



## **SURVEY OF ORNAMENTAL GARDENS IN FIVE LOCAL GOVERNMENT AREAS OF SOUTHERN EDO STATE NIGERIA**

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### **ABSTRACT**

Ornamental plants are plants selected for cultivation in a garden primarily because of their aesthetic values. Operators of such gardens may depend on its success for subsistence and income security. This study examined ornamental gardens and plants in five Local Government Areas (LGA's) of Southern Edo State, Nigeria. The LGA's include Egor, IkpobaOkha, Oredo, Ovia North East and Ovia South West. A total of 25 ornamental garden and their operators were surveyed across the study area. Their knowledge and practices were assessed using interviews and semi structured questionnaires. A total of about 51 ornamental plants distributed in 31 higher plant families were encountered in all the gardens. More so, the study revealed that majority of the gardens is owned and manage by the Benin ethnic group and mostly female. The age distribution pattern revealed that respondents were mostly between 30 - 40 years and rarely acquired tertiary education. Information on the awareness of ornamentals as an environmental management tool was high with the major constraint been finance. Furthermore, it was revealed that majority of the gardeners prefer to situate their gardens by the roadside. It can be suggested from the study that the sector need support from government to provide basic amenities and encourage unemployed youths to venture.

**KEYWORDS:** Ornamental garden, Agriculture, Gardeners, Plants.

### **INTRODUCTION**

There is no straight cut definition for ornamental plants in literatures as they are mostly implied. They are simply plants grown for their aesthetic qualities. Plants of this category have wide spectrum of areas where they are grown as well as variety of its parts used for aesthetic purpose including their flowers, leaves, scent, overall foliage texture, fruit stem and bark. Basically, they are grown in flower gardens, roadside or residential areas as house plants. Ornamental

plants provide aesthetic functions by creating side attraction for human activities. The presence of these plants in an environment makes it beautiful and attractive in addition to been cool and inviting (Baiyewuet *al.*, 2005).

Nigeria is an agrarian society with about 70 per cent of her over 140 million population engaged in agricultural production (ICARD, 2006). The production and use of ornamental plants has significant potentials for food and income security in

Nigeria. Like other agricultural crops, the production of these crops plays crucial role in the developing economies including ensuring safe and healthy environment. Many Nigerians own and operate vegetable and ornamental horticulture gardens across the country. In Edo state, Southern Nigeria, operators use the venture to earn a living. They are conspicuously on road sides of major roads with displays of varieties of plant. The economic benefits and total outputs values of these enterprises are tremendous in the country. The incomes that accrue could be very significant and could contribute substantially to the nation's economy and development. Currently, Osawaru and Dania-Ogbe (2010) highlighted other uses of plants to include gateways to "gods" and as an integral part in tribal, social and cultural life style of man; thus a number of taboos and totems are ultimately related to the use of plants. The importance of ornamental plants in human includes as sources of medicinal herbs, which are primary form of therapy for treatment of diseases; they are also known to have therapeutic values. For instance, walking through a botanical garden can be very relaxing and healthy. People with emotional and mental problems can be assisted when deliberately exposed to ornamental plants. Another benefit of ornamental horticulture is in the area of sports and recreation as turfs in sports field and leisure gardens where people can converse and interact. These plants also play crucial role in cooling the atmosphere through the evapo-transpiration thereby preventing health hazards (Omokhuaet al., 2002). Aquccah (2002) reported that in many societies some flowers are associated with specific events such as Rose flowers used to mark valentine season while the poinsettias flowers are associated with yuletide periods.

The industry has also contributed to the foreign exchange earnings of many countries. For instance in 2006, the

floriculture items sold at all rated outlets in the United States of America was worth USD 20.8 billion (Society of American Florist, 2006). The enormous diversity of ornamental plants in Nigeria is capable to improve our economy. The industry in Nigeria is hampered by many problems and continues to receive very little attention in the nation's perspective plan for agricultural development (Oseni, 2004). More so, ornamental plants production which is mostly under developed (Bankole, 2002). There is also the problem of awareness amongst the populace primarily due to lack of environmental beautification plan across the nation. This study investigates the awareness and importance of ornamental plants and gardens in five Local Government Areas (LGA) of Edo state Nigeria. More so, it aims to examine, survey and evaluate the use of ornamental plants resources by Identifying common ornamental plants used in the study area, examine operators socio-economic characteristic, militating factors and estimate prospects of ornamental plants business.

