FINDINGS AND DISCUSSION

CHAPTER IV

FINDINGS AND DISCUSSION

This chapter contains the results and discussions of the data gathered. The findings of the present investigation as obtained after the analysis of the data collected through questionnaire are described and discussed in this chapter. The findings have been supported by relevant interpretations and discussions. For systematic presentation of the results, the chapter has been divided into the following sections:

Section I: Demographic profile of the respondents

Section II: Extent of problems experienced by the users of their existing kitchen garden.

Section III: Extent of knowledge of the respondents regarding the household compost.

Section IV: Design development of Kitchen Garden for various spaces of a residence.

Section V: Development of booklet

Section VI: Intervention program for the respondents

Section I
Demographic Profile

4.1 Demographic profile of the respondents

According to Hayes (2022), Demographic analysis is the study of a population-based on factors such as age, race, and sex. Demographic data refers to socioeconomic information expressed statistically, including employment, education, income, marriage rates, birth, and death rates, and more. The demographic profile of the respondents was derived through questionnaire filled by the respondents. A descriptive analysis of the respondents is presented in this section.

The respondents were selected through purposive sampling method and the respondents were contacted through snowball technique method. Data collected from 200 respondents were analyzed for achieving the research objectives. The parameters for demographic profile of the respondents were family monthly income, type of family, number of family members, type of house, type of kitchen garden, ownership, area of the garden, shape of the garden and preparation of household compost at home.

4.1.1 Monthly Family Income (in Rupees) of the Respondents

While comparing the monthly family income of the respondents it was found that 29.50 per cent of the respondents belonged to 45,001 ₹ to 60,000 ₹, 25 per cent of the respondents belonged to 30,001 ₹ to 45,000 ₹. It was also found that only 16 per cent of the respondents belonged to 75,001 & above income group. Mean income of the respondents was ₹ 66,600.

Table 6: Distribution of the respondents according to their monthly family income in ₹ **n=200**

Sr. No.	Monthly Family Income in ₹	f	%
1.	Less than 30,000	34	17.00
2.	30,001 to 45,000	50	25.00
3.	45,001 to 60,000	59	**29.50**
4.	60,001 to 75,000	25	12.50
5.	75,001 & above	32	16.00
	Total	**200**	**100**
	Mean	**₹ 66,600**	

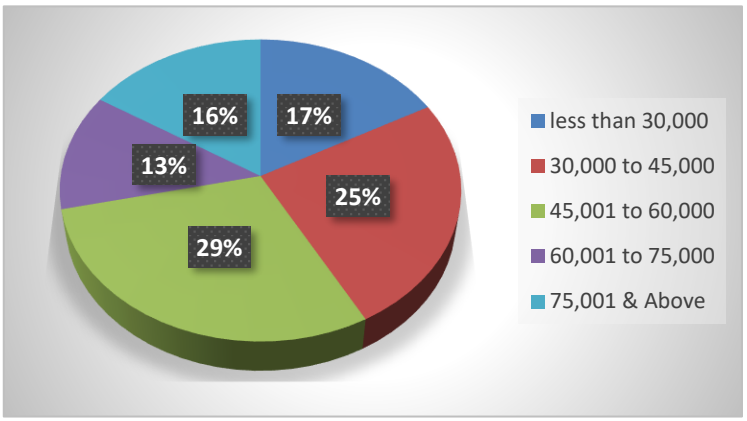


Figure 1: Percentage Distribution of Respondents according to their Monthly Family Income

4.1.2 Type of Family of the Respondents

Type of family was categorized as joint and nuclear. It was found from the gathered data that 63.50 per cent of the respondents were living in nuclear families and 36.50 per cent of the respondents were living in joint families.

Table 7: Distribution of the respondents according to their type of family

n=200

Sr. No.	Type of Family	f	%
1.	Joint	73	36.50
2.	Nuclear	127	**63.50**
	Total	**200**	**100**

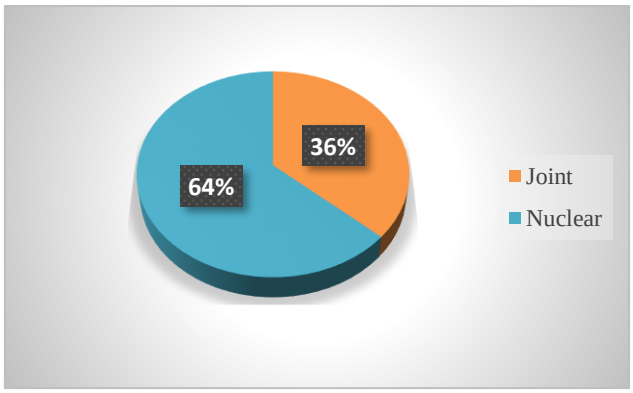


Figure 2: Percentage Distribution of Respondents according to their Type of Family

4.1.3 Number of Family Members

It was found from the data that 57 per cent of the respondents were having up to 4 members in their families, whereas 41 per cent of the respondents were having 5 – 8 members in their families and only 2 per cent of the respondents had more than 8 members in their families.

Table 8: Distribution of the respondents according to the number of family members **n=200**

Sr. No.	Number of Family Members	f	%
1.	01 – 04	114	**57.00**
2.	05 – 08	82	41.00
3.	More than 08	04	02.00
	Total	**200**	**100**

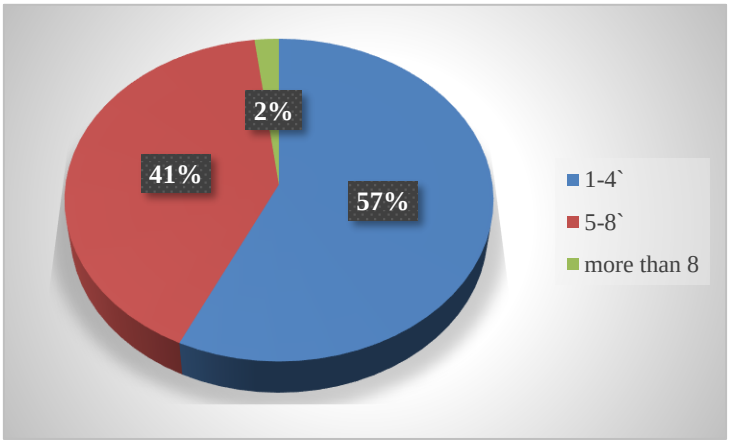


Figure 3: Percentage Distribution of The Respondents according to the Number of Family Members

4.1.4 Type of House

The type of house was categorized as bungalow, duplex, row house, flat and tenement. The data revealed that 33 per cent of the respondents were residing in flat, 23.5 per cent of the respondents were residing in tenements, 18 per cent of the respondents were residing in duplex, 17 per cent of the respondents were

residing in bungalow and 8.5 per cent of the respondents were residing in row houses.

Table 9: Distribution of the respondents according to the type of house

n=200

Sr. No.	Type of House	f	%
1.	Bungalow	34	17.00
2.	Duplex	36	18.00
3.	Row House	17	08.50
4.	Flat	66	**33.00**
5.	Tenement	47	23.50
	Total	**200**	**100**

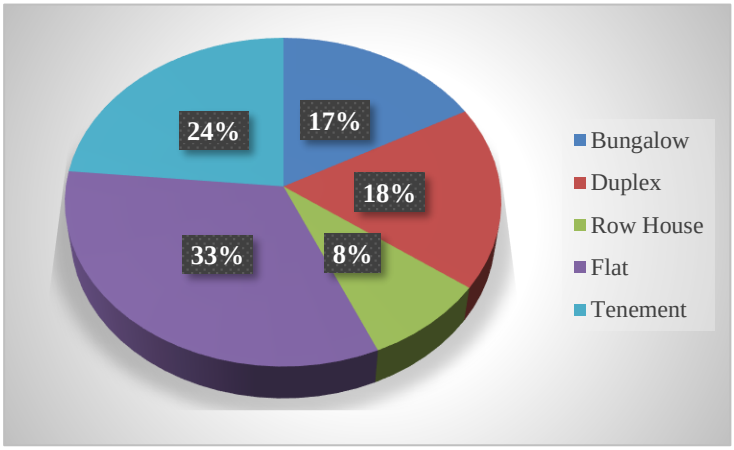


Figure 4: Percentage Distribution of the Respondents according to the Type of House

4.1.5 Type of Kitchen Garden

It was found that 33.21 per cent of the respondents were having container type of kitchen garden, 24.72 per cent of the respondents were having their kitchen garden on the land. Balcony kitchen garden was found in 23.25 per cent of the respondents' houses and only 12.92 per cent of the respondents had kitchen garden on their terrace.

Table 10: Distribution of the respondents according to the type of kitchen garden

n=200

Sr. No.	Type of Kitchen Garden	f	%
1.	Land	67	24.72
2.	Balcony	63	23.25
3.	Terrace	35	12.92
4.	Container	90	**33.21**
	Total	**255***	**100**

***Total increases due to multiple responses.**

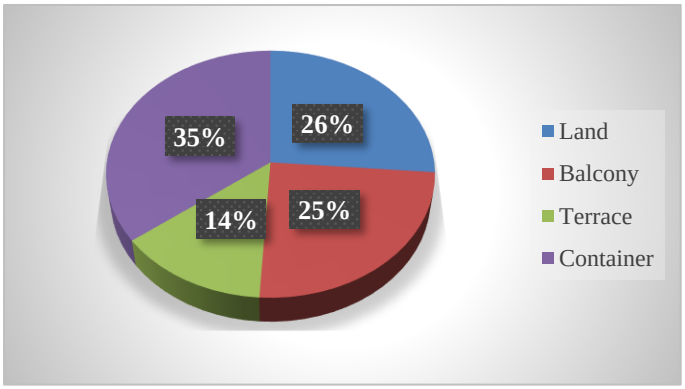


Figure 5: Percentage Distribution of the Respondents according to the Type of Kitchen Garden

4.1.6 Area of the Garden (in sq.ft.)

It was found that majority of the respondents (78 per cent) were having 50-200 sq.ft. area of the garden, 11 per cent had 201 - 350 sq.ft. area of the garden. 6 per cent of the respondents had area between 351 to 500 sq.ft. and only 5 per cent of the respondents had area of 501 to 750 sq.ft.

Table 11: Distribution of the respondents according to the area of the garden (in sq.ft.) **n=200**

Sr. No.	Area of the Garden (in sq.ft.)	f	%
1.	50 – 200	156	**78.00**
2.	201 – 350	22	**11.00**
3.	351 – 500	12	**06.00**
4.	501 - 750	10	**05.00**
	Total	**200**	**100**

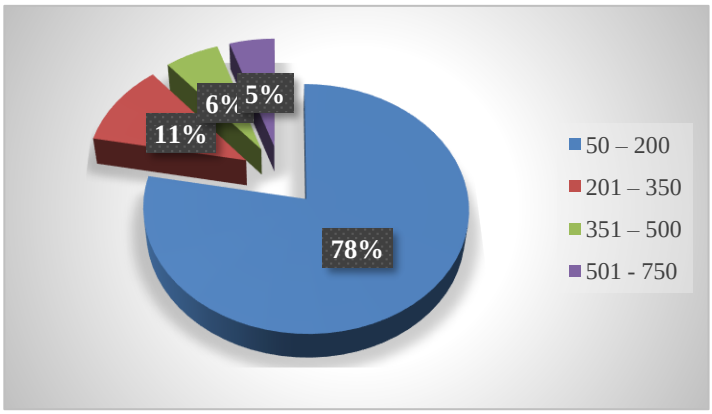


Figure 6: Percentage Distribution of the Respondents according to the Area of the Garden (In sq.ft.)

4.1.7 Shape of the Garden

It was found that 59.5 per cent of the respondents were having rectangle shape of their garden, 23.5 per cent of the respondents were having square shaped of their garden, 14 pe cent of the respondents had L- Shaped Garden and only 14 per cent of the respondents had U-Shaped Garden.

Table 12: Distribution of the respondents according to the shape of the garden **n=200**

Sr. No.	Shape of the Garden	f	%
1.	L-Shape	28	14.00
2.	Rectangle	119	**59.50**
3.	Square	47	23.50
4.	U-Shape	06	03.00
	Total	**200**	**100**

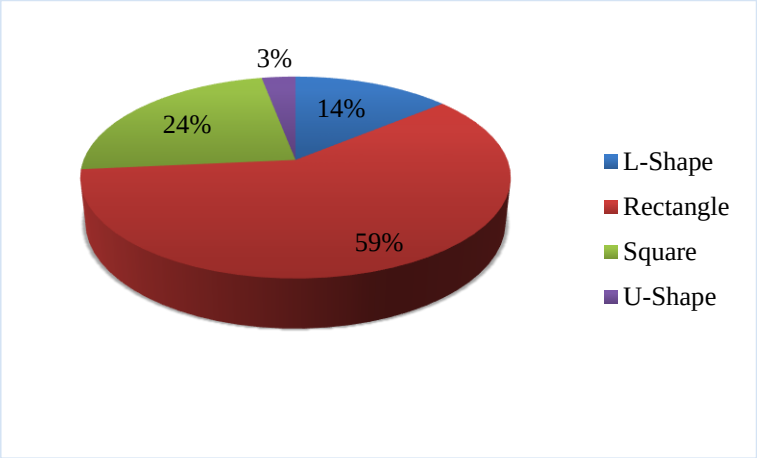


Figure 7: Percentage Distribution of the Respondents according to the Shape of the Garden

4.1.8 Preparation of Household Compost at Home

It was found that the majority of the respondents, (83.5 per cent) were not preparing household compost at their home and only 16.5 per cent of the respondents were making household compost from kitchen waste and garden waste.

Table 13: Distribution of the respondents according to the preparation of household compost at home n=200

Sr. No.	Preparation of Household Compost at Home	f	%
1.	Prepared	33	16.50
2.	Did not prepare	167	**83.50**
	Total	**200**	**100**

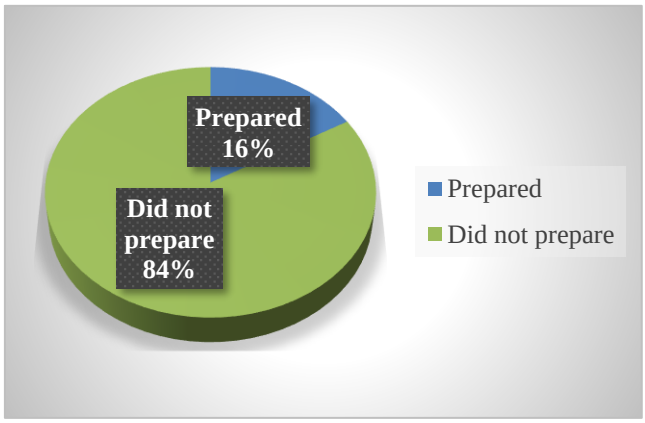


Figure 8: Percentage Distribution of the Respondents according to the Preparation of Household Compost at Home

Section II

4.2 Extent of problems experienced by the users of their existing kitchen garden

This section of the finding deals with the extent of problems experienced by the respondents related to their existing kitchen garden. In this section, various problems related to existing kitchen garden, such as, sunlight, water and drainage, soil, food crops and rotation, pollution, seedlings, plants, leaves, bud ends, and fruits were considered. The respondents were asked to respond to a 3-point continuum scale in Always, Sometimes and Never. The scores of 3 through 1 were ascribed to each of the statements which depicted the extent of the problem faced by the respondents. The possible range of score was divided into three categories having almost equal interval of number.

4.2.1 Extent of problems experienced by the respondents related to Sunlight in their kitchen garden.

In this section, the respondents were asked to respond regarding the problems related to sunlight in their kitchen garden in terms of Always, Sometimes and Never.

Table 14: Distribution of the respondents according to the problems experienced by respondents related to sunlight in their kitchen garden.

Sr. No.	Problems experienced by respondents related to sunlight in their kitchen garden	Respondents (n=200)						Weighted Mean Score (3-1)
		Always		Sometimes		Never		
		f	%	f	%	f	%	
1	Insufficient sunlight was available in the garden.	100	**50.00**	22	11.00	78	39.00	02.11
2	Excess of heat causes plants to get dry.	87	**43.50**	70	35.00	43	21.50	02.22
3	Harsh sunlight was entering in the garden.	116	**58.00**	28	14.00	56	28.00	02.30

Data revealed that 58 per cent of the respondents always experienced harsh sunlight entering in their garden. The data in Table 14 also revealed that 50 per cent of the respondents always experienced insufficient sunlight entering in their garden and 43.50 per cent of the respondents always experienced excess of heat causing plants to dry.

Table 15: Extent of problems experienced by the respondents related to sunlight in their kitchen garden.

Sr. No.	Extent of Problems	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	3 – 4	37	18.5
2.	Moderate	5 – 7	81	40.5
3.	High	8 – 9	82	**41**

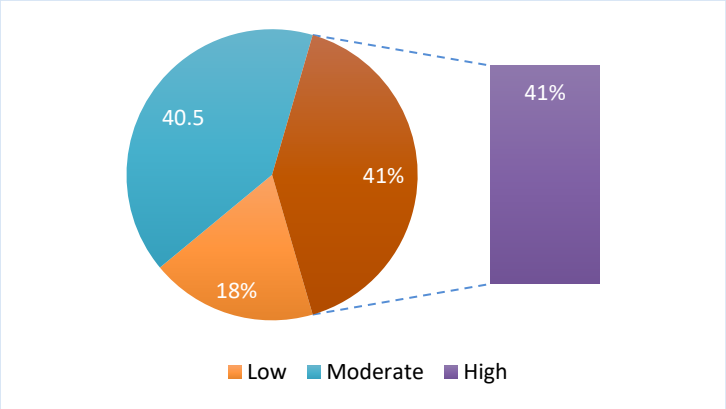


Figure 9: Extent of Problem experienced by the respondents related to sunlight in their kitchen garden

The data revealed that 41 per cent of the respondents experienced high extent of problems followed by 40.5 per cent of the respondents who experienced moderate extent of problems related to sunlight in their kitchen garden and 18.50 per cent of the respondents experienced low extent of problems related to sunlight in their kitchen garden.

4.2.2 Extent of problems experienced by the respondents related to water and drainage in their kitchen garden.

In this section, the respondents were asked to respond regarding the problems experienced related to water and drainage in their kitchen garden in terms of always, sometimes, and never.

Table 16: Distribution of the respondents according to problems experienced by respondents related to water and drainage in kitchen garden.

Sr. No.	Problems experienced by respondents related to water and drainage in kitchen garden	Respondents (n=200)						Weighted Mean Score (3-1)
		Always		Sometimes		Never		
		f	%	f	%	f	%	
1	Water-logging causes breeding of insects in the garden.	100	**50.00**	41	20.50	59	29.50	2.21
2	Waterlogging leads to growth of unwanted algae and fungi.	114	**57.00**	38	19.00	48	24.00	2.33
3	Water-logging causes death of certain plants due to air-blockage.	73	**36.50**	67	33.50	60	30.00	2.07
4	Waterlogging affects the growth of the food crops as roots get damaged due to access water.	84	**42.00**	68	34.00	48	24.00	2.18
5	Running water causes soil erosion in the garden.	74	**37.00**	61	30.50	64	32.00	2.04
6	Problem is faced in watering the kitchen garden.	64	32.00	55	27.50	81	**40.50**	1.92
7	Drainage system gets clogged easily	101	**50.50**	14	07.00	85	42.50	2.08

The data showed that 57 per cent of the respondents always experienced problems related to growth of unwanted algae and fungi due to waterlogging. Data also revealed that 50.50 per cent of the respondents always experienced problems related to clogged drainage system and 50 per cent of the respondents always experienced breeding of insects in the garden due to waterlogging.

Table 17: Extent of problems experienced related to water and drainage in kitchen garden.

Sr. No.	Extent of Problems	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	7 – 11	38	19
2.	Moderate	12 – 16	80	40
3.	High	17 – 21	82	**41**

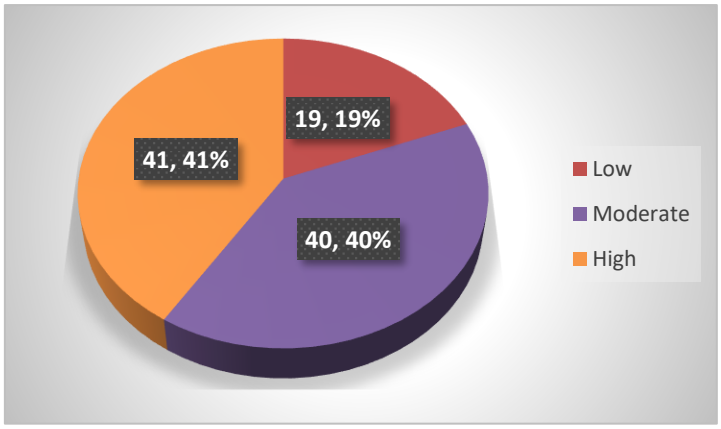


Figure 10: Extent of Problem experienced related to water and drainage in kitchen garden

Table 17 revealed that 41 per cent of the respondents experienced high extent of the problem related to water and drainage in their kitchen garden whereas, 40 per cent of the respondents faced moderate extent of problems related to water and drainage and 19 per cent of the respondents experienced low extent of problems related to water and drainage.

