, Tripura, American Sweet
- **Moringa** – PKM, VNR Moringa
- **Jackfruit** – VNR-1, VNR Jack-E, Plant No. 386, Plant No. 248
- **Fig** – Excel, Deanna, Pune
- **Mulberry** – Long Purple
- **Dragon fruit** – Red, White



Data Collected throughout year

- Harvesting data of both [Inplot](#) and [Bharri](#) Plot
- [Qualitative analysis](#) of fruit crops
- [Flowering and fruiting dates](#) of all fruit varieties
- [Crop calendar](#) for fruit crops
- [DUS Characters](#) of Guava, Jackfruit, Mango and Citrus Rootstocks



Cost Incurred in Research of Fruit Crops

S. No.	Particulars	Annual Cost (Rs)
1.	Pesticides consumed	792377.51
2.	Electricity Cost	242050.60
3.	Fertilizers consumed	614301.27
4.	Labour Cost at Bharri plot	1051100
5.	Labour Cost at Inplot	1355512.5
	Total	<u>40,55,341.8</u>



Thank You 😊