## **MATERIALS AND METHODS**

**Study Area:** *The area under study is situated around Benin City, Edo state, Nigeria (figure 1). The state was created in 1991 out of the former Bendel State. Edo State lies roughly between longitude 05<sup>o</sup>.04<sup>o</sup>E - 06<sup>o</sup>.43E, and latitude 05<sup>o</sup>.44<sup>o</sup>N and 07<sup>o</sup>.34<sup>o</sup>N. It is bounded in the South by Delta State, in the West by Ondo State, in the North by Kogi State and in the East by Kogi and Anambra States. It occupies a land area of about 17,802 Km<sup>2</sup>. She has eighteen local government areas with Benin City as the major urban centre in the state. The study area lies within the humid tropical rain forest zone (Anon 2009). However, comparable*

and similar vegetation has been heavily altered by anthropogenic activities and highly replaced with mosaic of secondary forest (Dania-Ogbeetal., 2001). The climate includes annual rain fall ranging from 2000 –

3000 mm with bimodal distribution which peaks at June/July and September respectively, high temperature between 20<sup>0</sup> C – 40<sup>0</sup> C with an average relative humidity of 80 – 85 % throughout the year.

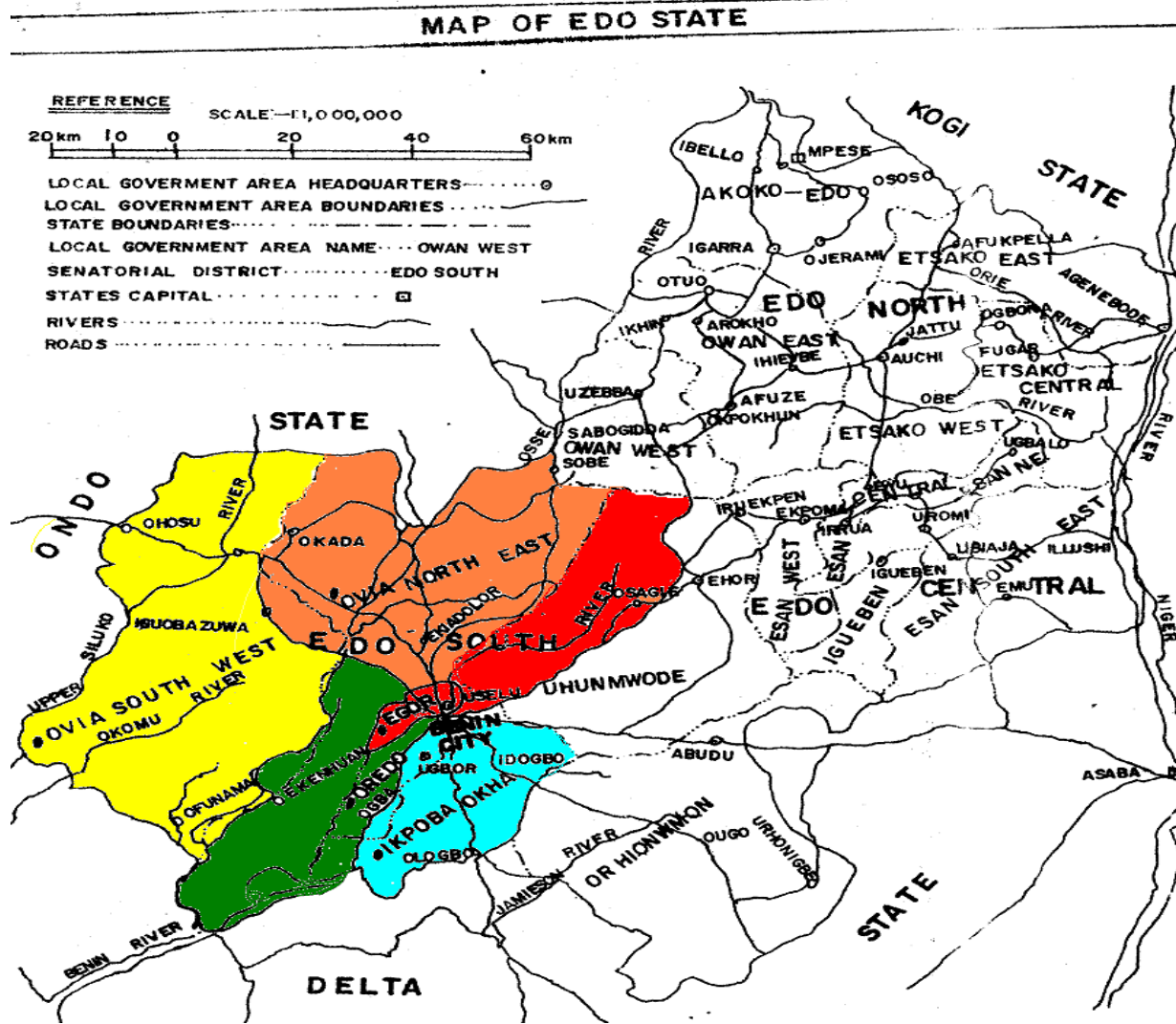


Figure 1: Map of Edo state with sampling site highlighted.

**Sampling Frame:** The local government areas within the study area include Egor, IkpobaOkha, Oredo, Ovia South west, and Ovia North East of Edo State of Nigeria (table 1). Ten randomly selected locations within the local government areas were

sampled using closed and open ended questionnaires. A number ranging between 20 - 25 respondents were interviewed in each of the stratum and the questionnaires administered. The focus was on inhabitants of communities within the LGA’s sampled. The questionnaires were distributed to gardeners within the area to assess the choice,