4.2.3 Extent of problems experienced by the respondents related to soil in their kitchen garden.

In this section, the respondents were asked to respond regarding the problems experienced related to soil in their kitchen garden in terms of always, sometimes, and never.

Table 18: Distribution of the respondents according to problems experienced by respondents related to soil in kitchen garden.

Sr. No.	Problems experienced by respondents related to soil in kitchen garden	Respondents (n=200)						Weighted Mean Score (3-1)
		Always		Sometimes		Never		
		f	%	f	%	f	%	
1	Walls of the building get dirty because of soil of the garden.	77	38.50	84	**42.00**	39	19.50	2.19
2	Need for regular removal of weed is time consuming.	76	38.00	98	**49.00**	26	13.00	2.25
3	Infestation of harmful pests in the garden.	129	**64.50**	30	15.00	41	20.50	2.44

Data in Table 18 revealed that 64.50 per cent of the respondents always faced problems of infestation of harmful pests in the garden. Table 18 also revealed that 49 per cent of the respondents sometimes experienced problems regarding need for removal of weeds, which is time consuming, and 42 per cent of the respondents sometimes experienced problems with walls getting dirty due to soil of the garden.

Table 19: Extent of problems experienced related to soil in kitchen garden.

Sr. No.	Extent of Problems	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	3 – 4	15	07.50
2.	Moderate	5 – 7	61	30.50
3.	High	8 – 9	124	**62.00**

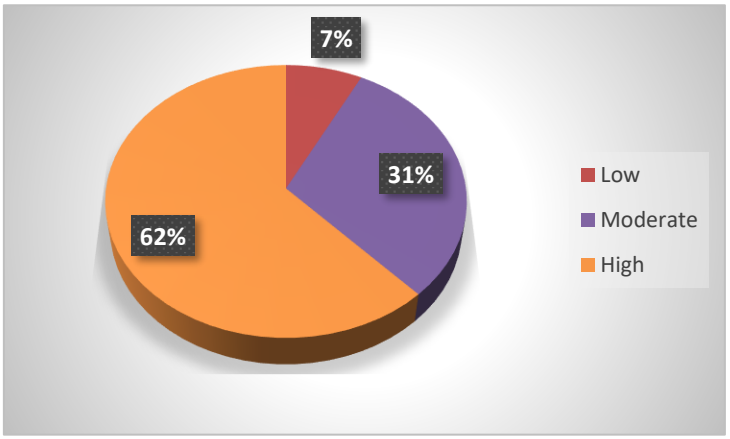


Figure 11: Extent of Problem experienced related to soil in kitchen

Data revealed that 62 per cent of the respondents experienced high extent of problems related to soil in their garden. It further revealed that only 07.50 per cent of the respondents faced low extent of problems related to soil in their garden and 30.50 per cent of the respondents experienced moderate extent of problems related to soil in kitchen garden.

4.2.4 Extent of problems experienced by the respondents related to food crops and rotation in their kitchen garden.

In this section, the respondents were asked to respond regarding the problems experienced related to food crops and rotation in their kitchen garden in terms of always, sometimes, and never.

Table 20: Distribution of the respondents according to problems experienced by respondents related to food crops and rotation in kitchen garden.

Sr. No.	Problems experienced by respondents related to food crops and rotation in kitchen garden	Respondents (n=200)						Weighted Mean Score (3-1)
		Always		Sometimes		Never		
		f	%	f	%	f	%	
1	Restriction in choice of food crops due to soil and climate conditions.	86	43.00	90	**45.00**	24	12.00	2.31
2	Difficulty in placement of food crops due to size of the garden.	59	29.50	97	**48.50**	44	22.00	2.08
3	Difficulty in placement of food crops due to shape of the garden.	67	33.50	79	**39.50**	54	27.00	2.07

4	Limited flexibility in plant rotation (changing the type of plant) due to soil.	101	**50.50**	70	35.00	29	14.50	2.36
5	Limited flexibility in plant rotation (changing the type of plant) due to climate condition.	93	**46.50**	82	41.00	25	12.50	2.34
6	Limited flexibility in plant rotation (changing the type of plant) due to space.	97	**48.50**	48	24.00	55	27.50	2.21
7	Limited flexibility in plant rotation (changing the type of plant) due to excess of heat.	111	**55.50**	41	20.50	48	24.00	2.32
8	Food crops are not fully grown in containers.	97	**48.50**	68	34.00	35	17.50	2.31
9	Yield of the food crops are not enough for the family.	89	**44.50**	84	42.00	27	13.50	2.31
10	Quality of fruits and vegetables grown in containers is lower than that grown in land.	108	**54.00**	57	28.50	35	17.50	2.37
11	Problem is faced in maintaining the quality of soil which in-turn affects the growth and life of the food crops.	84	**42.00**	71	35.50	45	22.50	2.20
12	Problem is faced in protecting the food crops from the untamed animals; like, monkeys, birds, etc.	87	**43.50**	82	41.00	31	15.50	2.28

The data revealed that 55.50 per cent of the respondents always experienced limited flexibility in plant rotation due to excess of heat. It also showed that 50.50 per cent of the respondents always experienced limited flexibility in plant rotation due to soil.The data also revealed that 48.5 per cent of the respondents always experienced limited flexibility in plant rotation due to space and food crops are not fully grown in containers, whereas; 48.5 per cent of the respondents sometimes faced difficulty in placement of food crops due to size of the garden and 45 per cent of the respondents sometimes faced problems in restriction in choice of food crops due to soil and climate conditions.

Table 21: Extent of problems experienced related to food crops and rotation in kitchen garden.

Sr. No.	Extent of Problems	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	12 – 19	13	06.50
2.	Moderate	20 – 28	58	29.00
3.	High	29 – 36	129	**64.50**

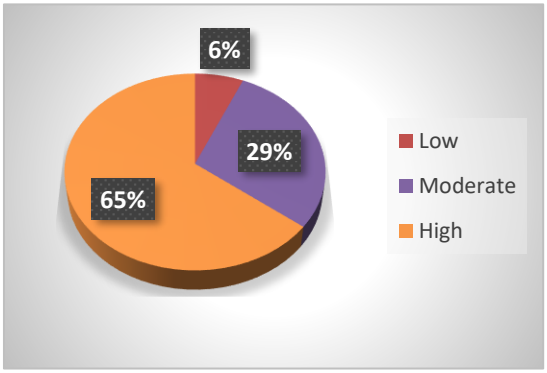


Figure 12: Extent of Problem experienced related to food crops and rotation in kitchen garden

Data in Table 21 revealed that 64.50 per cent of the respondents experienced high extent of problems with food crops and rotation in their kitchen garden. It was also revealed that 29 per cent of the respondents faced moderate extent of problems and 06.50 per cent of the respondents experienced low extent of problems with food crops and rotation in their kitchen garden.

4.2.5 Extent of problems experienced by the respondents related to pollution in their kitchen garden.

In this section, the respondents were asked to respond regarding the problems experienced related to pollution in their kitchen garden in terms of always, sometimes, and never.

Table 22: Distribution of the respondents according to problems experienced by respondents related to pollution in kitchen garden.

Sr. No.	Problems experienced by respondents related to pollution in kitchen garden	Respondents (n=200)						Weighted Mean Score (3-1)
		Always		Sometimes		Never		
		f	%	f	%	f	%	
1	Odour in the kitchen garden which makes it impossible for the people to sit and use it.	89	44.50	21	10.50	90	**45.00**	2.00
2	Problem is faced in maintaining cleanliness in the kitchen garden.	80	**40.00**	61	30.50	59	29.50	2.11
3	Difficulty in maintaining the food crops due to pollution.	80	**40.00**	68	34.00	52	26.00	2.14

The data reflected that 40 per cent of the respondents always experienced problem in maintaining cleanliness in the kitchen garden and difficulty in maintaining the food crops due to pollution. It also showed that 45 per cent of the respondents never experienced problem regarding the odour in the kitchen garden.

Table 23: Extent of problems experienced related to pollution in kitchen garden.

Sr. No.	Extent of Problems	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	3 – 4	29	14.50
2.	Moderate	5 – 7	41	20.50
3.	High	8 – 9	130	**65.00**

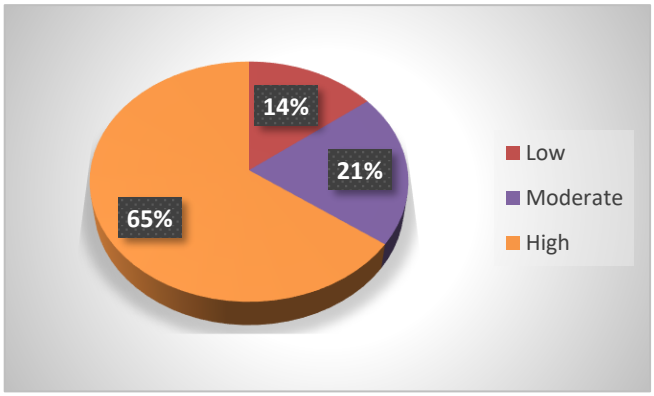


Figure 13: Extent of Problem experienced related to Pollution in kitchen garden

The data in the above Table revealed that 65 per cent of the respondents experienced high extent of problems related to pollution in their kitchen garden, followed by 20.50 per cent of the respondents experiencing moderate extent of problem and 14.50 per cent of the respondents experienced low extent of problems regarding the pollution in their kitchen garden.

4.2.6 Extent of problems experienced by the respondents related to seedlings in their kitchen garden.

In this section, the respondents were asked to respond regarding the problems experienced related to seedlings in their kitchen garden in terms of always, sometimes, and never.

Table 24: Distribution of the respondents according to problems experienced by respondents related to Seedlings in kitchen garden.

Sr. No.	Problems experienced by respondents related to Seedlings in kitchen garden	Respondents (n=200)						Weighted Mean Score (3-1)
		Always		Sometimes		Never		
		f	%	f	%	f	%	
1	Seedlings do not emerge after sowing as not enough time has passed for germination.	102	**51.00**	63	31.50	35	17.50	2.34
2	Seedlings do not emerge after sowing as temperatures is too cold.	95	**47.50**	49	24.50	56	28.00	2.20
3	Seedlings do not emerge after sowing as soil is too dry.	78	**39.00**	49	24.50	73	36.50	2.03

4	Seedlings do not emerge after sowing as soil is too wet; seeds rotted.	106	**53.00**	39	19.50	55	27.50	2.26
5	Seedlings do not emerge after sowing as birds or insects ate seeds	100	**50.00**	52	26.00	48	24.00	2.26
6	Seedlings do not emerge after sowing as seed was too old, no longer viable.	93	**46.50**	54	27.00	53	26.50	2.20
7	Seedlings wilt and fall over and young plants die soon due to dry soil.	119	**59.50**	30	15.00	51	25.50	2.34
8	Seedlings wilt and fall over and young plants die soon due to damping off (fungal disease).	126	**63.00**	25	12.50	49	24.50	2.39
9	Seedlings wilt and fall over and young plants die soon due to rotting roots or stems.	111	**55.50**	37	18.50	52	26.00	2.30
10	Seedlings wilt and fall over and young plants die soon due to fertilizer burn.	116	**58.00**	24	12.00	60	30.00	2.28
11	Seedlings wilt and fall over and young plants die soon due to cutworms.	102	**51.00**	41	20.50	57	28.50	2.23
12	Seedlings wilt and fall over and young plants die soon due to root maggots.	104	**52.00**	59	29.50	37	18.50	2.34
13	Seedlings wilt and fall over and young plants die soon due to old seed.	108	**54.00**	49	24.50	43	21.50	2.33

The data revealed that 63 per cent of the respondents always experienced problems with wilting and falling over of seedlings and young plants dying due to fungal disease. It also showed that 59.5 per cent of the respondents always experienced problems with wilting and falling over of seedlings and young plants dying due to dry soil and 58 per cent of the respondents always experienced the problem due to fertilizer burn. 55.5 per cent of the respondents always experienced problems with wilting of seedlings and dying of young plants due to rotting roots and stems and 54 per cent of the respondents always experienced problems due to old seed. Data showed that 53 per cent of the respondents always experienced problem of rotted seeds due to excessively wet soil which resulted in non-emerging of seedlings after sowing.

Table 25: Extent of problems experienced related to Seedlings in kitchen garden.

Sr. No.	Extent of Problems	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	13 – 21	18	09.00
2.	Moderate	22 – 30	83	41.50
3.	High	31 – 39	99	**49.50**

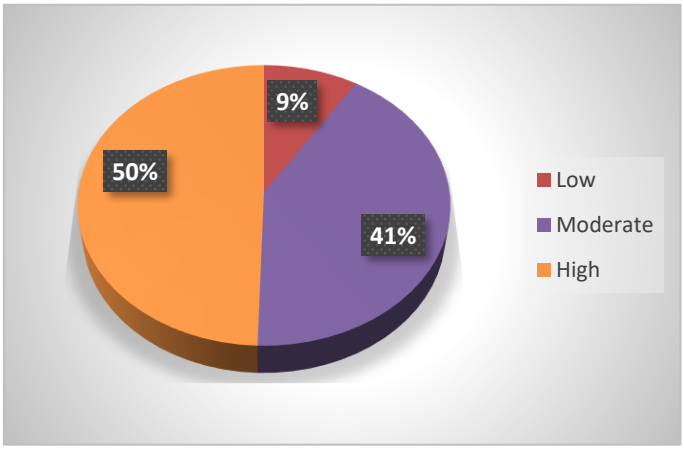


Figure 14: Extent of Problem experienced related to seedlings in kitchen garden

Data in Table 25 confirmed that 49.5 per cent of the respondents experienced high extent of problems related to seedlings in their kitchen garden. It also showed that 41.5 per cent of the respondents experienced moderate extent of the problem and 9 per cent of the respondents experienced low extent of the problem related to seedlings in their kitchen garden.

4.2.7 Extent of problems experienced by the respondents related to plants in their kitchen garden.

In this section, the respondents were asked to respond regarding the problems experienced related to plants in their kitchen garden in terms of always, sometimes, and never.

Table 26: Distribution of the respondents according to problems experienced by respondents related to plants in kitchen garden.

Sr. No.	problems experienced by respondents related to plants in kitchen garden	Respondents (n=200)						Weighted Mean Score (3-1)
		Always		Sometimes		Never		
		f	%	f	%	f	%	
1	Young plants wilt due to lack of moisture in soil.	105	**52.50**	55	27.50	40	20.00	2.33
2	Young plants wilt due to too much water; poor drainage or waterlogged soil.	97	**48.50**	57	28.50	46	23.00	2.26
3	Young plants wilt due to disease.	102	**51.00**	45	22.50	53	26.50	2.25
4	Young plants wilt due to root rot (fungal disease).	101	**50.50**	33	16.50	66	33.00	2.18
5	Young plants wilt due to Vascular wilt (fungal disease often affecting tomato, potato, eggplant, pepper).	99	**49.50**	29	14.50	72	36.00	2.14
6	Plants are weak and spindly due to not getting enough light; too much shade.	95	**47.50**	56	28.00	49	24.50	2.23
7	Plants are weak and spindly due to too much water.	77	**38.50**	74	37.00	49	24.50	2.14
8	Plants are weak and spindly due to plants are crowded, spaced too close to each other.	96	**48.00**	56	28.00	48	24.00	2.24
9	Plants are weak and spindly due to too much nitrogen.	86	**43.00**	42	21.00	72	36.00	2.07
10	Plants grow slowly; leaves are light green due to insufficient light in the garden, or the garden is shaded.	103	**51.50**	37	18.50	60	30.00	2.22
11	Plants grow slowly; leaves are light green due to the cool weather and the temperature too low.	101	**50.50**	38	19.00	61	30.50	2.20
12	Plants grow slowly; leaves are light green due to too much water.	101	**50.50**	40	20.00	59	29.50	2.21
13	Plant growth is stunted, and leaves are pale yellow and sickly looking due to soil nutrient deficiency.	114	**57.00**	33	16.50	53	26.50	2.31

14	Plant growth is stunted, and leaves are pale yellow and sickly looking due to Compacted soil and not draining.	115	**57.50**	26	13.00	59	29.50	2.28
15	Plant growth is stunted, and leaves are pale yellow and sickly looking due to acid soil; pH is low.	91	**45.50**	39	19.50	70	35.00	2.11
16	Plant growth is stunted, and leaves are pale yellow and sickly looking due to Insects or diseases.	100	**50.00**	9	04.50	61	30.50	1.90
17	Plant growth is stunted, and leaves are pale yellow and sickly looking due to Yellow or wilt disease, especially if yellowing attacks one side of the plant first.	95	**47.50**	33	16.50	72	36.00	2.12

Data in above Table 26 revealed that 57.50 per cent of the respondents always experienced problems of stunted plant growth and pale-yellow leaves due to compacted soil and not draining. It also revealed that 57 per cent of the respondents always experienced problem of stunted plant growth and pale-yellow leaves due to deficiency of soil nutrients. It was revealed that 52.50 per cent of the respondents always experienced problem of wilting of young plants due to lack of moisture in soil. Also, 51.50 per cent of the respondents always experienced problem of slow plant growth and light green leaves due to insufficient light in the garden, whereas; 51 per cent of the respondents always faced problems with young plants wilting due to disease.

Table 27: Extent of problems experienced related to plants in kitchen garden.

Sr. No.	Extent of Problems	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	17 – 28	16	08.00
2.	Moderate	29 – 39	80	40.00
3.	High	40 – 51	104	**52.00**

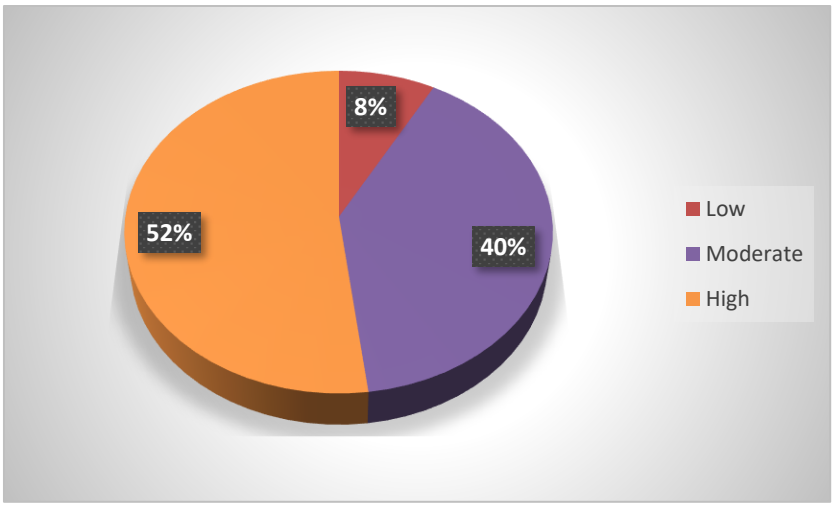


Figure 15: Extent of Problem experienced related to plants in kitchen

Table 23 showed that 52 per cent of the respondents experienced high extent of problems related to plants in their kitchen garden. Whereas 40 per cent of the respondents experienced moderate extent of problems and 8 per cent of the respondents experienced low extent of problems in their kitchen garden.

4.2.8 Extent of problems experienced by the respondents related to leaves in their kitchen garden.

In this section, the respondents were asked to respond regarding the problems experienced related to leaves in their kitchen garden in terms of always, sometimes, and never.

Table 28: Distribution of the respondents according to problems experienced by respondents related to leaves in kitchen garden.

Sr. No.	Problems experienced by respondents related to leaves in kitchen garden	Respondents (n=200)						Weighted Mean Score (3-1)
		Always		Sometimes		Never		
		f	%	f	%	f	%	
1	Leaves yellow but do not wilt as there is nutrient or mineral deficiency.	93	**46.50**	44	22.00	63	31.50	2.15
2	Leaves yellow but do not wilt as there is insufficient light; too much shade.	96	**48.00**	47	23.50	57	28.50	2.20
3	Leaves mottle yellow and green, mosaic pattern and Leave pucker leaves; stunted plants due to virus disease.	89	**44.50**	44	22.00	67	33.50	2.11

4	Leaves and stems are spotted; darkened spots on stems and leaves and seedlings turn brown and die due to fertilizer or chemical burn; fertilizer placed directly on plant tissue or too much fertilizer added to soil.	100	**50.00**	41	20.5	59	29.50	2.21
5	Brown spots on leaves due to fertilizer or chemical burn.	106	**53.00**	49	24.5	45	22.50	2.31
6	Brown spots on leaves due to fertilizer placed directly on plant and chemical placed on plant or drifted on wind to plant.	99	**49.50**	44	22	57	28.50	2.21
7	Leaf margins look scorched, turn brown and shrivel due to dry soil.	125	**62.50**	34	17	41	20.50	2.42
8	Leaf margins look scorched, turn brown and shrivel due to salt damage.	115	**57.50**	22	11	63	31.50	2.26
9	Leaf margins look scorched, turn brown and shrivel due to fertilizer burn.	102	**51.00**	21	10.5	77	38.50	2.13
10	Leaf margins look scorched, turn brown and shrivel due to potassium deficiency.	102	**51.00**	21	10.5	77	38.50	2.13
11	Leaf margins look scorched, turn brown and shrivel due to cold injury and low temperatures.	98	**49.00**	30	15	72	36.00	2.13
12	Leaves curled, puckered, or distorted due to wilting.	100	**50.00**	33	16.5	67	33.50	2.17
13	Leaves curled, puckered, or distorted due to viral disease.	100	**50.00**	34	17	66	33.00	2.17
14	Leaves curled, puckered, or distorted due to moisture imbalance.	107	**53.50**	52	26	41	20.50	2.33
15	Leaves curled, puckered, or distorted due to herbicide injury.	109	**54.50**	26	13	65	32.50	2.22
16	Young leaves curl down, edges roll, and Leaf surface become distorted, and veins turn light colour due to weed killer damage.	110	**55.00**	20	10	70	35.00	2.20
17	Leaves stippled with tiny white spots due to spider mites.	97	**48.50**	64	32	39	19.50	2.29
18	Leaves stippled with tiny white spots due to air pollution (ozone).	95	**47.50**	57	28.5	48	24.00	2.24
19	Powdery white coating on upper surface of leaves, stems, and flowers due to powdery mildew	102	**51.00**	41	20.5	57	28.50	2.23

	(fungal disease) which occurs when leaves are dry, but weather is humid.							
20	Leaves have holes; seedling and fruits chewed due to insects, slugs, birds, rodents, rabbits	75	**37.50**	72	36	53	26.50	2.11
21	Leaves have holes; seedling and fruits chewed due to heavy winds or hail.	90	**45.00**	46	23.00	64	32.00	2.13
22	Leaves shredded or stripped from plant due to rodents, slugs, and hail damage.	121	**60.50**	24	12.00	55	27.50	2.33

The data revealed that 62.50 per cent of the respondents always experienced problems regarding scorched, brown and shrivel leaf margins due to dry soil, 60.50 per cent of the respondents always experienced problems with shredded or stripped leaves from plants due to rodents, slugs, and hail damage, and 57.50 per cent of the respondents always experienced problems with scorched, brown and shrivel leaf margins due to salt damage. It also revealed that 55 per cent of the respondents always experienced problems with young leaves curling, rolling and surface becoming distorted due to weed killer damage. The data also showed that 54.50 per cent of the respondents always experienced problems with curled, puckered, or distorted leaves due to herbicide injury, and 53.50 per cent of the respondents always experienced problems with curled, puckered, or distorted leaves due to moisture unbalance. Also, 53 per cent of the respondents always experienced problems of brown spots on leaves due to fertilizer or chemical burn.

Table 29: Extent of problems experienced related to leaves in kitchen garden.

Sr. No.	**Extent of Problems**	**Range of Score**	**Distribution of Respondents (n=200)**	
			f	**%**
1.	Low	22 – 36	29	14.50
2.	Moderate	37 – 51	82	41.00
3.	High	52 – 66	89	**44.50**

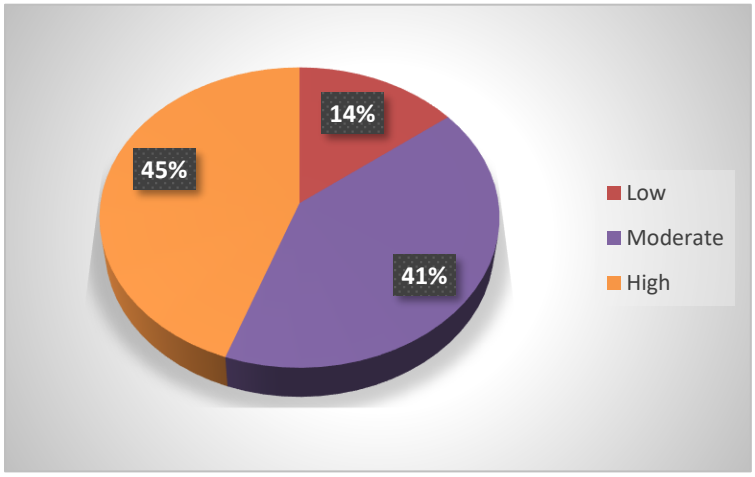


Figure 16: Extent of Problem experienced related to leaves in kitchen

The data in Table 29 depicted that 44.50 per cent of the respondents experienced high extent of problems related to leaves in their kitchen garden. Also, 41 per cent of the respondents experienced moderate extent of problem and 14.50 of the respondents experienced low extent of problems related to leaves in their kitchen garden.

4.2.9 Extent of problems experienced by the respondents related to bud ends in their kitchen garden.

In this section, the respondents were asked to respond regarding the problems experienced related to bud ends in their kitchen garden in terms of always, sometimes, and never.

Table 30: Distribution of the respondents according to problems experienced by respondents related to bud ends in kitchen garden.

Sr. No.	problems experienced by respondents related to bud ends in kitchen garden	Respondents (n=200)						Weighted Mean Score (3-1)
		Always		Sometimes		Never		
		f	%	f	%	f	%	
1	Bud ends of crops rot due to Dry weather following a wet spell.	125	**62.50**	26	13.00	49	24.50	2.38
2	Bud ends of crops rot due to uneven irrigation.	120	**60.00**	26	13.00	54	27.00	2.33
3	Bud ends of crops rot due to insufficient calcium in the soil.	108	**54.00**	26	13.00	66	33.00	2.21

4	Bud ends of crops rot due to compacted soil; water and nutrient uptake impeded.	101	**50.50**	30	15.00	68	34.00	2.16
5	Bud ends of crops rot due to too-deep cultivation.	92	**46.00**	37	18.50	70	35.00	2.10
6	Bud ends of crops rot due to root injured disrupting water uptake.	87	**43.50**	42	21.00	71	35.50	2.08

The data in above Table 30 revealed that 62.50 per cent of the respondents always experienced problems of rotten bud end of crops due to dry weather, 60 per cent of the respondents always experienced rotten bud end of crops due to uneven irrigation, and 54 per cent of the respondents always experienced problems of rotten bud end of crops due to insufficient calcium in the soil. Data showed that 50.50 per cent of the respondents always experienced problems of rotten bud end of crops due to compacted soil; water and nutrient uptake impeded.

Table 31: Extent of problems experienced related to bud ends in kitchen garden.

Sr. No.	Extent of Problems	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	6 – 9	39	19.50
2.	Moderate	10 – 14	65	32.50
3.	High	15 – 18	96	**48.00**

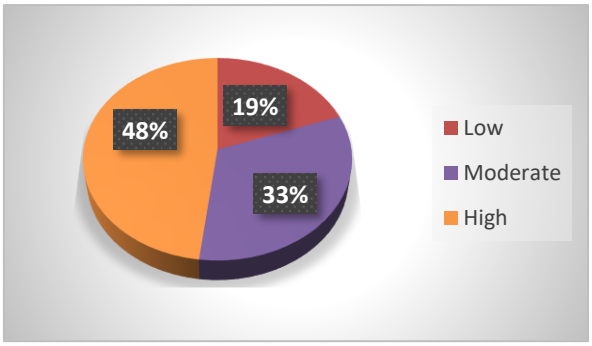


Figure 17: Extent of Problem experienced related to bud ends in kitchen garden

The data revealed that 48 per cent of the respondents experienced high extent of problems related to bud ends in their kitchen garden. It also showed 32.50 per cent of the respondents

experienced moderate extent of problem and 19.50 respondents faced low extent of problems related to bud ends in their kitchen garden.

4.2.10 Extent of problems experienced by the respondents related to fruits in their kitchen garden.

In this section, the respondents were asked to respond regarding the problems experienced related to fruits in their kitchen garden in terms of always, sometimes, and never.

Table 32: Distribution of the respondents according to problems experienced by respondents related to fruits in kitchen garden.

Sr. No.	Problems experienced by respondents related to fruits in kitchen garden	Respondents (n=200)						Weighted Mean Score (3-1)
		Always		Sometimes		Never		
		f	%	f	%	f	%	
1	No fruit on plant due to too cold weather.	85	**42.50**	33	16.50	82	41.00	2.02
2	No fruit on plant due to too hot weather.	106	**53.00**	24	12.00	70	35.00	2.18
3	No fruit on plant due to too much nitrogen.	102	**51.00**	28	14.00	70	35.00	2.16
4	No fruit on plant as there is any pollination.	105	**52.50**	47	23.50	48	24.00	2.29
5	No fruit on plant as plants are not enough mature.	113	**56.50**	38	19.00	49	24.50	2.32
6	Poor fruit yield; small fruit; poor favour due to uneven soil moisture.	89	**44.50**	56	28.00	55	27.50	2.17
7	Poor fruit yield; small fruit; poor favour due to poor soil fertility.	100	**50.00**	48	24.00	52	26.00	2.24
8	Poor fruit yield; small fruit; poor favour due to improper temperature.	87	**43.50**	60	30.00	53	26.50	2.17

The data in above Table 32 shows that 56.50 per cent of the respondents always experienced problems of no fruit on plant as plants were not enough mature, 53 per cent of the respondents always experienced problem of no fruit on plant due to hot weather, and 52.50 per cent of the respondents always faced problem of no fruit on plant as there were no pollination. Data also revealed that 51 per cent of the respondents always faced problem of no fruit on plant due to too much nitrogen.

Table 33: Extent of problems experienced related to fruits in kitchen garden.

Sr. No.	Extent of Problems	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	8 – 13	37	18.50
2.	Moderate	14 – 18	69	34.50
3.	High	19 – 24	94	**47.00**

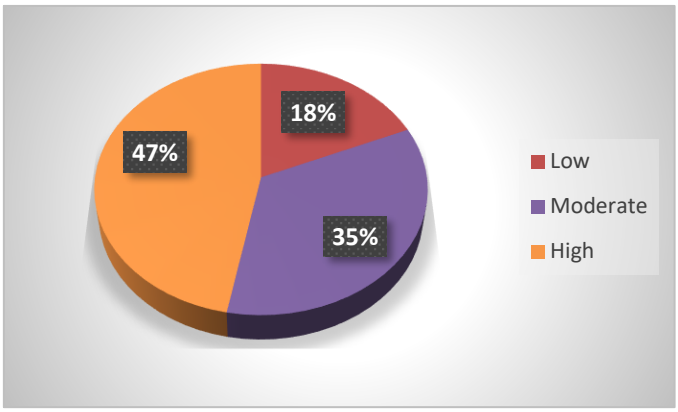


Figure 18: Extent of Problem experienced related to fruits in kitchen

The data revealed that 47 per cent of the respondents experienced high extent of problem related to fruits in their kitchen garden. It also showed that 18.50 per cent of the respondents experienced low extent of problem and 34.50 per cent of the respondents experienced moderate extent of problems related to fruits in their kitchen garden.

4.2.11 Overall Extent of problems experienced by the respondents in kitchen garden.

This section dealt with the extent of problems experienced by the respondents in maintaining their kitchen garden. This was a summated rating scale. The respondents were asked to respond to a 3-point continuum in terms of "Always", "Sometimes", "Never" and the scores from 3 through 1 were given to the respondents respectively. The possible score ranged from 123 to 287 of which three categories having almost equal intervals were made for total 94 statements

in the scale. Higher scores indicated high extent of problems experienced by the respondents.

Table 34: Frequency and Percentage Distribution of the respondents regarding the extent of problems experienced in kitchen garden.

Sr. No.	Extent of Problems	Range of Score	Distribution of the Respondents (n=200)	
			f	%
1	Low	123-177	25	12.50
2	Moderate	178-232	64	32.00
3	High	233-287	**111**	**55.50**

The sample surveyed showed that majority of the respondents lied in the high score category experiencing high extent of problems. It was found that 55.5 per cent of the respondents experienced high extent of problems in their kitchen garden, 32 per cent of the respondents experienced moderate extent of problems in their kitchen garden and only 12.5 per cent of the respondents experienced low extent of problems in their kitchen garden.

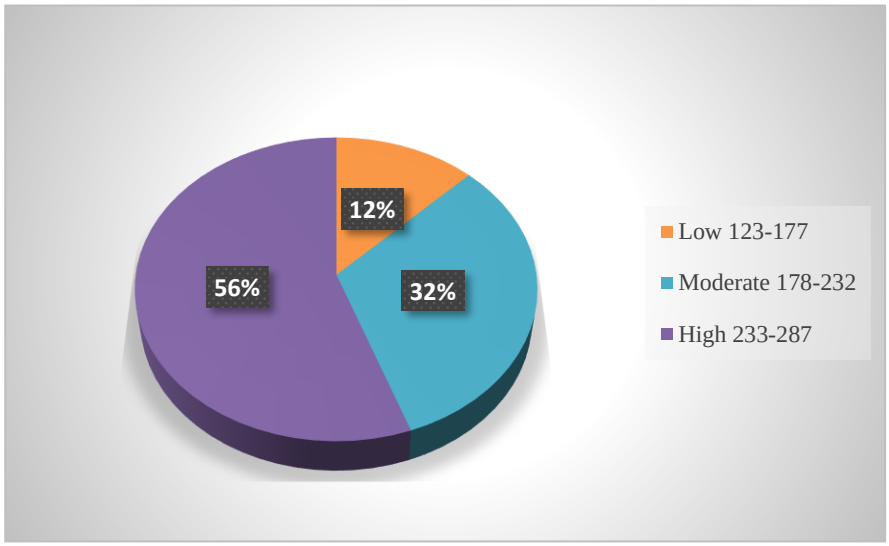


Figure 19: Overall Extent of Problems in kitchen garden experienced by respondents

Plate 12 Respondent discussing the problems experienced by them in their kitchen garden with researcher

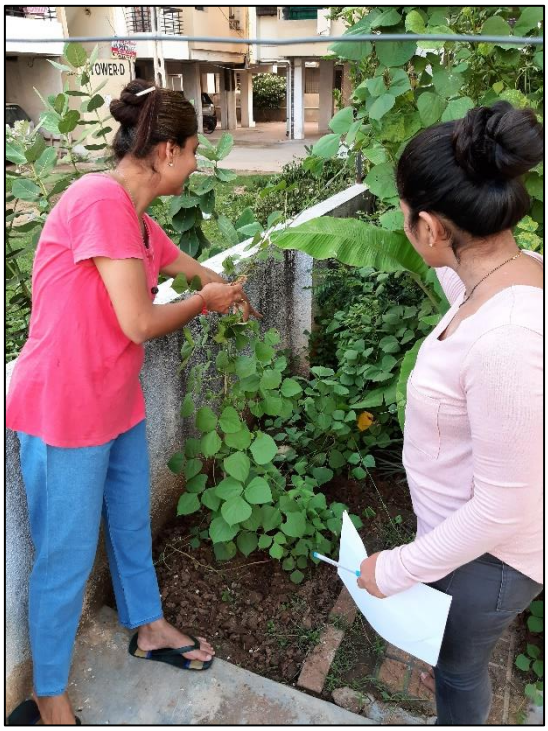


Plate 13 Respondent discussing the problems experienced by them in their kitchen garden with researcher

Section III

4.3 Extent of knowledge of the respondents regarding the household compost

The knowledge of the respondents regarding the household compost was divided in four different categories, namely, benefits of household composting, types of household composting, materials for household composting and process and preparation of household composting. Under this scale, various aspects of knowledge regarding the household compost in their kitchen garden were considered for the statements. The respondents were asked to respond to a 3-point continuum in terms of "Aware", "Undecided", "Unaware" and the scores from 3 through 1 were given to the respondents for each of the statements respectively. The possible range of score was divided into three categories having a nearly equal interval of number.

4.3.1 Extent of knowledge of the respondents regarding benefits of household composting.

In this section, the respondents were asked to respond on the knowledge scale regarding the benefits of household composting in kitchen garden in terms of aware, undecided, and unaware.

Table 35: Distribution of the respondents according to their knowledge regarding benefits of household composting.

Sr. No.	Knowledge of the respondents regarding benefits of household composting	Aware		Undecided		Unaware		Weighted Mean (3-1)
		f	%	f	%	f	%	
1	Preparation of household compost at home.	27	13.50	55	27.50	118	**59.00**	1.55
2	Composting is an Eco-Friendly activity.	24	12.00	23	11.50	153	**76.50**	1.36
3	Preparation of Household compost from kitchen waste.	32	16.00	23	11.50	145	**72.50**	1.44
4	Preparation of Household compost from garden waste.	27	13.50	27	13.50	146	**73.00**	1.41

5	Household compost is chemical free option for fertilizer.	29	14.50	20	10.00	151	**75.50**	1.39
6	Household compost improves the texture of the garden soil to make hold of air and water.	17	08.50	60	30.00	123	**61.50**	1.47
7	Household compost adds nutrients to the soil to promote the healthy root development in garden plants.	14	07.00	62	31.00	124	**62.00**	1.45
8	Household compost can keep your vegetables and fruit plants chemical free.	21	10.50	41	20.50	138	**69.00**	1.42
9	Household compost helps to reduce the house waste dumping into the landfills.	21	10.50	47	23.50	132	**66.00**	1.45
10	In Compost pile, decaying waste produces far less methane compared to decaying in landfill.	23	11.50	102	**51.00**	75	37.50	1.74
11	By using household compost, can reduce polluting water supply by chemicals.	22	11.00	56	28.00	122	**61.00**	1.50
12	Composting can reduce the overall waste production and is a highly effective means of recycling valuable nutrients in organic matter,	43	21.50	71	35.50	86	**43.00**	1.79
13	The visible benefit of composting is the diversion of organic materials from the waste stream.	41	20.50	72	36.00	87	**43.50**	1.77
14	By diverting organic wastes from landfills, the lifespan of municipal landfills can be lengthened, reducing the need to continually create new landfills.	43	21.50	69	34.50	88	**44.00**	1.78
15	Composting has implications for improving air quality when treated as an alternative to waste incineration.	37	18.50	70	35.00	93	**46.50**	1.72
16	The waste incinerators produce more CO2 emissions than oil, coal, or natural gas-fuelled power plants.	58	29.00	63	31.50	79	**39.50**	1.90

17	Emissions are reduced by reducing the need for commercial production & transit of fertilizers, pesticides & herbicides.	51	25.50	68	34.00	81	**40.50**	1.85
18	Emissions are reduced by reducing the need for trash & green waste hauling & processing by commercial facilities.	40	20.00	76	38.00	84	**42.00**	1.78
19	Emissions are reduced by reducing the need for personal transportation to purchase commercial fertilizer, pesticide & herbicides.	53	26.50	69	34.50	78	**39.00**	1.88
20	Composting can remove or break down hazardous materials in soil and turn them into harmless substances.	52	26.00	79	39.50	69	**34.50**	1.92
21	By composting, one can decrease the dependence on fertilizers and pesticides that impact the ecosystem.	34	17.00	55	27.50	111	**55.50**	1.62

The data in above Table 35 revealed that 76.50 per cent of the respondents were unaware that composting is an eco-friendly activity, 75.50 per cent of the respondents were unaware that household compost is chemical free option for fertilizer. Data further revealed that 73 per cent of the respondents were unaware that household compost can be prepared from garden waste and 72.50 per cent of the respondents were unaware that household compost can be prepared from kitchen waste, 69 per cent of the respondents were unaware that household compost can keep your vegetables and fruit plants chemical free, whereas 66 per cent of the respondents were unaware that household compost helps to reduce the house waste dumping into the landfills. The data further revealed that 51 per cent of the respondents were undecided that waste decaying in compost pile produces far less methane compared to decaying in landfill.

Table 36: Extent of knowledge of the respondents regarding benefits of household composting.

Sr. No.	Extent of knowledge	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	21 – 34	119	**59.50**
2.	Moderate	35 – 49	59	29.50
3.	High	50 – 63	22	11.00

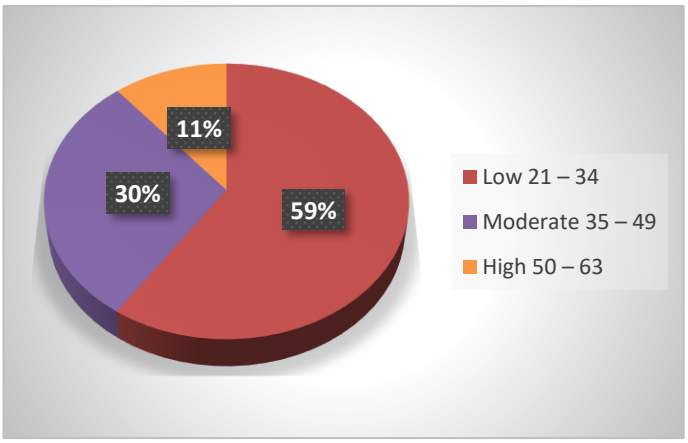


Figure 20: Extent of knowledge of the respondents regarding benefits of household composting

The data in Table 36 revealed that 59.50 per cent of the respondents had low extent of knowledge regarding the benefits of household composting, 29.50 per cent of the respondents had moderate extent of knowledge and only 11 per cent of the respondents had high extent of knowledge regarding the benefits of household composting.