means of propagation and the role of ornamental plants in environmental protection. Stratified random sampling was employed in the distribution of questions and gathering of primary data. At each sampling site, three visits were carried out, first to randomly select gardens, gardeners. Secondly to administer questionnaire and to undertake guided walk with the gardeners. Thirdly to document information on plants, types/choice of plants, plants parts used, where used in the landscape were documented. Places within the sampling site are presented in table 1.

**Plant Identification:** Plant materials were identified with the aid of useful texts with the

assistance of Plant Taxonomists in the Department of Plant Biology and Biotechnology, University of Benin, Benin City, Nigeria. Vouchers of collected plants species are deposited in Herbarium Unit of the above named Department.

**Data Analysis:** Data collected were analyzed using descriptive statistics (means and percentages) using Microsoft excel 2003 as discussed by Ogbeibu (2005).

Table 1: Sampling sites for Ornamental plants in five Local Government area of Edo State, Nigeria

*LGA	MAJOR TOWN	GARDEN SAMPLED / SS
Egor	Uselu	Santua Garden, BDPA, Golden Green Garden, Ugbowo Hopewell Garden, Ugbowo College Garden Benin Technical Road. Valley Green, Okhoro.
Oredo	Benin city	Blessed Floral Garden, Airport Road Benin city. Muyi botanical garden, Ekenwan road rosary club garden, Benin city. Martins Horticultural garden, airport road Benin city.
Ovia North East	Okada	University Gate Garden, Okada P.T Garden, Okada.
Ovia South west	Iguobazuwa	Day By Day Garden, Okada Road Paul, Roses, Iguobazuwa.
Ikpoba/okha	Aduwawa/Oregbeni	Housing Estate Garden, Ikpoba Hill Kojo Garden, Agbor road, Ikpoba Hill slope gardens Oregbeni.

\*Local Government Area

## RESULTS

Results are presented in Tables 2, 4, 5, 6 and 7

The demographic characteristics of respondents surveyed during the study are presented in Table 2. The result shows that

respondents are evenly distributed in all the LGA's surveyed. The major ethnic group encountered was Benin (88 %) and respondents are mostly female garden owners

68 %. Respondents with tertiary education was 4 % with the age range of 31-40 years been predominant (76 %).