4.3.2 Extent of knowledge of the respondents regarding types of household composting.

In this section, the respondents were asked to respond regarding the types of household composting in kitchen garden in terms of aware, undecided, and unaware.

Table 37: Distribution of the respondents according to knowledge regarding types of household composting.

Sr. No.	Knowledge of the respondents regarding types of household composting	Aware		Undecided		Unaware		Weighted Mean (3-1)
		f	%	f	%	f	%	
1	Cold composting takes one growing season to prepare.	58	29.00	97	**48.50**	45	22.50	2.07
2	Hot composting takes six to eight weeks to prepare.	50	25.00	77	**38.50**	73	36.50	1.89
3	Vermicomposting is one of the systems to prepare compost at home.	42	21.00	63	31.50	95	**47.50**	1.74
4	In vermicomposting, in enclosed bin the vegetable waste is filled with worms called red wigglers.	48	24.00	67	33.50	85	**42.50**	1.82
5	Vermicompost means the warm casting prepared by the waste digestion of the warms.	49	24.50	69	34.50	82	**41.00**	1.84

The data showed that 47.50 per cent of the respondents were unaware that vermicomposting is one of the systems to prepare compost at home, 42.50 per cent of the respondents were unaware that in vermicomposting, in enclosed bin the vegetable waste is filled with worms called red wigglers, whereas 48.50 per cent of the respondents were undecided that cold composting takes one growing season to prepare and 38.50 per cent of the respondents were undecided that hot composting takes six to eight weeks to prepare (Table 37).

Table 38: Extent of knowledge regarding types of household composting.

Sr. No.	Extent of knowledge	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	5 – 8	88	**44**
2.	Moderate	9 – 11	63	31.50
3.	High	12 – 15	49	24.50

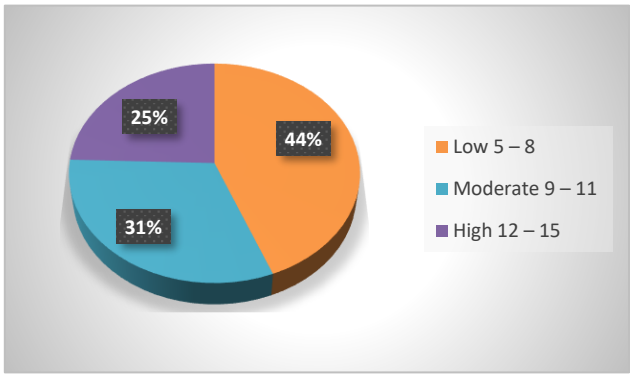


Figure 21: Extent of knowledge regarding types of household composting

Table 38 revealed that 44 per cent of the respondents had low extent of knowledge regarding the types of household composting, 31.50 per cent of the respondents had moderate extent and only 24.50 per cent of the respondents had high extent of knowledge regarding the types of household composting.

4.3.3 Extent of knowledge regarding materials for household composting in kitchen garden.

In this section, the respondents were asked to respondent regarding the materials for household composting in kitchen garden in terms of aware, undecided, and unaware.

Table 39: Distribution of the respondents according to knowledge regarding materials for household composting in kitchen garden.

Sr. No.	Knowledge of the respondents regarding materials for household composting in kitchen garden	Aware		Undecided		Unaware		Weighted Mean (3-1)
		f	%	f	%	f	%	
1	Brown materials are dry and rich in carbon.	15	07.50	67	33.50	118	**59.00**	1.49
2	Office paper, newspaper, cardboard, and toilet paper rolls can be used in composting.	35	17.50	67	33.50	98	**49.00**	1.69
3	Glossy paper or paper with coloured ink cannot be compost.	50	25.00	72	36.00	78	**39.00**	1.86

4	Dry leaves, pine needles, straw and small twigs can be added to the compost bin.	32	16.00	80	40.00	88	**44.00**	1.72
5	Hay, which contains seeds, cannot be added into the compost bin.	48	24.00	68	34.00	84	**42.00**	1.82
6	Small branches take long time to break in the compost bin.	50	25.00	68	34.00	82	**41.00**	1.84
7	Wood chips, clean sawdust and ashes from clean materials can go into compost.	55	27.50	64	32.00	81	**40.50**	1.87
8	Green materials are moist and add nitrogen to the finished compost.	25	12.50	60	30.00	115	**57.50**	1.55
9	Fruit and vegetable peels, coffee grounds, tea bags (with staple removed), nut shells, and crushed eggshells can go in compost.	23	11.50	47	23.50	130	**65.00**	1.47
10	Meat, bones, and fish scraps should not be added to compost pile as they attract pests to it.	73	36.50	74	**37.00**	53	26.50	2.10
11	Dairy products and greasy or oily foods should not go into compost.	82	**41.00**	62	31.00	56	28.00	2.13
12	Peels from oranges, peaches, or bananas which are organic can go to compost pile.	32	16.00	42	21.00	126	**63.00**	1.53
13	Green leaves, stems, flowers, and grass clippings with herbicides can be compost.	26	13.00	53	26.50	121	**60.50**	1.53
14	Weeds without seed can go in compost bin.	52	26.00	58	29.00	90	**45.00**	1.81
15	Animal droppings can be great Compost Activator making the waste decay faster.	40	20.00	64	32.00	96	**48.00**	1.72
16	The ratio for mixing Brown material with Green Material is 2:1 or 3:1 (Carbon: Nitrogen).	52	26.00	70	35.00	78	**39.00**	1.87

The data revealed that 65 per cent of the respondents were unaware that fruit and vegetable peels, coffee grounds, tea bags, nut shells, and crushed eggshells can go in compost, 65 per cent of the respondents were unaware that peels from oranges, peaches, or bananas can go to compost pile. Data further revealed that 60.50 per cent of the respondents were unaware that green leaves, stems, flowers, and grass clippings with

herbicides can be compost, 59 per cent of the respondents were unaware that brown materials are dry and rich in carbon, whereas 37 per cent of the respondents were undecided that meat, bones, and fish scraps should not be added to compost pile as they attract pests to it and 41 per cent of the respondents were aware that dairy products and greasy or oily foods should not go into compost (Table 39).

Table 40: Extent of knowledge regarding materials for household composting.

Sr. No.	Extent of knowledge	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	16 – 26	88	44.00
2.	Moderate	27 – 37	102	**51.00**
3.	High	38 – 48	10	05.00

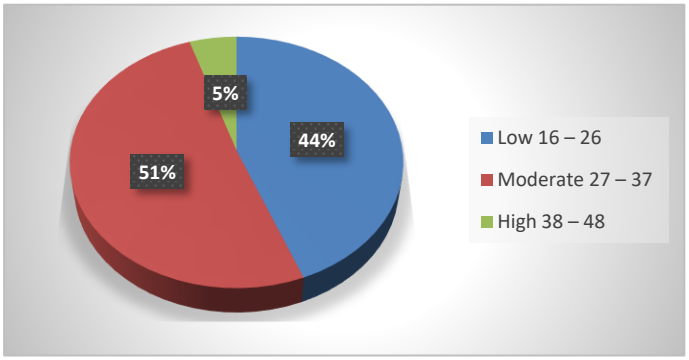


Figure 22: Extent of knowledge regarding materials for household composting

Table 40 uncovered that 51 per cent of the respondents had moderate extent of knowledge regarding the materials for household composting, 44 per cent of the respondents had low extent of knowledge, and 5 per cent of the respondents had high extent of knowledge regarding the materials for household composting.

4.3.4 Extent of knowledge regarding process and preparation of household composting in kitchen garden.

In this section, the respondents were asked to respondent regarding the process and preparation of household composting in kitchen garden in terms of aware, undecided, and unaware.

Table 41: Distribution of the respondents according to knowledge regarding process and preparation of household composting in kitchen garden.

Sr. No.	Knowledge of the respondents regarding process and preparation of household composting in kitchen garden	Aware		Undecided		Unaware		Weighted Mean (3-1)
		f	%	f	%	f	%	
1	Compost bins are available in the market.	25	12.50	41	20.50	134	**67.00**	1.46
2	Making compost at home doesn't require much space in the house or garden.	27	13.50	59	29.50	114	**57.00**	1.57
3	Readymade compost bins are available in the market.	27	13.50	62	31.00	111	**55.50**	1.58
4	The compost pile should be turn regularly with a pitchfork to add air and every time you add anything to pile.	26	13.00	63	31.50	111	**55.50**	1.58
5	Open pile & enclosed bins and cold composting & hot composting are the methods of preparing compost at home.	38	19.00	91	**45.50**	71	35.50	1.84
6	Vermicompost is rich brown material which is excellent fertilizer for plants.	45	22.50	74	37.00	81	**40.50**	1.82
7	Worm compost bins takes three to six months to produce finished compost.	48	24.00	72	36.00	80	**40.00**	1.84
8	DIY options for compost bins are available.	19	09.50	55	27.50	126	**63.00**	1.47
9	Plastic bucket or containers can be used as compost bins.	26	13.00	60	30.00	114	**57.00**	1.56
10	Box built of scrape wood can also be used as compost bin.	26	13.00	66	33.00	108	**54.00**	1.59
11	Cylindrical garbage bin can be used as enclosed compost bin.	29	14.50	58	29.00	113	**56.50**	1.58
12	In enclosed bin, the bin needs to have holes around the sides for aeration.	32	16.00	58	29.00	110	**55.00**	1.61
13	In open bins, the fruits and vegetable scrapes can attract small flying insects and fruit flies.	25	12.50	61	30.50	114	**57.00**	1.56
14	If the compost bin smells like ammonia, then the pile contains too much green materials.	48	24.00	74	37.00	78	**39.00**	1.85

15	A smell like rotten eggs is usually due to too much moisture or too little air.	54	27.00	63	31.50	83	**41.50**	1.86
16	Wet materials, such as leaves, can stick together in a compost bin and form mats that keep the pile from breaking down evenly.	33	16.50	60	30.00	107	53.50	1.63
17	If the pile is taking too long to prepare compost, then the pile is too small or too compressed or too dry.	38	19.00	84	**42.00**	78	39.00	1.80
18	If pile is taking too long to prepare compost, then it might be lacking in nitrogen.	60	30.00	80	**40.00**	60	30.00	2.00
19	Too much water in your pile can reduce the level of oxygen and invite oxygen-deficient bacterial and a foul odour.	57	28.50	69	34.50	74	**37.00**	1.92
20	Compost bins should be within the reach of water source.	43	21.50	64	32.00	93	**46.50**	1.75
21	Compost bins should be in a convenient area near garden or house.	40	20.00	54	27.00	106	**53.00**	1.67
22	Composting bins should be protected from direct winds.	45	22.50	84	**42.00**	71	35.50	1.87
23	Composting bins should be in a spot with good drainage.	57	28.50	74	**37.00**	69	34.50	1.94
24	Composting bins should be three feet away from buildings.	68	34.00	85	**42.50**	47	23.50	2.11

The data in above Table 41 revealed that 67 per cent of the respondents were unaware that compost bins are readily available in the market, 63 per cent of the respondents unaware that DIY options for compost bins are available. Further it was revealed that 57 per cent of the respondents were unaware that making compost at home doesn't require much space in the house or garden, plastic bucket or containers can be used as compost bins, and in open bins, fruits and vegetable scrapes can attract small flying insects and fruit flies and 45.50 per cent of the respondents were undecided that open pile & enclosed bins and cold composting & hot composting are the methods of preparing compost at home. Data revealed that 42.50 per cent of the respondents were undecided that composting bins should be three feet away from buildings, whereas 42 per cent of the respondents were undecided that if the pile is taking too long to prepare

compost, then the pile is too small or too compressed or too dry, and composting bins should be protected from direct winds.

Table 42: Extent of knowledge regarding process and preparation of household composting.

Sr. No.	Extent of knowledge	Range of Score	Distribution of Respondents (n=200)	
			f	%
1.	Low	24 – 39	92	**46.00**
2.	Moderate	40 – 56	81	40.50
3.	High	57 – 72	27	13.50

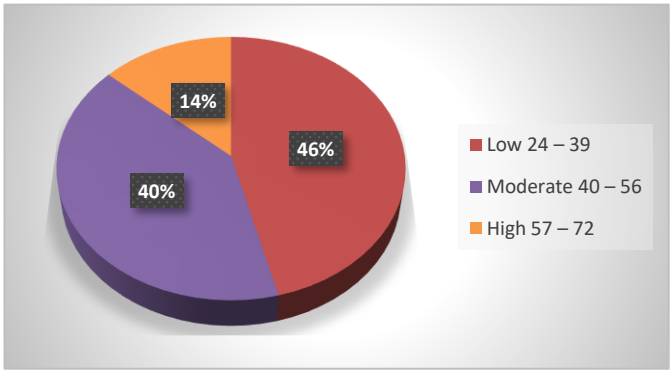


Figure 23: Extent of knowledge regarding process and preparation of household composting

Data in above Table 42 proved that 46 per cent of the respondents had low extent of knowledge regarding the process and preparation of household composting, 40.50 per cent of the respondents had moderate extent of knowledge, and 13.50 per cent of the respondents had high extent of knowledge regarding the materials for household composting.

4.3.5 Overall extent of knowledge of the respondents regarding the household composting in kitchen garden.

This section dealt with the extent of knowledge of the respondents regarding household composting in kitchen garden. This was a summated rating scale. The respondents were asked to respond to a 3-point continuum in terms of “Aware”,

"Undecided", "Unaware" and the scores from 3 through 1 were given to the respondents respectively. The possible score ranged from 66 to 198 of which three categories having almost equal intervals were made for total 66 statements of knowledge scale. Lower scores indicated low extent of knowledge of the homemakers.

Table 43: Frequency and percentage distribution of the respondents according to their knowledge regarding household composting in kitchen garden.

Sr. No.	Extent of Knowledge	Score	Distribution of the Respondents (n=200)	
			f	%
1	Low	66 - 109	**92**	**46**
2	Moderate	110 - 154	90	45
3	High	155 - 198	18	09

The sample surveyed showed that 46 per cent of the respondents were in the low score category having low extent of knowledge, 45 per cent of the respondents were having moderate extent of knowledge and only 9 per cent of the respondents were having high extent of knowledge regarding the household compost.

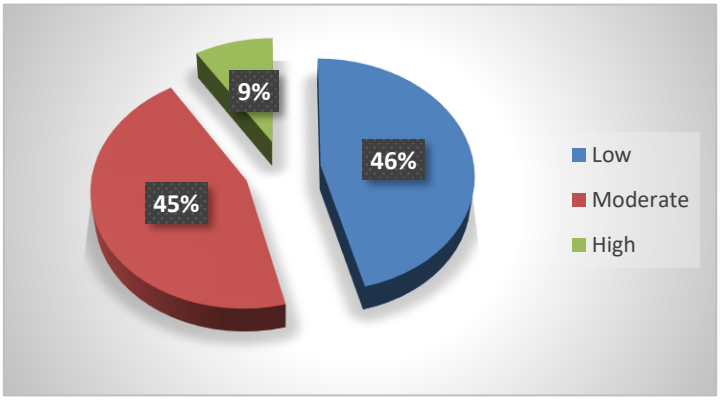


Figure 24: Extent of knowledge of the respondents related to household composting in kitchen garden

Section IV

4.6 Design development of Kitchen Garden for various spaces of a residence

The proposed drawings of kitchen garden are developed keeping in mind the availability of space and location for gardening in different sizes of residences. The proposed designs were prepared using AutoCAD 2021 and SketchUp 2019 software's.

Table 44: Proposed Kitchen Garden Designs

SR. NO.	TITLE
1	Proposed Kitchen Garden Design of Small Space Land (80-120 sq. ft.)
2	Proposed Kitchen Garden Design of Medium Space Land (140-200 sq. ft.)
3	Proposed Kitchen Garden Design of Large Space Land (200-600 sq. ft.)
4	Proposed Kitchen Garden Design of Residential Terrace (375 sq.ft.)
5	Proposed Kitchen Garden Design of Residential Balcony (66 sq.ft.)
6	Proposed Kitchen Garden Design of Container (Vertical)
7	Proposed Kitchen Garden Design of Container (Horizontal)

The development of these designs was based on the information gathered by the researcher. The designer found that various components of kitchen garden were not set up properly or were in poor condition such as placement of plants, placement of annual medicinal and herb plants, direction of sunlight, clearance space between individual plants and preparation of compost.

The recommended kitchen garden ideas for various locations of the house are described hereunder.

1. Proposed Kitchen Garden Design of Small Space Land

The researcher proposed a design which can be applied in any small-spaced kitchen garden which has a land area ranging from 80 sq. ft. to 120 sq. ft.

The design proposed by the designer has a total of 117 sq. ft. area including 75 sq. ft. area for developing kitchen garden and 42 sq. ft. area for clearance space and walking space. A wooden boundary/fencing was proposed on all sides of the designed kitchen garden to abide animals from destroying the crops. Half-cut bricks were used as internal boundary for division of plant spaces. For even surface the ground should be reshuffled and set evenly for placing the pathway block for easy circulation space and cleaning in the garden. The designer also incorporated a gate in the entrance of the kitchen garden for safety and easy access towards the kitchen garden.

Wall A

The total length of wall A was 10 ft. On this side of the garden eggplants (Brinjal) and cluster beans are planted in the land itself.

Wall B

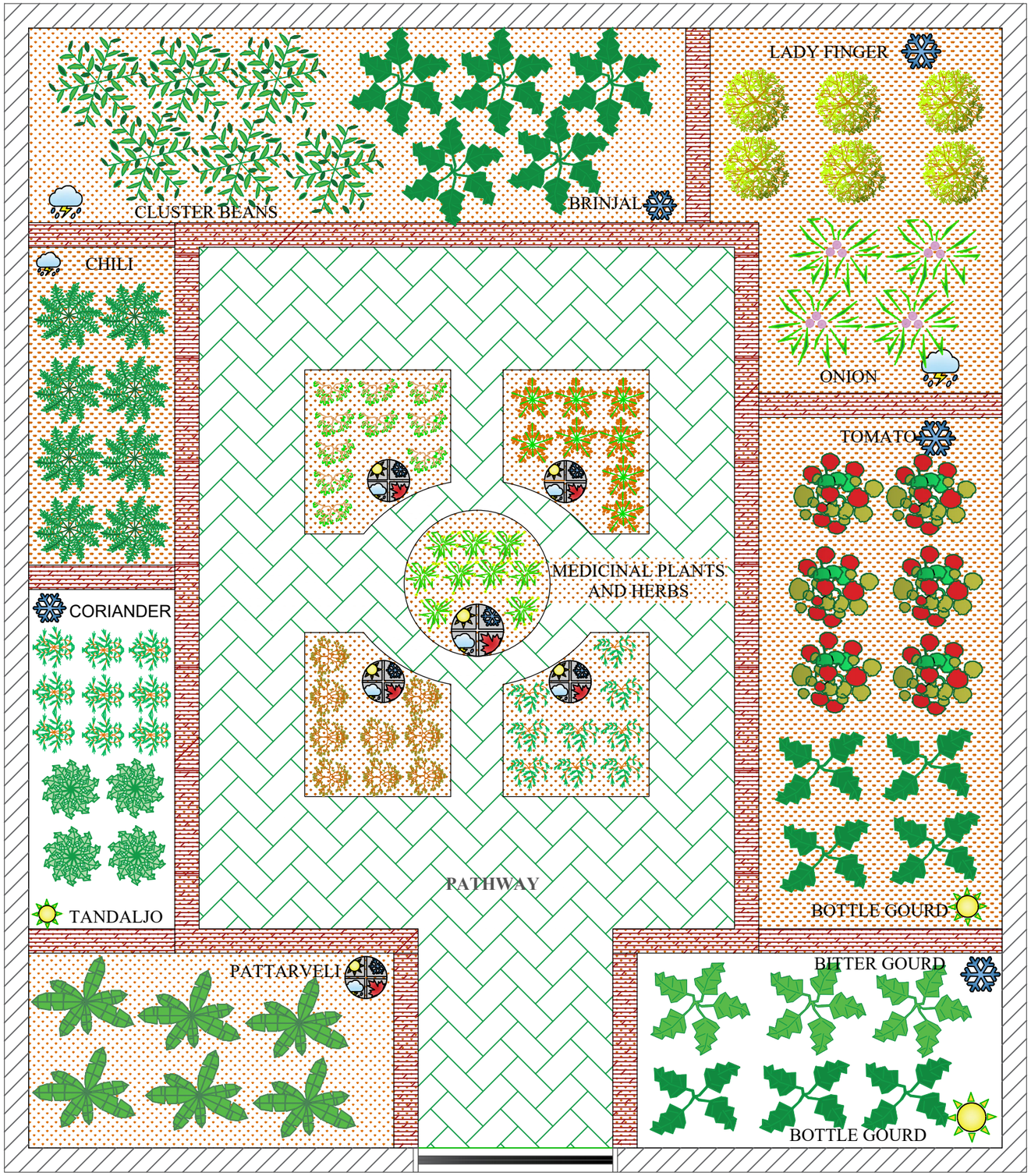
The total length of wall B was 11’-6”. On this side of the garden lady fingers, onions, tomato and bottle gourd are planted.

Wall C

The total length of wall C was 10 ft. On this side of the garden Bottle gourds, bitter gourds and Colocasia (patterveli) are planted.

Wall D

The total length of wall D was 11’-6”. On this side of the garden Tandalja, Coriander leaves and chillies are planted.



KEY

Sr. No.	TITLE	SYMBOL
1.	Winter Season	
2.	Summer Season	
3.	Monsoon Season	
4.	Perennials	
5.	Cluster Beans	
6.	Brinjal	
7.	Lady Finger	
8.	Onion	
9.	Tomato	
10.	Bottle Gourd	
11.	Bitter Gourd	
12.	Pattarveli	
13.	Tandaljo	
14.	Coriander	
15.	Chili	
16.	Medicinal Plants and Herbs (Ginger, Tulsi, Ardusi, Green Tea, Oregano and Green Turmeric)	
17.		
18.		
19.		
20.	Entry Gate	
21.	Pathway	
22.	Boundary Wall	
23.	Internal Boundary Wall	

PLATE 14 - AESTHETIC LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR SMALL SPACE (AREA: 115 sq.ft.)

NOTE: PLANTS SHOWN IN THE LAYOUT ARE SYMBOLIC REPRESENTATION.

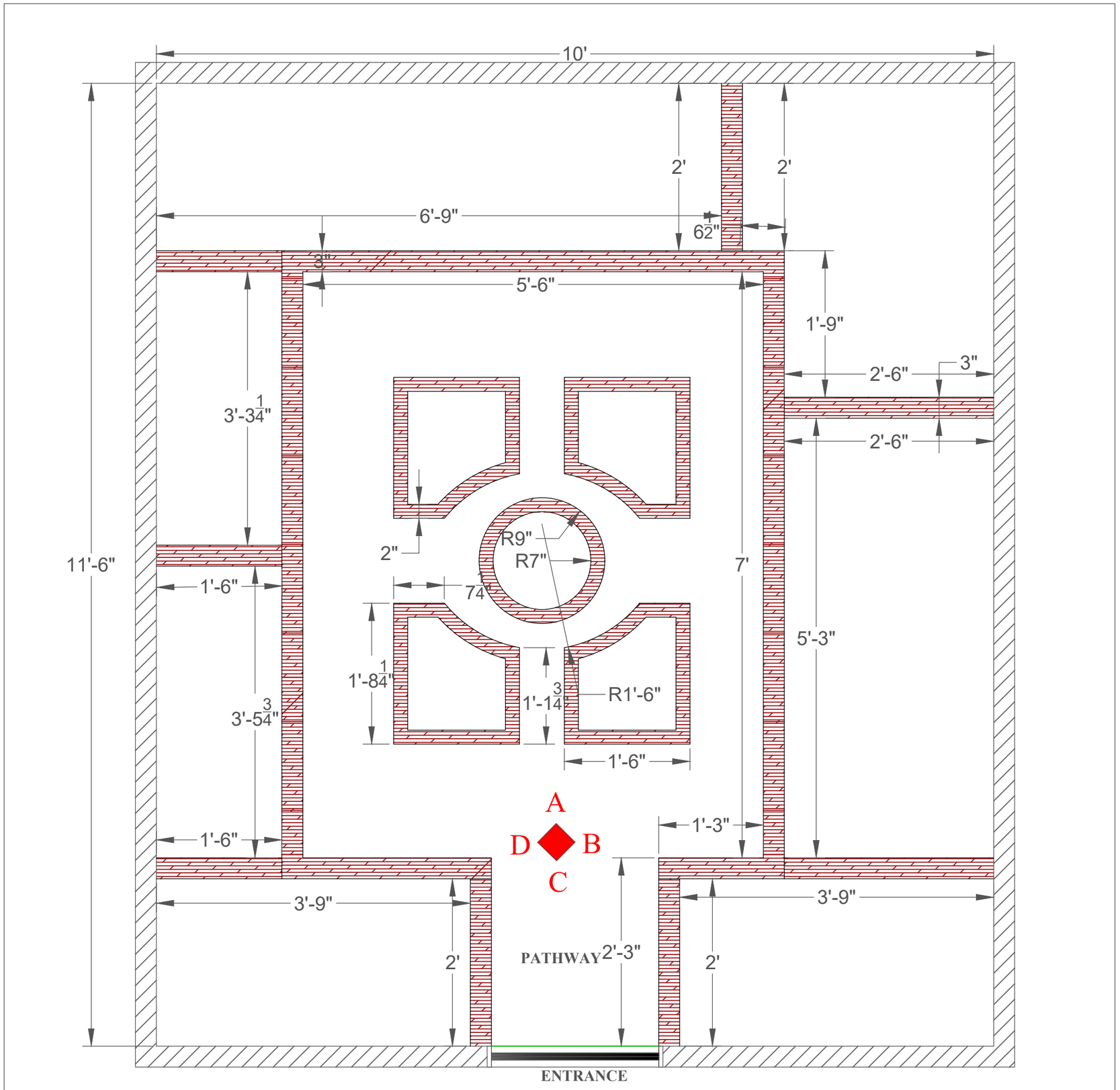


PLATE 15 - DIMENSIONAL LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR SMALL SPACE (AREA: 115 sq.ft.)

Plate 16 - 3D View 1 of the Small Space Kitchen Garden Design

Plate 17 - 3D View 2 of the Small Space Kitchen Garden Design

Plate 18 - 3D View 3 of the Small Space Kitchen Garden Design

Plate 19 - 3D View 4 of the Small Space Kitchen Garden Design

Plate 20 - 3D View 5 of the Small Space Kitchen Garden Design

2. Proposed Kitchen Garden Design of Medium Space Land

The researcher proposed a design which can be utilized in any medium spaced garden which has a land area ranging from 140 sq. ft. to 200 sq. ft.

The design proposed by the designer has a total of 175 sq. ft. area including around 100 sq. ft. area for developing kitchen garden and around 75 sq. ft. area for clearance space and walking space. A metal mesh boundary/fencing was proposed on all sides of the designed kitchen garden to abide animals and birds from destroying the crops and for dividing the space from the rest of the area. Small heighted parapet wall was used as in internal boundary of for division of plant spaces. For even surface the ground should be reshuffled and set evenly for placing the pathway block for easy circulation space and cleaning in the garden. The designer also incorporated a wooden gate at the entrance of the kitchen garden for safety and easy access towards the kitchen garden.

The medium spaced kitchen garden was divided in blocks of various sizes according to the placement and category of vegetable plants with circulation space between each two blocks which is helpful for plucking vegetables, removing debris, and maintaining them accordingly.

Vegetable plants of each season is suggested by the researcher so that the owner can have a variety of home-grown food in each season.

Block A

The first block of medium spaced kitchen garden was of around 25 sq. ft. area. The plants suggested by the researcher for block A were Bottle Gourd, Lady Finger and Brinjal.

Block B

The second adjacent block of medium spaced kitchen garden was of around 17 sq. ft. area. The plants suggested by the researcher for block B were Brinjal, Cluster Beans and onion.

Block C

The third adjacent block of medium spaced kitchen garden was of around 16 sq. ft. area. The plants suggested by the researcher for block C were Chola and Sweet Potato.

Block D

The fourth block of medium sized kitchen garden was of approximately 6 sq. ft. The plants suggested by the researcher for block D were Bottle gourd, tomato, and lady finger.

Block E

The fifth block for medium sized kitchen garden was of approximately 4 sq. ft. This block was utilized for cultivating annual medicinal plants and herbs like bay, lemon balm, mint, basil, oregano, garlic, parsley, rosemary, thyme etc. It is placed in the centre of the kitchen garden and in front of the entrance which helps the owner with easy reach and maintenance.

Block F

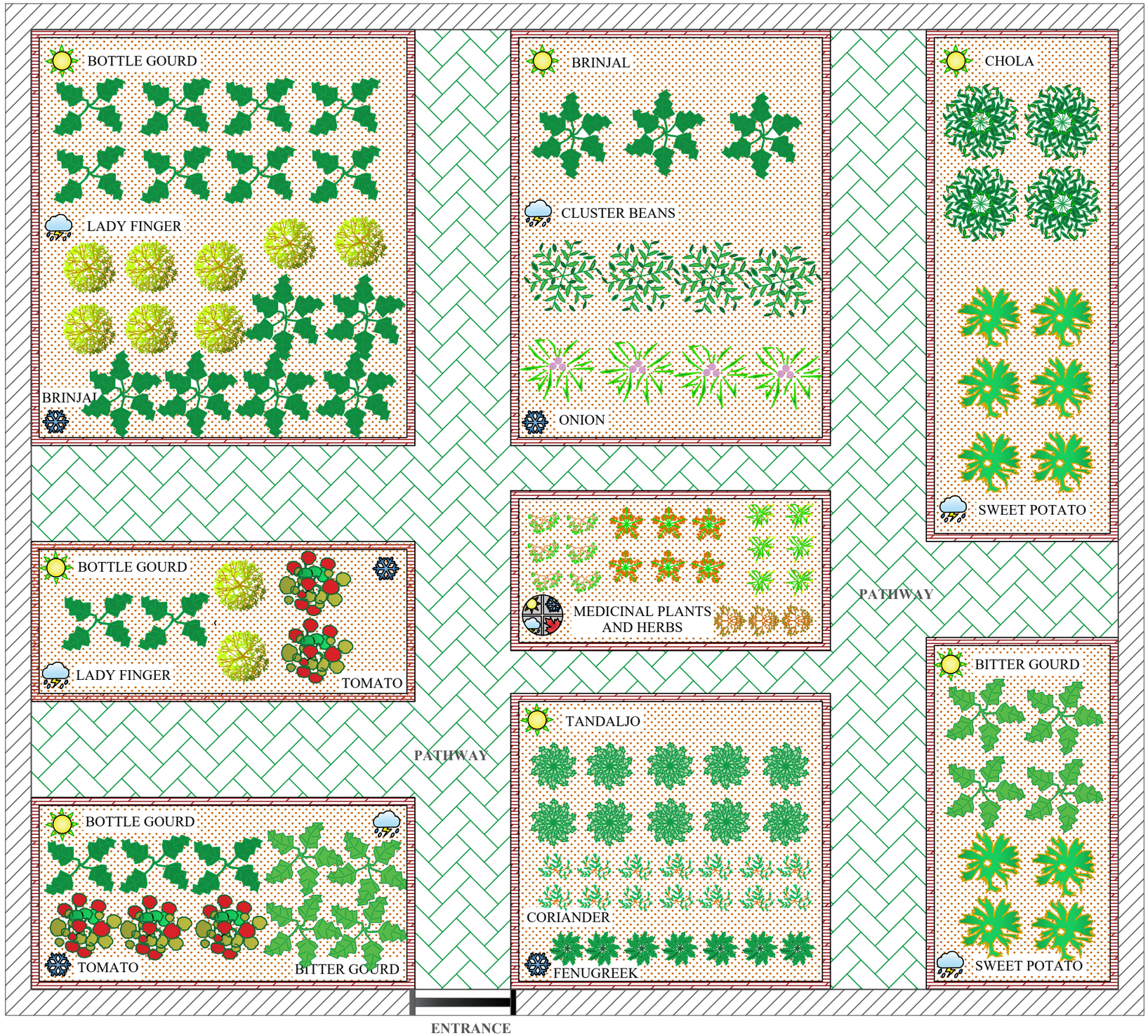
The sixth block for medium sized kitchen garden design was of around 12 sq. ft. area. The plants suggested by the researcher for block F were Bottle gourd, tomato, and bitter gourd.

Block G

The seventh block for medium sized kitchen garden design was of around 12 sq. ft. area. The plants suggested by the researcher for block G were Tandaljo, Coriander and fenugreek leaves.

Block H

The eight blocks for medium sized kitchen garden were of around 11 sq. ft. area. The plants suggested by the researcher for block H were Bitter gourd and sweet potato.



KEY

Sr. No.	TITLE	SYMBOL
1.	Winter Season	
2.	Summer Season	
3.	Monsoon Season	
4.	Perennials	
5.	Cluster Beans	
6.	Brinjal	
7.	Lady Finger	
8.	Onion	
9.	Tomato	
10.	Bottle Gourd	
11.	Bitter Gourd	
12.	Fenugreek	
13.	Tandaljo	
14.	Coriander	
15.	Sweet Potato	
16.	Chola	
17.	Medicinal Plants and Herbs (Ginger, Tulsi, Ardusi, Green Tea, Oregano and Green Turmeric)	
18.		
19.		
20.		
21.	Entry Gate	
22.	Pathway	
23.	Boundary Wall	
24.	Internal Boundary Wall	

PLATE 21 - AESTHETIC LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR MEDIUM SPACE (AREA: 172 sq.ft.)

NOTE: PLANTS SHOWN IN THE LAYOUT ARE SYMBOLIC REPRESENTATION.

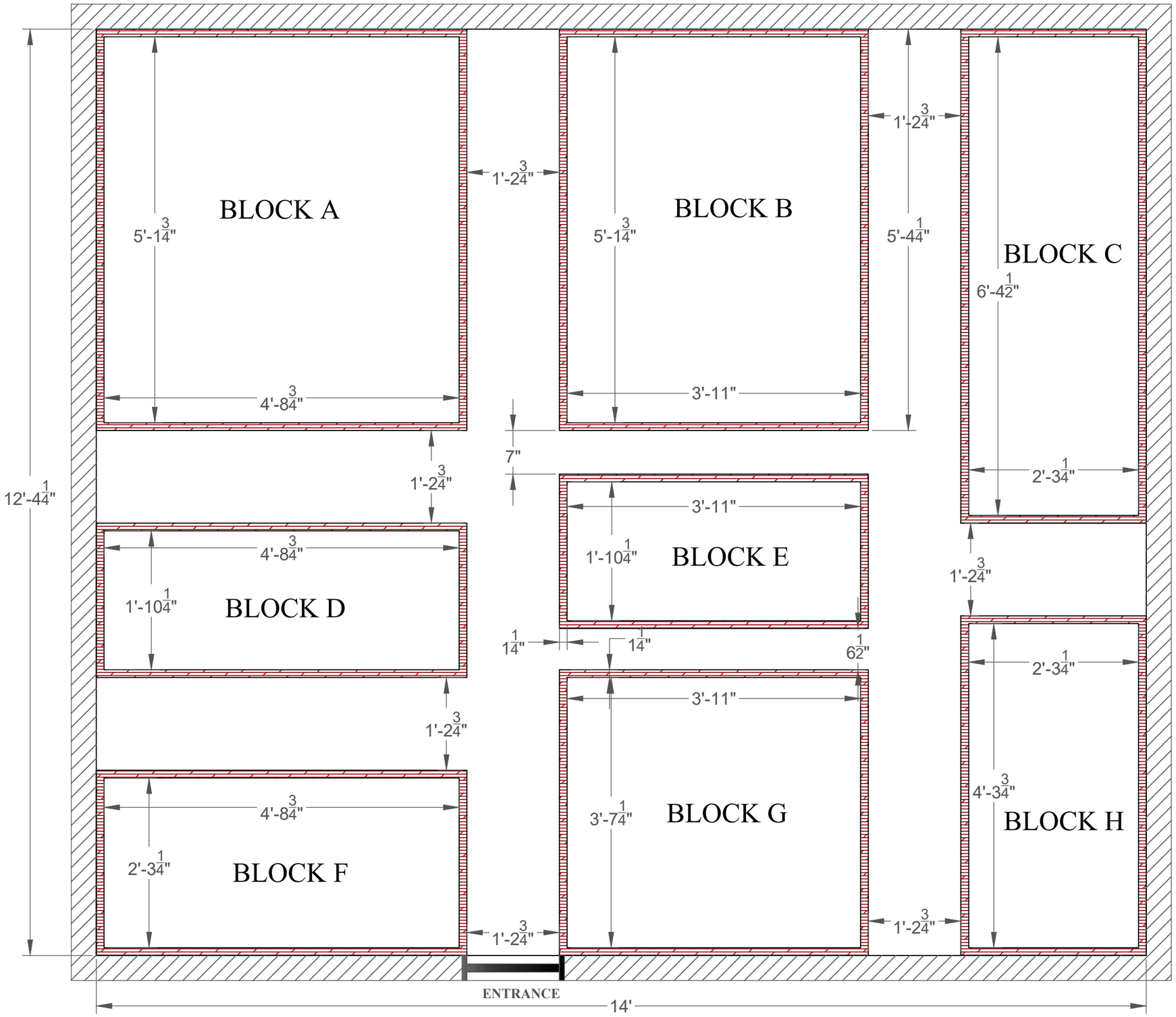


PLATE 22 - DIMENSIONAL LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR MEDIUM SPACE (AREA: 172 sq.ft.)

Plate 23 - 3D View 1 of the Medium Space Kitchen Garden Design

Plate 24 - 3D View 2 of the Medium Space Kitchen Garden Design

Plate 25 - 3D View 3 of the Medium Space Kitchen Garden Design

3. Proposed Kitchen Garden Design of Large Space Land

The researcher proposed a design which can be utilized in any large-spaced garden which has a land area ranging from 200 sq. ft. to 600 sq. ft.

The design proposed by the designer has a total of 370 sq. ft. area including around 73 sq. ft. area for developing kitchen garden. A metal mesh boundary/fencing was proposed on all sides of the designed kitchen garden to abide animals and birds from destroying the crops and for dividing the space from the rest of the area. Small heighted parapet partition of half cut bricks was used as in internal boundary of for division of plant spaces. For even surface the ground should be reshuffled and set evenly for placing the pathway block for easy circulation space and cleaning in the garden. The designer also incorporated a wooden gate in the entrance of the kitchen garden for safety and easy access towards the kitchen garden.

The large-spaced kitchen garden is divided in blocks of various sizes according to the placement and category of vegetable plants with circulation space in between each two blocks which is helpful for plucking vegetables, removing debris, and maintaining them accordingly.

Vegetable plants of each season is suggested by the researcher so that the owner can have a variety of home-grown food in each season.

Block A

The first block for large sized kitchen garden was around 73 sq. ft. area. The researcher suggested that large evergreen, annual fruit, and vegetable trees like amba, guava, lemon, amla, neem, apple, papaya, mango etc. to be planted on the outer side of the garden. The placement of the trees was kept such that they do not overshadow other vegetable crops.

Block B

The adjacent block for large sized kitchen garden was around 17 sq. ft. area. The plants suggested by the researcher for block B were lady finger, brinjal and bitter gourd.

Block C

The third block for large sized kitchen garden was around 17 sq. ft. area. The plants suggested by the researcher for block C were Cluster beans, cucumber, and beetroot.

Block D

The fourth block for large sized kitchen garden was around 17 sq. ft. area. The plants suggested by the researcher for block D were Lady finger and Elephant Yam.

Block E

The fifth block for large sized kitchen garden was around 17 sq. ft. area. The plants suggested by the researcher for block E were sweet potato and Spinach.

Block F

The sixth block for large-spaced kitchen garden was around 17 sq. ft. area. The plants suggested by the researcher for block F were Radish/Carrot and Tandaljo.