Table 2: Demographic Characteristics of respondents

<b>CHARACTERISTIC</b>	<b>%</b>
<b>LGA</b>	20%
Ovia North East	20%
Egor	20%
Ovia South West	20%
Oredo	20%
<b>Ethnic group</b>	
Benin	88%
Esan	-
Afemai	-
Others	12%
<b>Gender</b>	
Male	32%
Female	68%
<b>Age</b>	
>20	-
21-30	12%
31-40	76%
<40	12%
<b>Religion</b>	
Christian	92%
Muslim	8%
<b>Level of Education</b>	
Primary	48%
Secondary	48%
Tertiary	4%
Post Tertiary	-
<b>Occupation</b>	
Civil servant	-
Public servant	-
Famer/Gardener	100%
Trading	-
Others	-

Table 3 show the result of knowledge and practices related to ornamental plants and gardens. The result shows that respondents are knowledgeable of ornamental plants (76 %) as distinct from other crop plants.

Respondents with knowledge of  $\geq 20$  was 76 % and are mostly cultivated (92 %)

Table 3: Knowledge and Practices Related to Ornamental Plants and gardens by	Respondents
<b>VARIABLES</b>	<b>%</b>
<b>Can you differentiate Ornamental plants from crops</b>	
Yes	76%
No	24%
<b>How many Ornamental plant known</b>	
$\geq 20$	76%
21-50	20%
<50	4%
<b>Status of Ornamental plant known</b>	
Wild	-
Cultivated	92%
Weedy	-
Not known	8%
<b>Habit of Ornamental plant known</b>	
Vine/climber	-
Trees	-
Shrubs	-
Herbs	-
All the above	96%
Not known	4%
<b>How do you relate the plant to others</b>	
Vernacular/common name	80%
Scientific name	20%

The results of respondents' attitude to ornamental plants are presented in Table 4.

Table 4: Respondents' attitude to the Ornamental plants

VARIABLE	FREQUENCY	%
<b>Extent of patronage</b>		
Very low	-	-
Low	1	4%
Medium	24	96%
High	-	-
Very high	-	-
<b>Extent of cultivation</b>		
Very low	2	8%
Low	-	-
Medium	23	92%
High	-	-
Very high	-	-
<b>Are the Ornamental plant restricted in cultivation to your garden</b>		
Yes	17	68%
No	8	32%
<b>Site/land restricted to Ornamental plants</b>		
Distant farm	-	-
Home garden	10	40%
Road side	7	28%
Respondent garden	-	-
Not known	8	32%
<b>Method of propagation</b>		
Seed	22	88%
Stem cutting	16	64%
Separate nursery	-	-
Sucker	17	68%
<b>Who does the planting</b>		
Self	-	-
Specialist	24	96%
Employee	-	-

The result of constraints and management process of ornamental plants and gardens are presented in Table 5. The result suggests inadequate funding (96 %) as the major constraint. Gardeners also obtain their planting materials from surrounding markets (92 %) and own special stores in their gardens (96 %). They also prefer to use tilled soil (92

%) for planting. Number of employees per garden with  $\geq 5$  was high (80 %) as they prefer to establish their gardens on the roadside (96 %). Respondents that do not keep any sort of record was 40 % as they establish their gardens from private savings (52 %).

Table 5: Constraints and management process of Ornamental garden

Variable	Frequency	%
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<b>Major constraints</b>		
Inadequate funding	24	96%
Lack of planting material	-	-
Poor maintenance	1	4%
Lack of transport facility	-	-
Poor patronage	-	-
<b>Major management practice</b>		
Fertilizer application	-	-
Weeding	-	-
Trimming	-	-
Pesticide use	-	-
Others	2	8%
All the above	23	92%
<b>Source of planting materials</b>		
Other gardens	-	-
Surrounding market	23	92%
Family and friends	1	4%
Others	1	4%
<b>Existing provision cultivation</b>		
Others	-	-
Storage of planting material	1	4%
No storage required	-	-
Special store in the garden	24	96%
<b>Land preparation practice</b>		
Untilled soil	-	-
Tilled soil	23	92%
Ridges	1	4%
Others	1	4%
<b>Soil requirement</b>		
Sandy soil	1	4%
Clay soil	-	-
Loamy soil	18	72%
Top soil	1	4%
Mixed soil	5	20%
Others	-	-
<b>Numbers of employees</b>		
None	3	12%
≥ 5	20	80%
< 5	2	8%
<b>Preferred location of garden</b>		
Road side	24	96%
High way	-	-
Others	1	4%
<b>Method of harvesting parts for sale</b>		
Cutting of selection	23	92%
Whole plant harvest	1	4%
Others	1	4%
<b>Is any form of record or book keeping done</b>		
Yes	15	60%
No	10	40%
<b>Source of capital</b>		
Private savings	13	52%
Government	-	-
Loans	9	36%
Family and friends	3	12%
Others	-	-