Block G

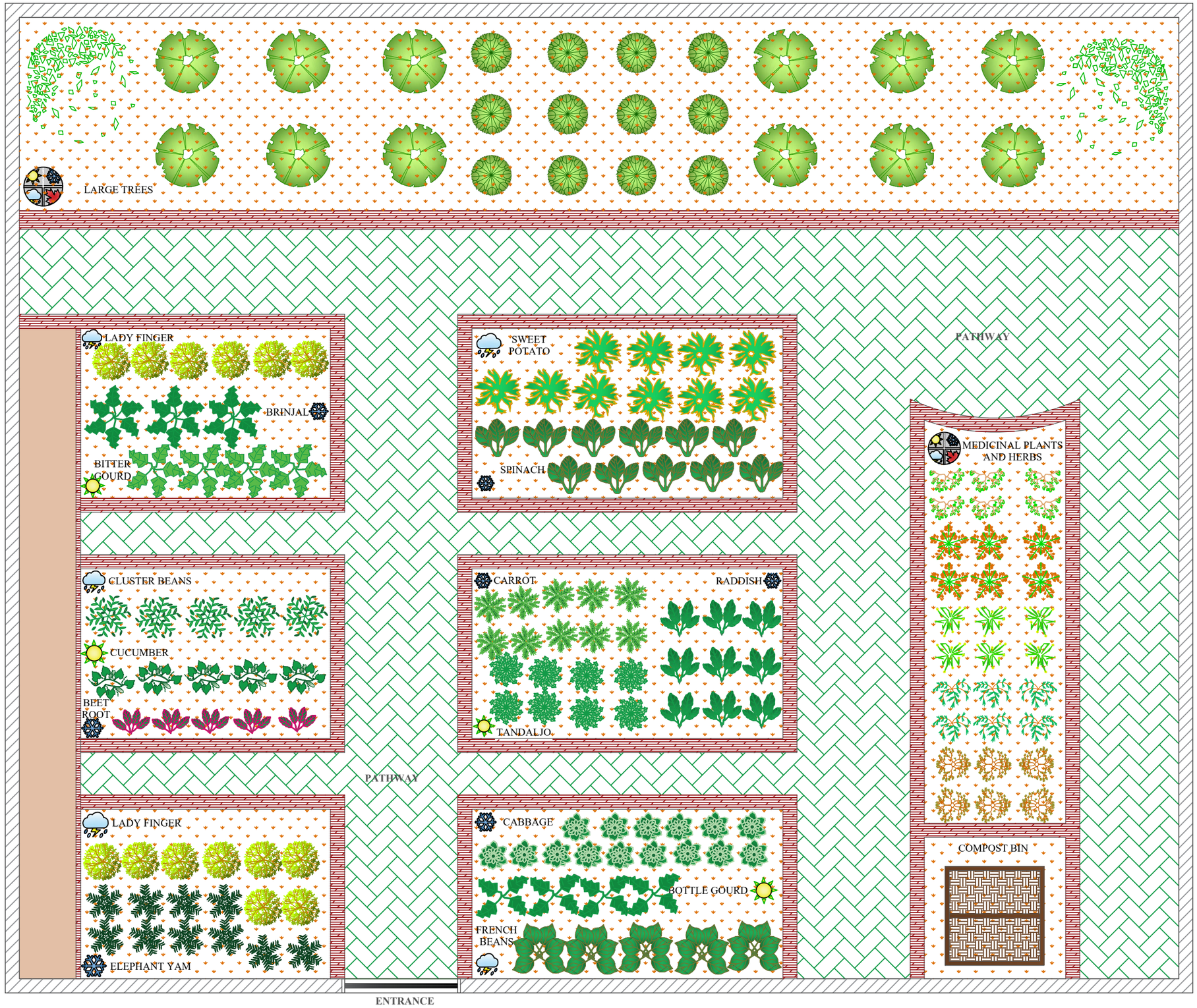
The seventh block for large-spaced kitchen garden was around 17 sq. ft. area. The plants used for block G were Cabbage, Bottle Gourd, and French Beans.

Block H

The eight blocks for large sized kitchen garden were of approximately 16 sq. ft. This block was utilized for cultivating annual medicinal plants and herbs like bay, lemon balm, mint, basil, oregano, garlic, parsley, rosemary, thyme etc. It is placed at the entrance of the kitchen garden near the entrance which helps the owner with easy reach and maintenance.

Block I

This block is utilized as a home-made compost pit for manures and fertilizers for the kitchen garden.



KEY

Sr. No.	TITLE	SYMBOL
1.	Winter Season	
2.	Summer Season	
3.	Monsoon Season	
4.	Perennials	
5.	Cluster Beans	
6.	Brinjal	
7.	Lady Finger	
8.	Sweet Potato	
9.	Spinach	
10.	Bottle Gourd	
11.	Bitter Gourd	
12.	Tandaljo	
13.	Cabbage	
14.	Carrot	
15.	Raddish	
16.	Cucumber	
17.	Beet Root	
18.	Elephant Yam	
19.	French Beans	
20.	Large Trees (Lemon, Guava, Amla, Neem, Curry Leaves, Papaya, Mango and Sweet Apple)	
21.		
22.		
23.	Medicinal Plants and Herbs (Ginger, Tulsi, Ardusi, Green Tea, Oregano and Green Turmeric)	
24.		
25.		
26.		
27.	Entry Gate	
28.	Pathway	
29.	Boundary Wall	
30.	Internal Boundary Wall	

PLATE 26 - AESTHETIC LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR LARGE SPACE (AREA: 368 sq.ft.)

NOTE: PLANTS SHOWN IN THE LAYOUT ARE SYMBOLIC REPRESENTATION.

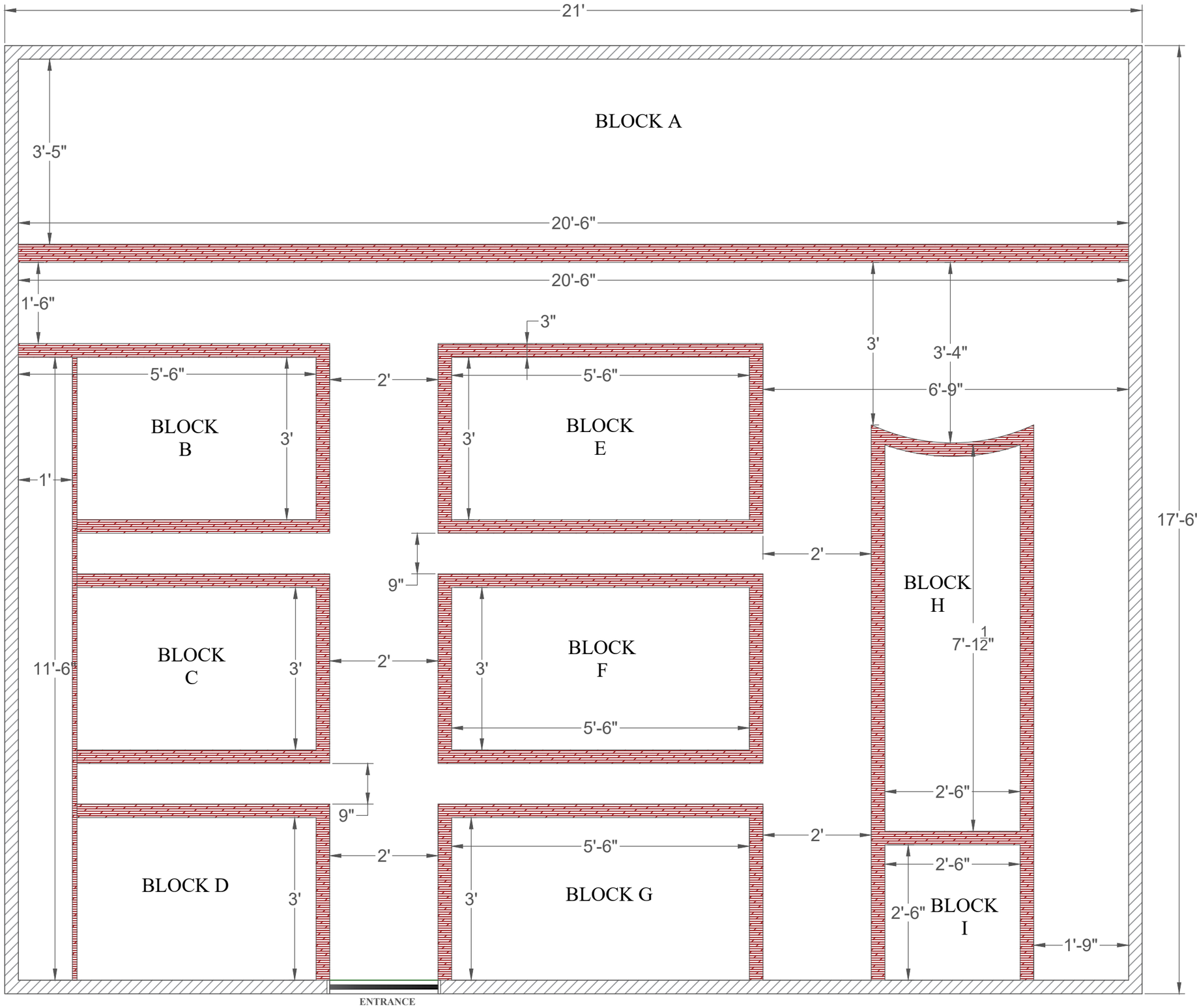


PLATE 27 - DIMENSIONAL LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR LARGE SPACE (AREA: 368 sq.ft.)

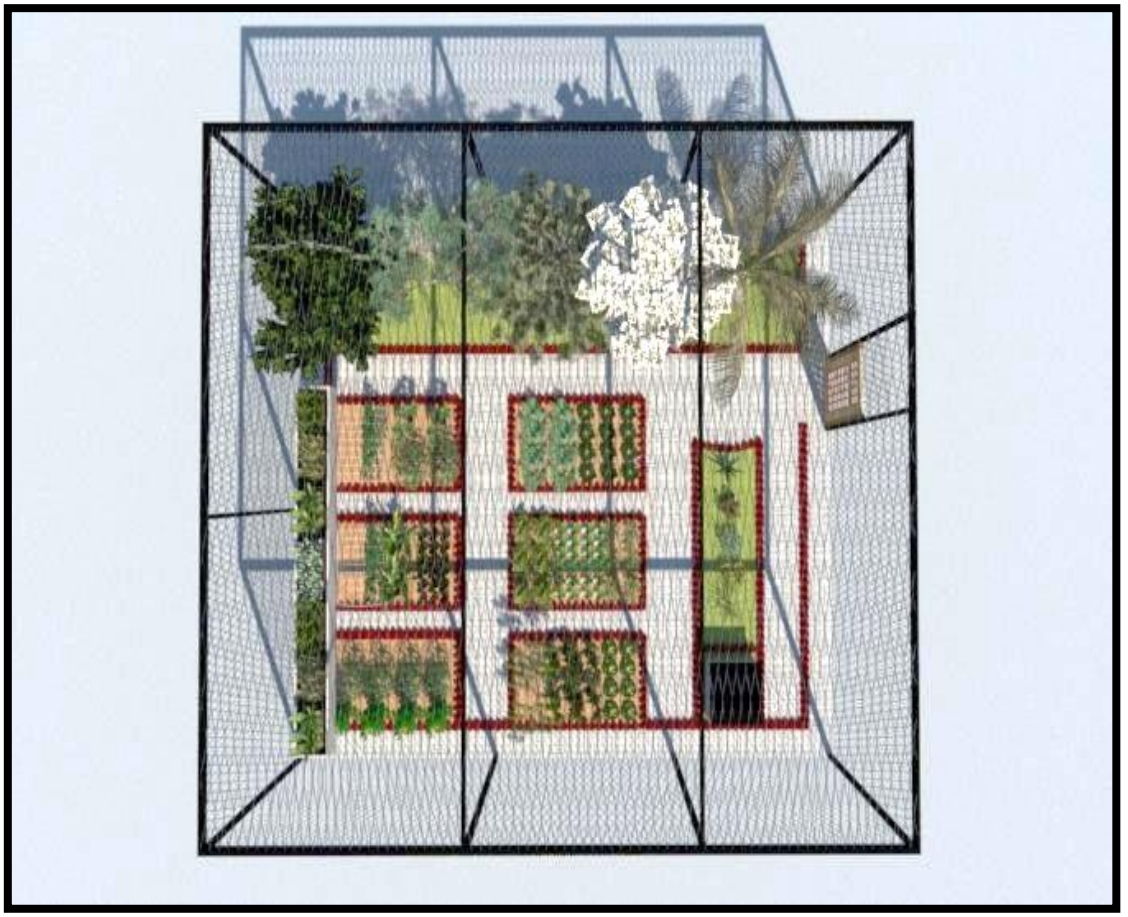


Plate 28 - 3D View 1 of the Large Space Kitchen Garden Design

Plate 29 - 3D View 2 of the Large Space Kitchen Garden Design

Plate 30 - 3D View 3 of the Large Space Kitchen Garden Design

Plate 31 - 3D View 4 of the Large Space Kitchen Garden Design

4. Proposed design of Terrace kitchen garden

The researcher proposed a design which can be generally utilized on terraces of residential space ranging from 200 sq. ft. area to any larger space.

The design proposed by the designer has a total of 375 sq. ft. area. The terrace garden was designed in two separate sections viz. one for seating and relaxing with automated louvered shade and glass covering on ceiling which allows partial light in the area. The internal area was provided with a sofa set, centre table and a wide and narrow plant container which can be widely utilized for cultivating micro greens and for annual herbs and medicinal plants which can sustain and survive in partial sunlight. It was suggested that annual regularly used plants should be placed near the entrance so that it comes handy for everyday use of the owner. A half sliding glass door partition was provided for the second half of the kitchen garden. Sliding doors were used as it consumes less operating space and provides with more amount of circulation space, while glass partition material allows enough partial sunlight and day light for the seating area as well. Vegetable containers of around 18 sq. ft. were used in the outdoor kitchen garden which is resistible to heat and moist. Large sized mud pots of 12 inches of radius were suggested in front of each vegetable container. A circulation space of 13 inches was provided between each two vegetable containers for easy movement while plucking vegetables, removing debris, and maintaining the pots.

Provision of short heighted pots was also suggested by the researcher on one wall of the terrace for planting annual medicinal plants and herbs. It was suggested such that its position can be changed for modification and the plants can also be replaced with other medicinal plants and herbs after a duration.

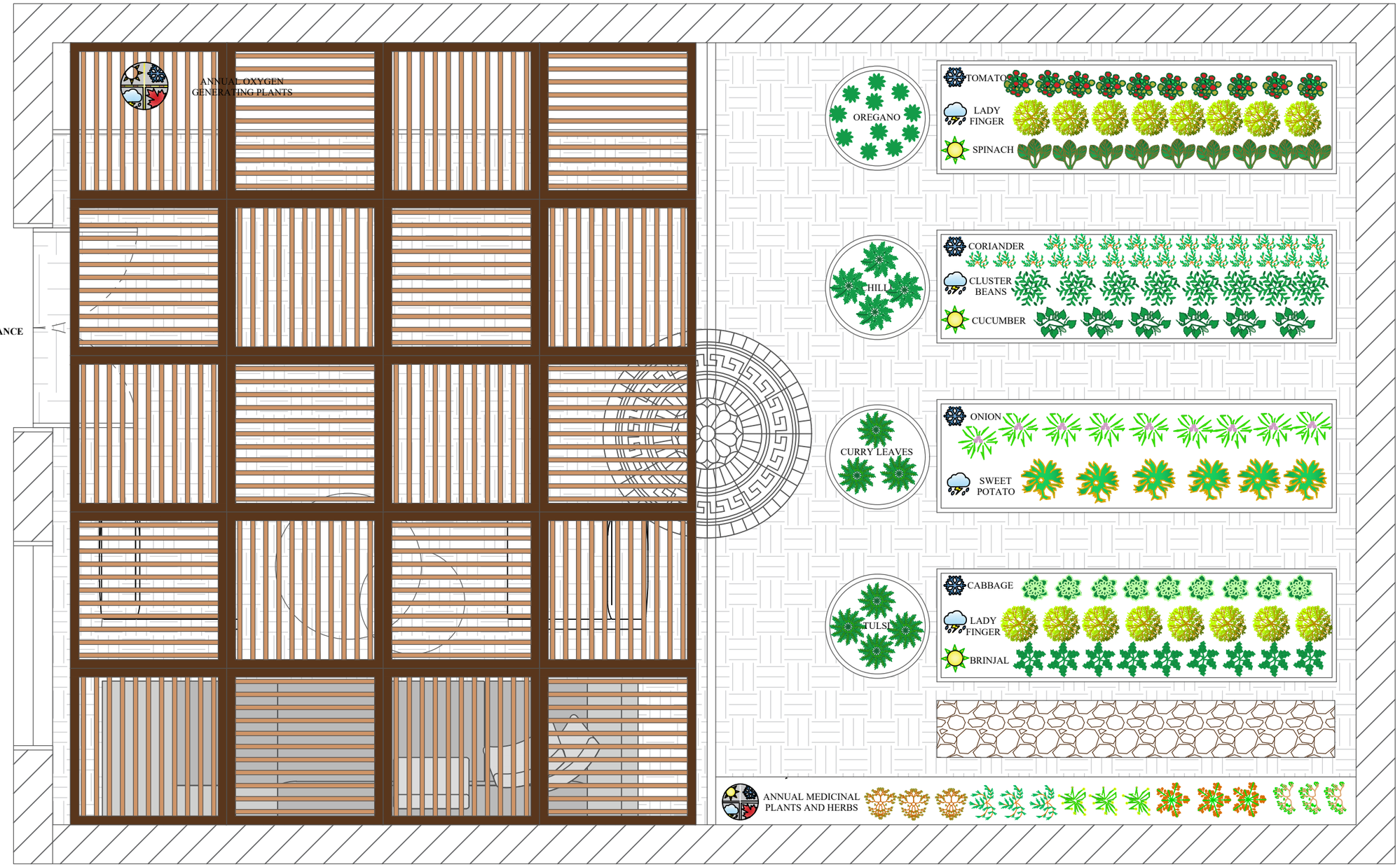
The researcher suggested China mosaic tiles as a flooring material for the terrace kitchen garden. This type of tiles is best used for outdoor and less traffic areas in Indian concepts as it is also available in variety of colours, sizes, shapes, and patterns which can be modified according to the use and style of the owner.

Acrylic Fibre Sheet with two aluminium fabricated vertical support was used for the shade of outer kitchen garden as it is a long lasting and a cost-effective shading material.

Vegetable plants of each season were suggested by the researcher in each vegetable container so that the owner can have a variety of home-grown food in each season.

The plants which were suggested in each vegetable containers for terrace kitchen garden were Tomato, Lady finger, Spinach, Coriander, Cluster Beans, Cucumber, Onion, Sweet Potato, Chilli, Cabbage and Brinjal.

For large sized pots in front of each vegetable container the researcher suggested green leafy kitchen plants such as oregano, chilli, curry leaves and Tulsi which are used commonly on regular basis in India. These plants were suggested as it is in an easy to reach position.



KEY

Sr. No.	TITLE	SYMBOL
1.	Winter Season	
2.	Summer Season	
3.	Monsoon Season	
4.	Perennials	
5.	Cluster Beans	
6.	Brinjal	
7.	Lady Finger	
8.	Sweet Potato	
9.	Spinach	
10.	Cabbage	
11.	Oregano	
12.	Tomato	
13.	Chili	
14.	Cucumber	
15.	Coriander	
16.	Curry Leaves	
17.	Onions	
18.	Tulsi	
23.	Medicinal Plants and Herbs (Ginger, Ardusi, Green Tea, Mint and Green Turmeric)	
24.		
25.		
26.		
27.	Pathway	
28.	Boundary Wall	

PLATE 32 - AESTHETIC LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR TERRACE GARDEN (AREA: 375 sq.ft.)

NOTE: PLANTS SHOWN IN THE LAYOUT ARE SYMBOLIC REPRESENTATION.

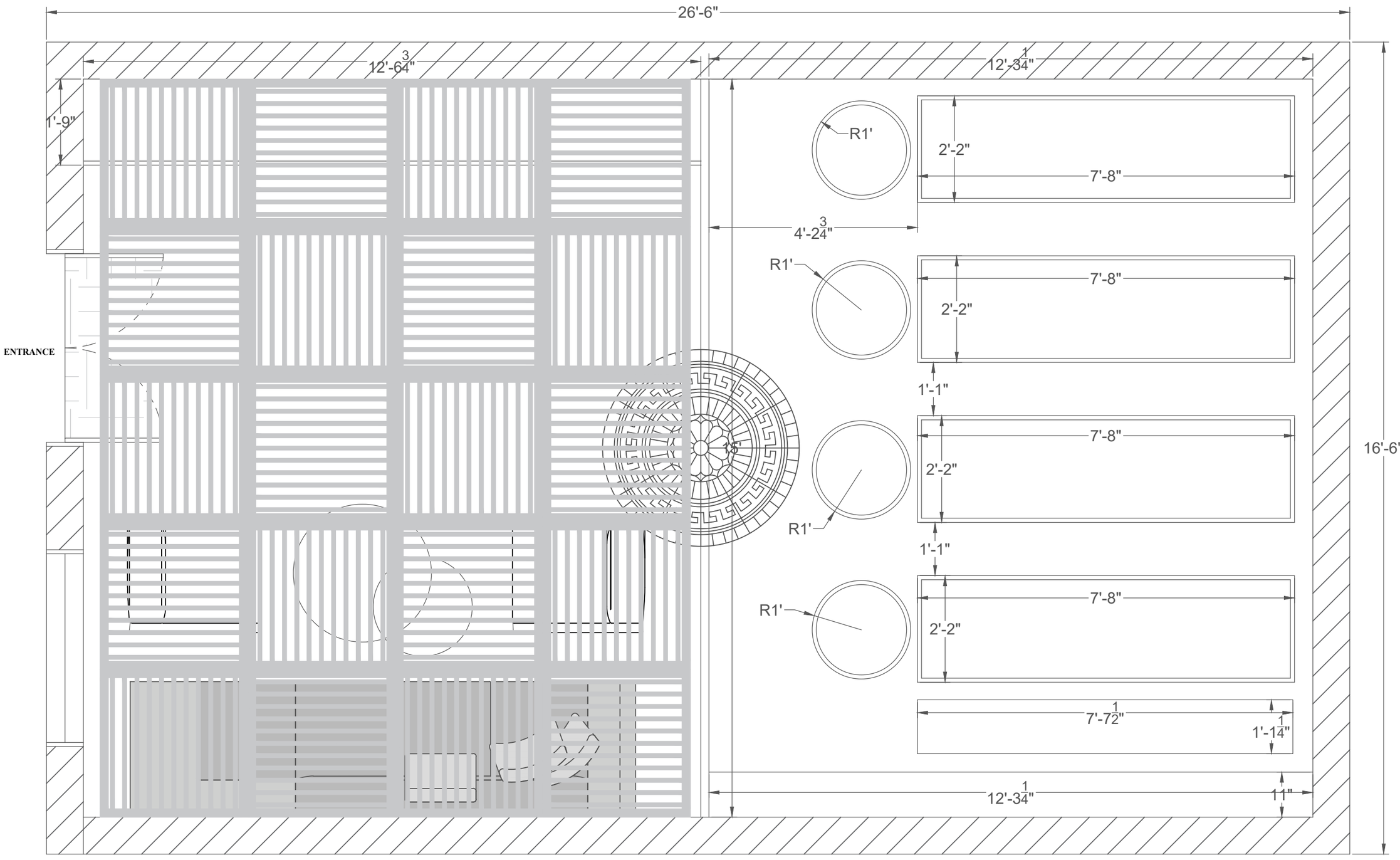


PLATE 33 - DIMENSIONAL LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR TERRACE GARDEN (AREA: 375 sq.ft.)