The results of respondents attraction to the business is presented in Table 6. The result suggests that the main attraction to the business is cash (80 %).



Table 6: Attraction to the business of Ornamental garden

<b>VARIABLE</b>	<b>FREQUENCY</b>	<b>%</b>
<b>Main attraction to the business</b>		
Cash	20	80%
Subsistence	-	-
Love for plants	5	20%
Others	-	-
<b>Prospect for success</b>		
Very low	-	-
Low	-	-
Medium	25	100%
High	-	-
Very high	-	-
<b>Would they encourage others to venture into the business</b>		
Yes	24	96%
No	-	-
Other	1	4%

The result of nomenclature, habit, mode of propagation, number of seed leaves, part associated with aesthetic, position in landscape/house and availability of common ornamental plants encountered in the gardens surveyed are presented in Table 7. The result shows that the plants are distributed in higher plant families.

Table 7: Nomenclature, habit, mode of propagation, number of seed leaves, part associated with aesthetic, position in landscape/house and availability of common ornamental plants encountered in the gardens surveyed

S/N	SCIENTIFIC NAME	FAMILY	COMMON NAME	HABIT	MODE OF PROPAGATION	NO. OF SEED LEAF	PARTS ASSOCIATED WITH AESTHETIC	POSITION IN LANDSCAPE/HOUSE	AVAILABILITY
1.	<i>Acalyphagodseffiana</i>	Euphorbiaceae	Foxtail	Shrub	Stem cutting	Dicot	Floral/foilage	Outdoor	All year round
2.	<i>Acalyphahispida</i>	Euphorbiaceae	Acalypha	Shrub	Stem cutting	Dicot	Floral/foilage	Outdoor	All year round
3.	<i>Acalyphawilkesiana</i>	Euphorbiaceae	Copper leaf	Shrub	Stem cutting	Dicot	Foliage	Outdoor	All year round
4.	<i>Acanthus montanus</i>	Acanthaceae	Breech	Herb	Stem cutting	Dicot	Foliage	Outdoor	All year round
5.	<i>Agave sisalana variety luteo-marginata</i>	Agavaceae	Perrine	Shrub	Stem cutting	Monocot	Foliage	Outdoor	All year round
6.	<i>Agave sisalana Variety luteo-marginata</i>	Agavaceae	Sisal hemp	Herb	Stem cutting	Monocot	Foliage	Outdoor	All year round
7.	<i>Allamandacarhartica</i>	Apocynaceae	Golden trumpet	Shrub	Stem cutting	Dicot	Flora	Outdoor	All year round
8.	<i>Aphelandrasquarrosa</i>	Acanthaceae	Zebra plant	Herb	Stem cutting	Dicot	Foliage/Floral	Indoor	All year round
9.	<i>Areca cathecu</i>	Arecaceae	Fish tail palm	Tree	Stem cutting	Monocot	Foliage	Outdoor	All year round
10	<i>Auriculariaauricula</i>	Auriculariaceae	Monkey puzzle/Jews ear	Shrub	Stem cutting	Monocot	Foliage	Outdoor	All year round
11	<i>Begonia rex</i>	Begoniaceae	Begonia	Shrub	Stem cutting	Dicot	Foliage	Outdoor	All year round
12	<i>Bougainvillea glabra</i>	Nyctaginaceae	Glory of the Garden	Shrub	Stem cutting	Dicot	Flora	Outdoor	All year round
13	<i>Caladium bicolor</i>	Araceae	Elephant ear	Herb	Stem cutting	Monocot	Foliage	Indoor/outdoor	All year round
14	<i>Cana indica</i>	Zingiberaceae	Canna Lily	Herb	Stem cutting	Monocot	Floral	Indoor/outdoor	All year round
15	<i>Cassia siberiana</i>	Fabaceae	Drumstick	Shrub	Stem cutting	Dicot	Floral	Outdoor	All year round
16	<i>Casuarinaequisetifolia</i>	Casuarinaceae	Whistling pine	Shrub	Stem cutting	Dicot	Floral/foilage	Outdoor	All year round
17	<i>Catharanthusroseus</i>	Apocynaceae	Madagascar periwinkle	Shrub	Seed	Monocot	Floral	Outdoor	April – August
18	<i>Celosia argentea</i>	Amaranthaceae	Cockscomb	Herb	Seed	Dicot	Floral	Outdoor	April – August
19	<i>Chlorophytumcomosumvariegatum</i>	Asparagaceae	Spider plant	Herb	Stem cutting	Monocot	Foliage	Indoor	All year round
20	<i>Chrysanthemum indicum</i>	Asteraceae	Chrysanthus	Shrub	Stem cutting	Dicot	Floral	Outdoor/indoor	All year round
21	<i>Codiaeumvariegatum</i>	Euphorbiaceae	Garden croton	shrub	Stem cutting	Dicot	Foliage	Outdoor	All year round
22	<i>Costusspectabilis</i>	Costaceae	Spira ginger	Herb	Seed	Monocot	Floral	Outdoor/indoor	April – August
23	<i>Crinum giganteum</i>	Amaryllidaceae	Crinum	Herb	Stem cutting	Monocot	Floral	Outdoor	All year round
24	<i>Crossandraundulaefolia</i>	Acanthaceae	Firecracker flower	Herb	Seed	Dicot	Foliage	Outdoor	All year round
25	<i>Cycasrevoluta</i>	Cycadaceae	Cycas	Shrub/tree	Seed	Monocot	Foliage	Outdoor	All year round
26	<i>Dieffenbachia picta</i>	Araceae	Deaf plant	Herb	Stem cutting	Monocot	Foliage	Outdoor/indoor	All year round