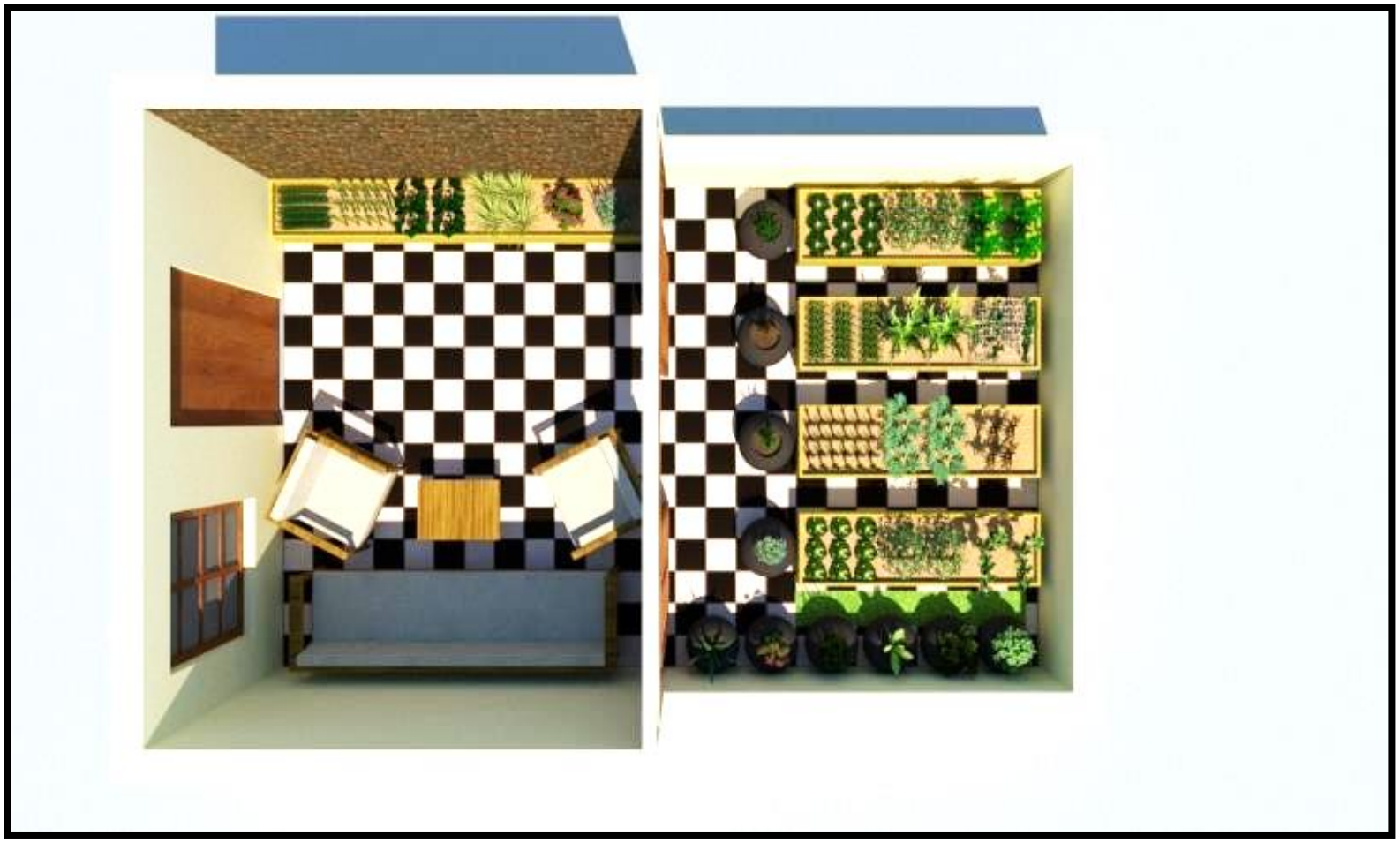


Plate 34 - 3D View 1 of the Terrace Kitchen Garden Design

Plate 35 - 3D View 2 of the Terrace Kitchen Garden Design

Plate 36 - 3D View 3 of the Terrace Kitchen Garden Design

5. Proposed design of Balcony kitchen garden

Balconies of residential space can be utilized for kitchen gardening; therefore, the researcher proposed a design which can be applied to any balcony space.

The design proposed by the designer has a total of around 50 sq. ft. area. The balcony kitchen garden was designed in two separate sections viz. on surface of balcony and the other was suggested hanging on the railing of balcony.

A 'C' shaped vegetable container was suggested by the researcher for balcony kitchen garden, as it provides much larger and wider space to grow plants and vegetables as compared to pots. The researcher suggested plants for each season in the vegetable containers so that the owner can have a variety of home-grown vegetable in each season.

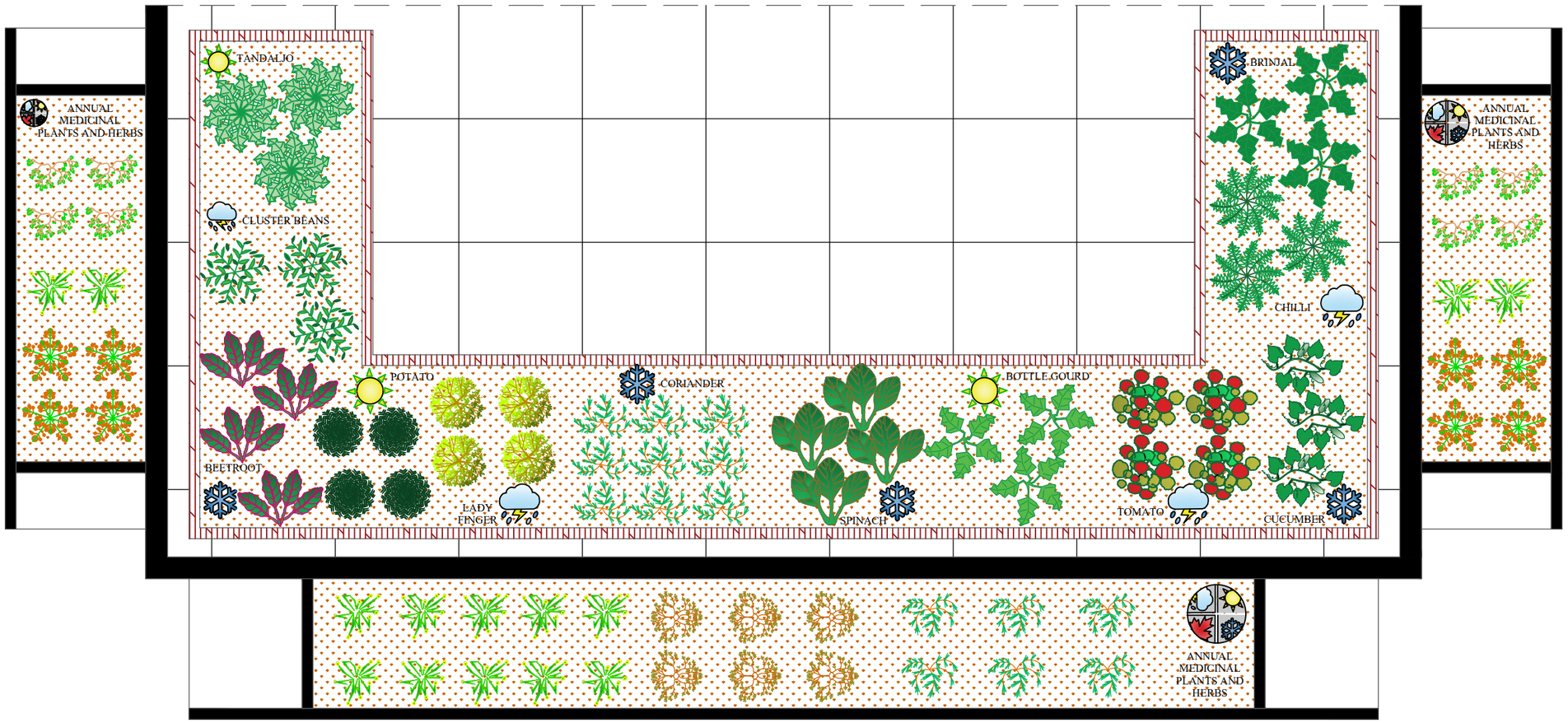
The hanging baskets were designed such that they were attached with two metal supporting angles on both the adjacent sides which hold the hanging baskets in place with a base metal support below each basket. The researcher suggested annual medicinal plants and herbs to be planted in hanging baskets because they are short heighted and can be easily plucked from baskets in a standing position.

As the vegetable container was suggested at a low height no shade was provided over the balcony. Partial sunlight will be transported through the balcony railings and hanging baskets.

The plants which were suggested in the vegetable containers for the balcony kitchen garden were Brinjal, Chilli, Cucumber, Tomato, Lady Finger, Spinach, Coriander, Potato, Beetroot and Cluster beans.

General annual medicinal plants and herbs

There are various annual medicinal plants and herbs which can be cultivated in a kitchen garden. But according to Indian context there are some annual medicinal plants and herbs which can sustain in Indian climate and temperature and are generally used in cooking.



KEY

Sr. No.	TITLE	SYMBOL
1.	Winter Season	
2.	Summer Season	
3.	Monsoon Season	
4.	Perennials	
5.	Cluster Beans	
6.	Brinjal	
7.	Lady Finger	
8.	Tomato	
9.	Beet Root	
10.	Potato	
11.	Spinach	
12.	Bottle Gourd	
13.	Tandaljo	
14.	Coriander	
15.	Chili	
16.	Cucumber	
17.	Medicinal Plants and Herbs (Ginger, Tulsi, Ardusi, Green Tea, Oregano and Green Turmeric)	
18.		
19.		
20.		
21.	Railing	
22.	Flooring	

PLATE 37 - AESTHETIC LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR BALCONY GARDEN (AREA: 61 sq.f.t)

NOTE: PLANTS SHOWN IN THE LAYOUT ARE SYMBOLIC REPRESENTATION.

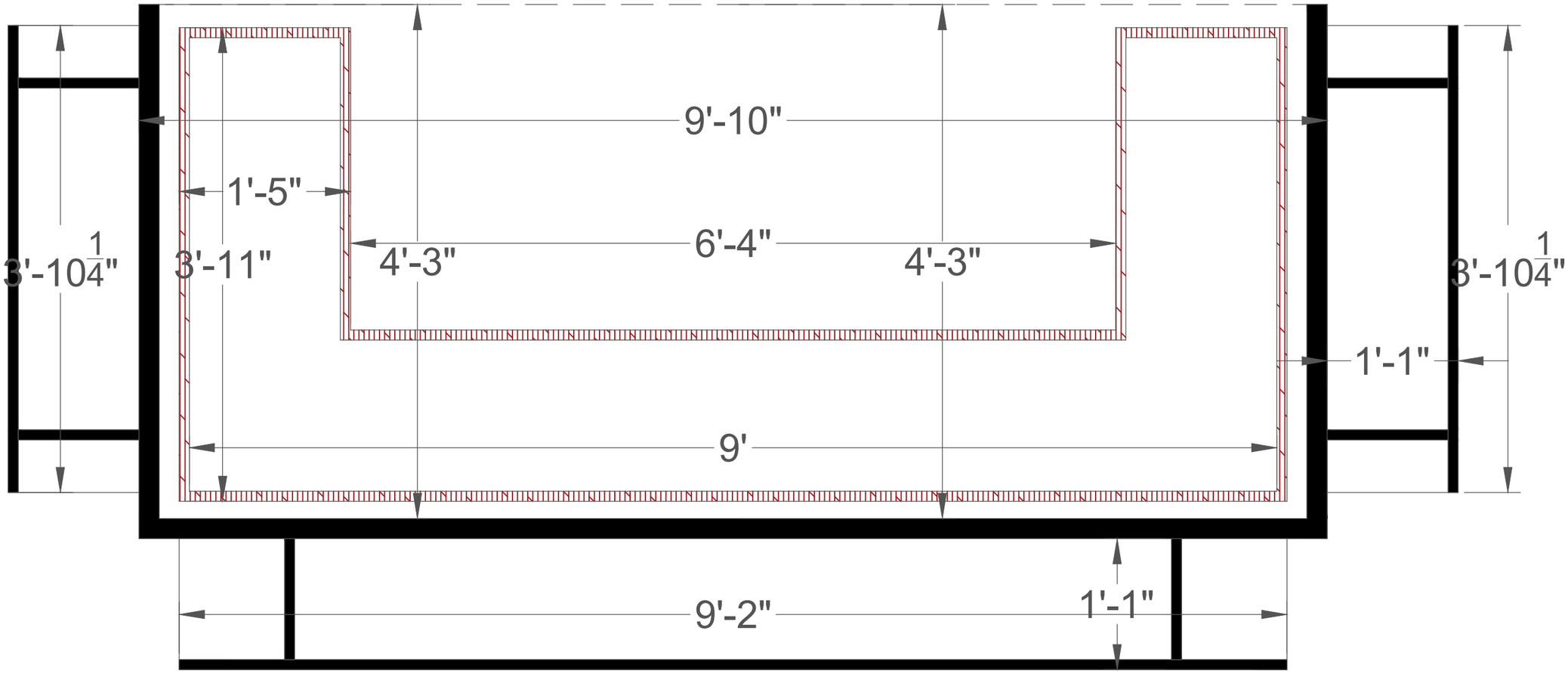


PLATE 38 - DIMENSIONAL LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR BALCONY GARDEN (AREA: 61 sq.f.t)

Plate 39 - 3D View 1 of the Balcony Kitchen Garden Design

Plate 40 - 3D View 2 of the Balcony Kitchen Garden Design

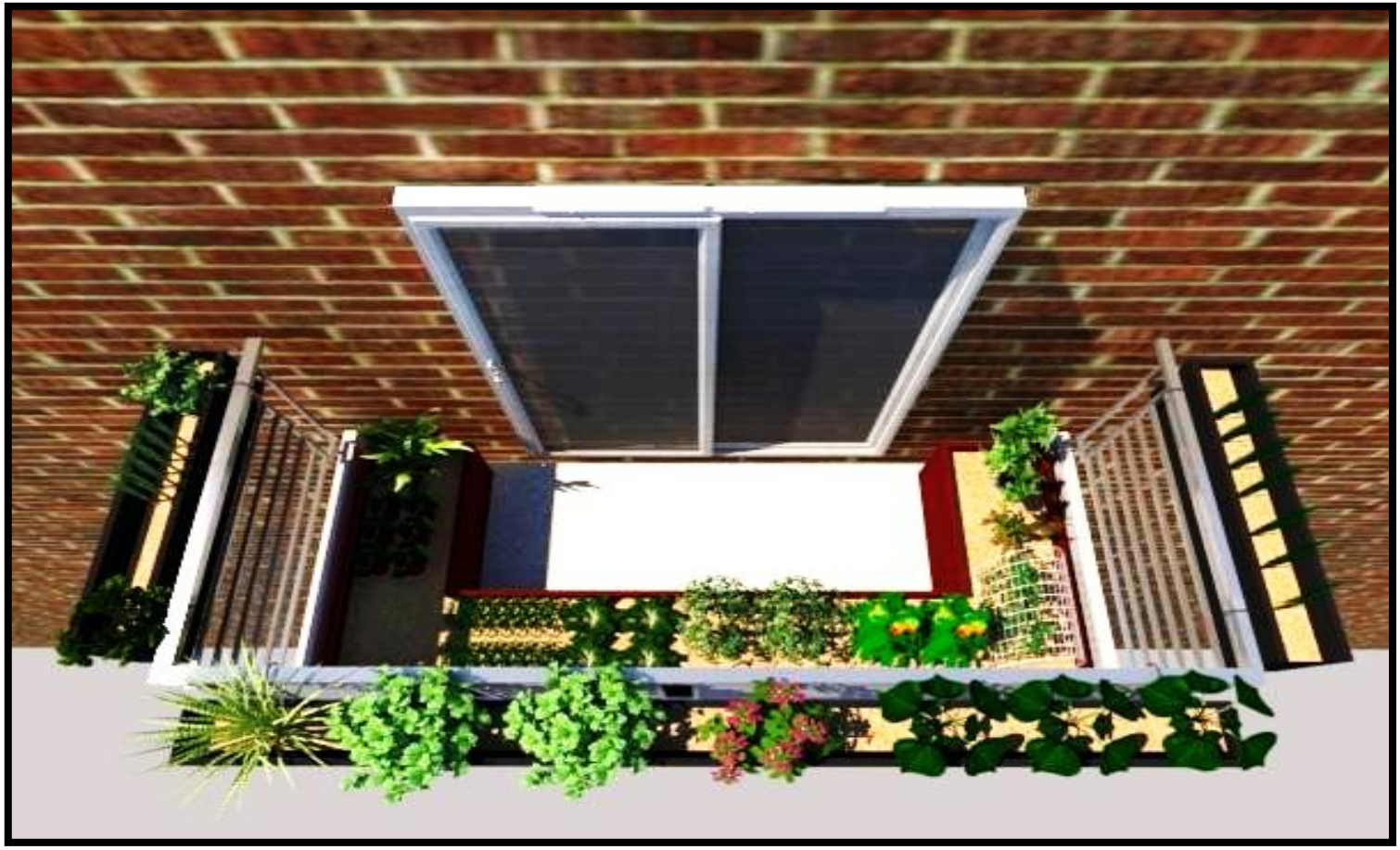


Plate 41 - 3D View 3 of the Balcony Kitchen Garden Design

Plate 42 - 3D View 4 of the Balcony Kitchen Garden Design

6. Proposed design of Container kitchen garden

The researcher proposed a design which can be generally applied as container gardens in any residential areas.

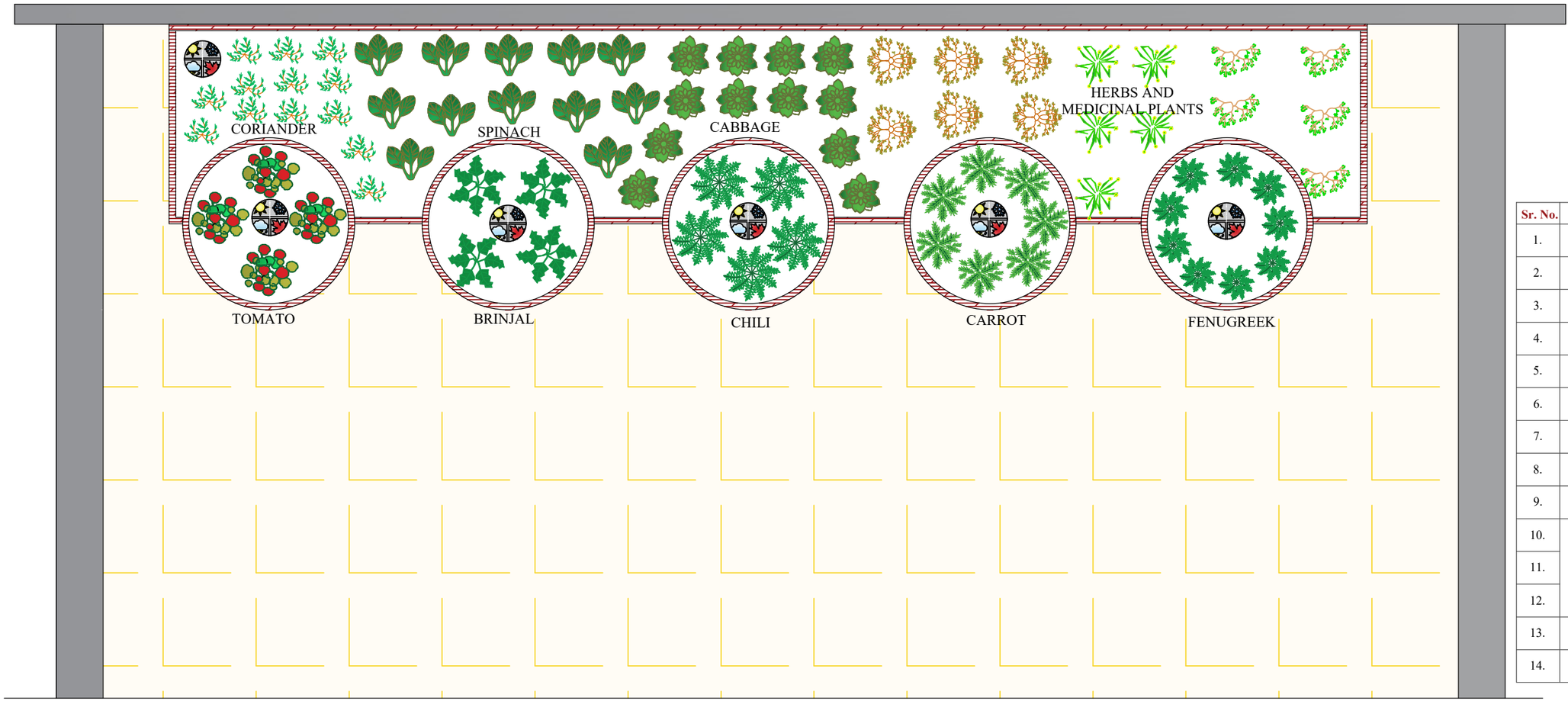
The container garden designed by the researcher has two separate designs viz. horizontal garden space design and vertical garden space design.

For vertical container garden design, the back support wall was first treated with water proofing material. Wooden ledges with 1" rim was designed for the containers to be placed for vertical garden. The ledges were suggested to be made from scrap wood, cork or MDF material. The ledges were placed on the wall with a little tilt to the drainage side which helps to drain off excess water through the outlets provided. A PVC pipe is also suggested by the designer on one side of the ledge where tilt is given so that the water is drained and served to the rest of the garden space without wasting water.

The researcher suggested waste plastic bottles as plant containers for vertical garden design and annual leafy plants and herbs to be planted in containers because they are short heighted and can be easily plucked from containers in a standing position. It can be maintained easily and can help in reduction of plastic.

For horizontal container garden design, the containers were designed and placed in such a way that utilizes most of the floor space. With a combination of circle and rectangle shapes, horizontal container garden space was designed.

The researcher suggested various perennial vegetables, fruits, herbs, and medicinal plants such as spinach, brinjal, coriander, fenugreek, etc. to be placed in the horizontal and vertical container. According to plant variety and its growth, the container has to be selected for container gardening. The containers can be arranged in vertical or horizonal space in residence as per the shape and size.



KEY

Sr. No.	TITLE	SYMBOL
1.	Perennials	
2.	Tomato	
3.	Spinach	
4.	Brinjal	
5.	Coriander	
6.	Chili	
7.	Cabbage	
8.	Carrot	
9.	Fenugreek	
10.	Medicinal Plants and Herbs (Ginger, Tulsi, Ardusi, Green Tea, Oregano and Green Turmeric)	
11.		
12.		
13.	Internal Border	
14.	Flooring	

PLATE 43 - AESTHETIC LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR CONTAINER GARDEN - HORIZONTAL

NOTE: PLANTS SHOWN IN THE LAYOUT ARE SYMBOLIC REPRESENTATION.

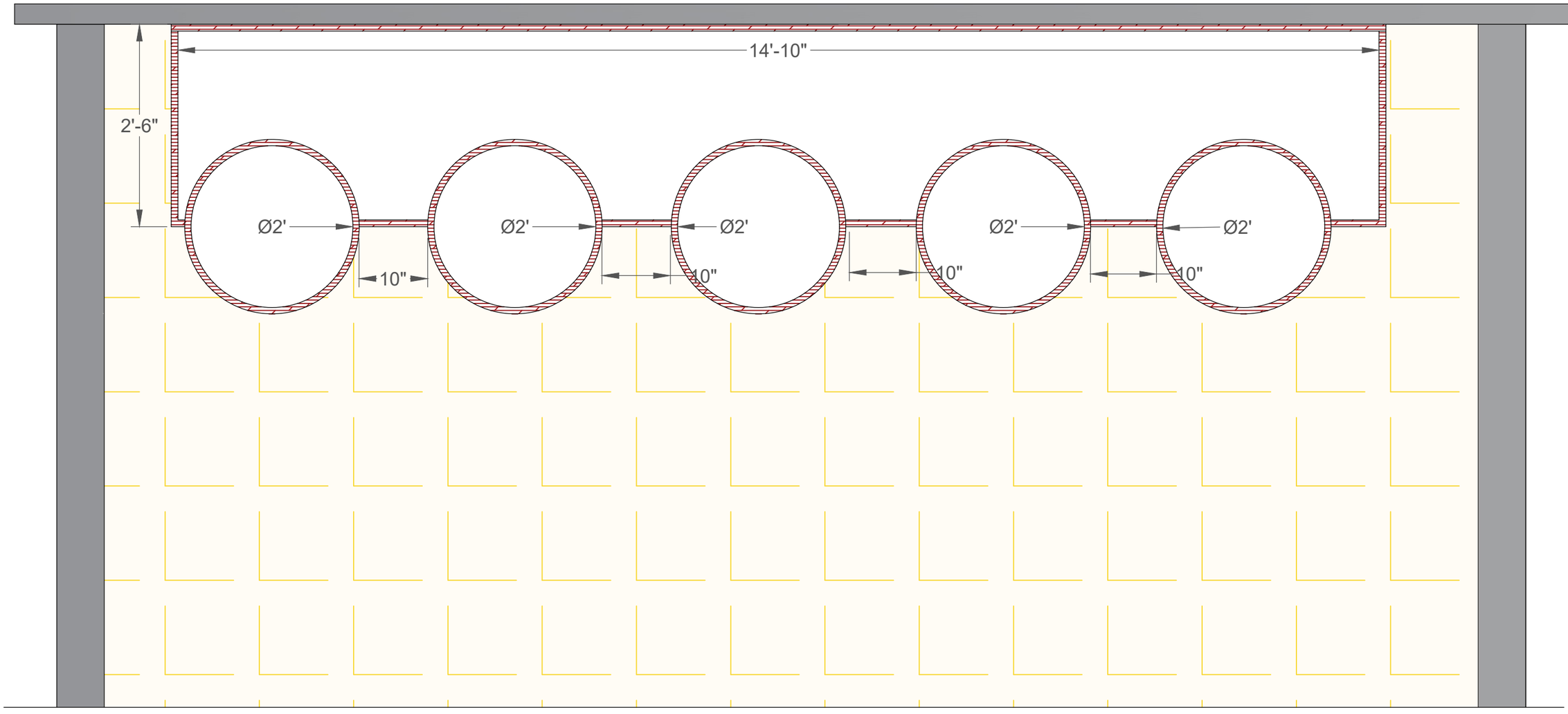


PLATE 44 - DIMENSIONAL LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR CONTAINER GARDEN - HORIZONTAL

Plate 45 - 3D View 1 of the Container Kitchen Garden Design (Horizontal)

Plate 46 - 3D View 2 of the Container Kitchen Garden Design (Horizontal)

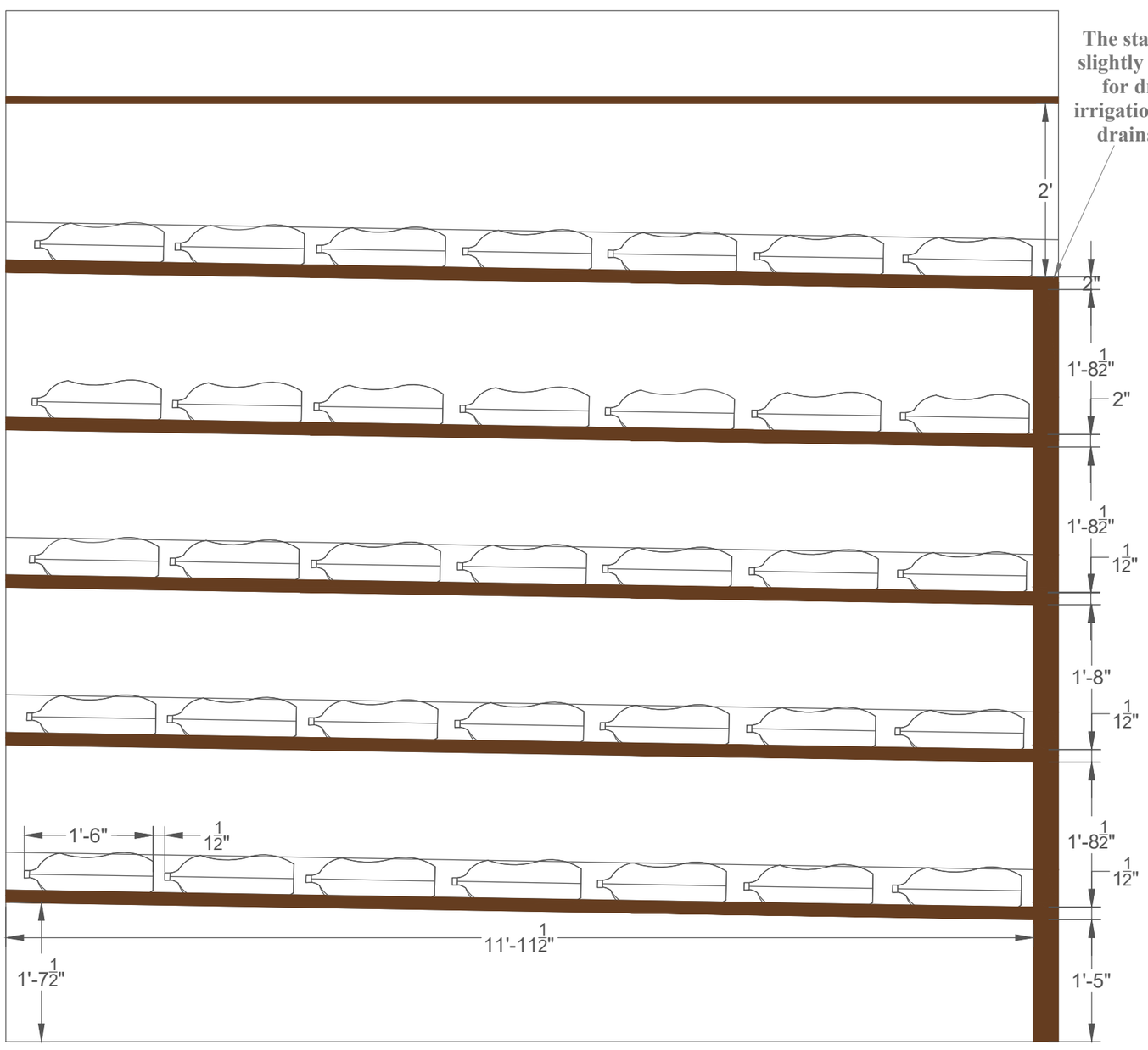
FRONT ELEVATION

KEY

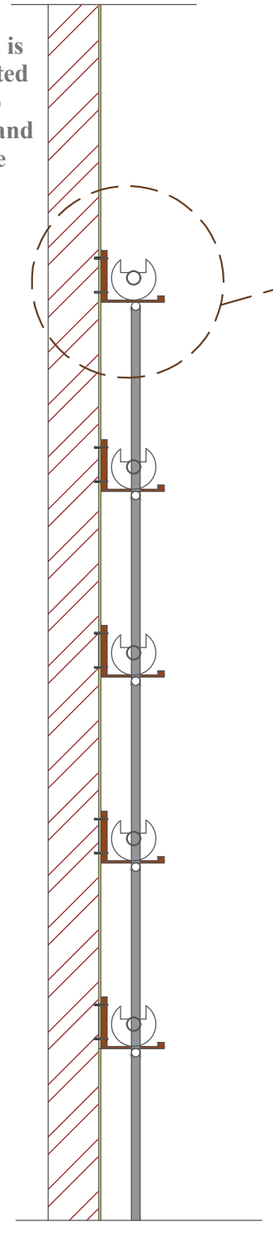
Sr. No.	TITLE	SYMBOL
1.	Perennials	
2.	Spinach	
3.	Coriander	
4.	Fenugreek	
5.	Medicinal Plants and Herbs (Ginger, Tulsi, Ardusi, Green Tea, Oregano and Green Turmeric)	
6.		
7.	Container	

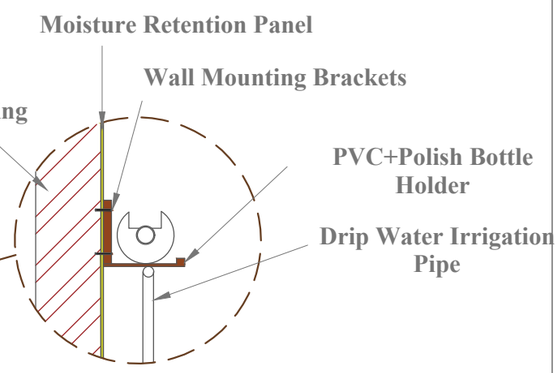
PLATE 47 - AESTHETIC LAYOUT OF PROPOSED KITCHEN GARDEN DESIGN FOR CONTAINER GARDEN - VERTICAL

NOTE: PLANTS SHOWN IN THE LAYOUT ARE SYMBOLIC REPRESENTATION.



FRONT ELEVATION





SIDE ELEVATION

PLATE 48 - LAYOUT OF PROPOSED KITCHEN GARDEN
DESIGN FOR CONTAINER GARDEN - VERTICAL

NOTE: PLANTS SHOWN IN THE LAYOUT ARE SYMBOLIC REPRESENTATION.

Plate 49 - 3D View 1 of the Container Kitchen Garden Design (Vertical)

Plate 50 - 3D View 2 of the Container Kitchen Garden Design (Vertical)

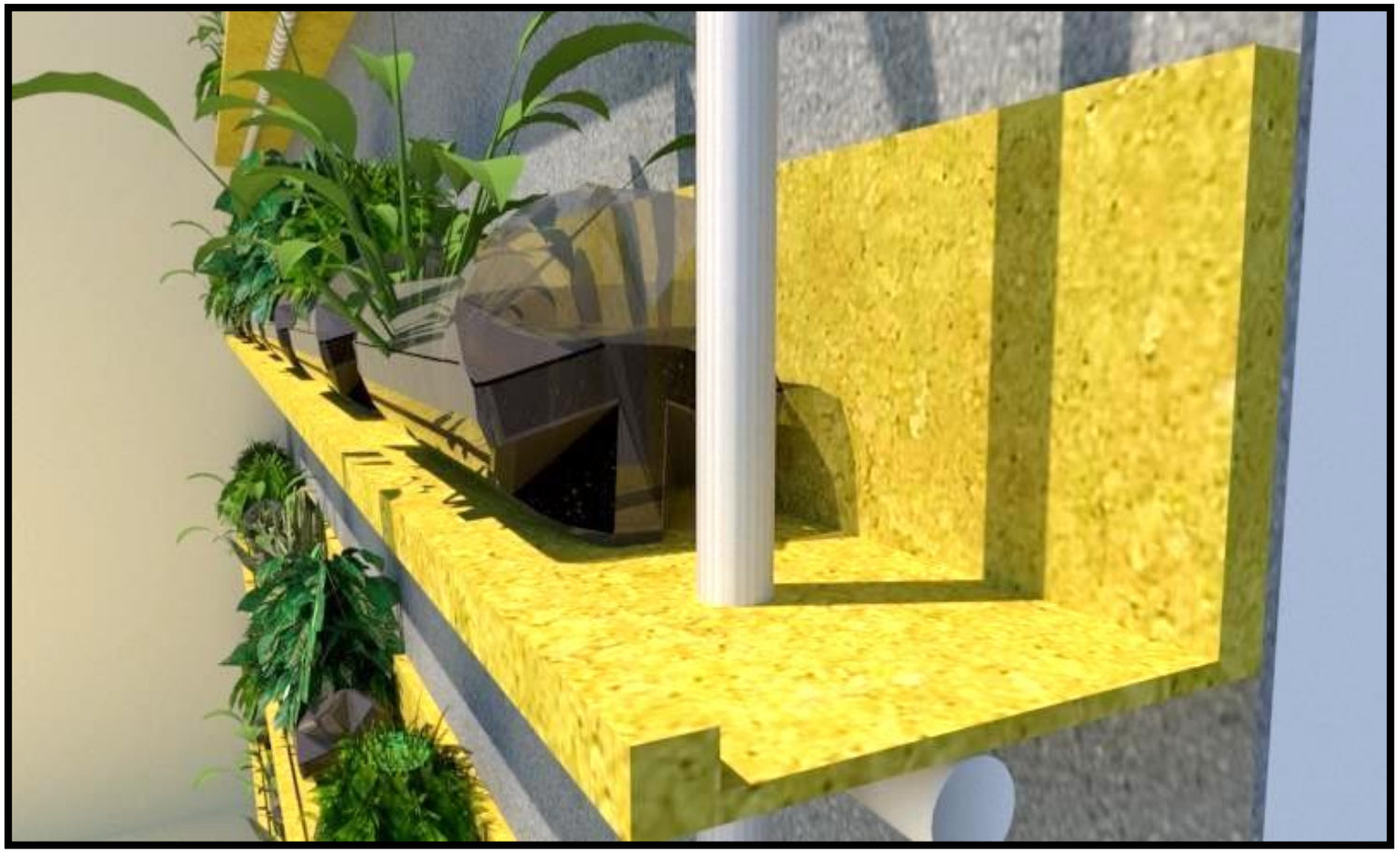


Plate 51 - 3D View 3 of the Container Kitchen Garden Design (Vertical)

Section V

Development of Booklet

4.5 Development of Booklet

One of the objectives of the study was to develop a booklet containing all the aspects of kitchen garden design. The booklet was developed in both English and Gujarati language for better understanding of the users. It included meaning and importance of kitchen garden, factors to be considered while developing kitchen garden, seasonal chart for growing vegetables at home, home remedies for diseases and pests in the kitchen garden, composting process and its benefits, and kitchen garden designs for various spaces of a residence. the significance of topic, content, and language of the text was validated by a panel of experts from the horticulture and landscape design fields. Feedback regarding the design of the booklet, grammar and language for both Gujarati and English were received from the experts which were taken into consideration for the final development of the booklet.

Section VI

Intervention Program for the Respondents

One of the objectives of the present research was to conduct an intervention program for the respondents covering the various aspects of kitchen gardening. For this purpose, the PowerPoint presentation was prepared in Gujarati language for better understanding of the respondents. The development and implementation of the intervention program was done in four stages, i.e., preparation of material, contacting the beneficiaries, implementation, feedback of the respondents.

Stage 1: Preparation of material

The educational material developed for the intervention program was shown through the PowerPoint presentation to the respondents. The PowerPoint presentation containing the various aspects of kitchen gardening was developed in Gujarati language for better understanding of the respondents. The content covered meaning and benefits of kitchen gardening, steps to develop kitchen garden, home remedies to control pests in kitchen garden, household compost meaning, uses and preparation of household compost and various designs of kitchen garden for different spaces of the residence developed by the researcher were also included. The content was reviewed and translated in Gujarati for the presentation. The Gujarati language content was given for validation to the Director of Horticulture, Vadodara district. As per the suggestions given, changes were made to the content. (Appendix 2)

Stage 2: Contacting the beneficiaries

The beneficiaries for the intervention program were contacted, who were the respondents of the study, having a kitchen garden in their residence and the ones who were willing to develop kitchen garden in their residences were also contacted through Snow-ball technique. A total of 225 beneficiaries participated in the intervention program.

Stage 3: Implementation

A suitable time and place were decided for the beneficiaries to attend the intervention program. Two intervention programs were conducted in the Sabha

Hall of Swaminarayan Temple, IT Road, Diwalipura, Vadodara and Shantanu Society, Harni Road, Vadodara. The beneficiaries were gathered there, and they were given knowledge of various kitchen garden aspects through PowerPoint presentation.

Plate 52 - Intervention Program Conducted by Researcher at Sabha Hall of Swaminarayan Temple, IT Road, Diwalipura, Vadodara

Plate 53 - Intervention Program Conducted by Researcher at Shantanu Society, Harni Road, Vadodara

Stage 4: Feedback of the respondents

After the presentation the question answer session was done for discussion followed by their feedback. It was observed that many of the respondents who

were willing to develop a kitchen garden in their house but could not develop due to limitation of space were then having confidence in developing their own kitchen garden. Also, the respondents who had kitchen garden in their residence were having problems related to the plants, which were solved by discussion in the question-answer session.

Plate 54 - Question – Answer Session Conducted by Researcher at Sabha Hall of Swaminarayan Temple, IT Road, Diwalipura, Vadodara

Plate 55 - Question – Answer Session Conducted by Researcher at Shantanu Society, Harni Road, Vadodara

Plate 56 - One on One Discussion Session Conducted by Researcher at Sabha Hall of Swaminarayan Temple, IT Road, Diwalipura, Vadodara