27	<i>Dracaena sp</i>	Asparagaceae	Dragon plant	Herb	Stem cutting	Monocot	Foliage	Outdoor/indoor	All year round
28	<i>Dracaena terminalis</i>	Dracaenaceae	Cabbage palm	shrub	Stem cutting	Dicot	Foliage	Outdoor/Indoor	All year round
29	<i>Durantarepens</i>	Verbenaceae	Yellow bush Cultivar Geisha Girl	Shrub	Stem cutting	Dicot	Foliage	Outdoor	All year round
30	<i>Euphorbia kamerunica</i>	Euphorbiaceae	Dogon	Shrub	Stem cutting	Monocot	Foliage	Outdoor	All year round
31	<i>Euphorbia millii</i>	Euphorbiaceae	Christ thorn	Herb	Stem cutting	Monocot	Floral	Indoor	All year round
32	<i>Ficusbenjamina</i>	Moraceae	Weeping fig	Shrub	Stem cutting	dicot	Floral/foilage	Outdoor	All year round
33	<i>Ficuselastica</i>	Moraceae	Fig	Shrub	Stem cutting	dicot	Floral/foilage	Outdoor	All year round
34	<i>Greenwayodendronsuaveolens</i>	Annonaceae		Tree	Stem cutting	dicot	Foliage	Outdoor	All year round
35	<i>Heliconiahumilis</i>	Heliconiaceae	Helicon/lobster claw	shrub	Stem cutting	Monocot	Flora	Outdoor	All year round
36	<i>Hibiscus sp.</i>	Malvaceae	Hibiscus	Shrub	Stem cutting	Dicot	Flora	Outdoor	All year round
37	<i>Ixoracoccinea</i>	Rubiaceae	Red bush	shrub	Stem cutting	Dicot	Flora	Outdoor	All year round
38	<i>Jatrophagossypifolia</i>	Euphorbiaceae	Bellyache bush	shrub	Seed/stem cutting	Dicot	Floral/foilage	Outdoor	All year round
39	<i>Jatrophapodagrica</i>	Euphorbiaceae	Gout plant	Shrub	Stem cutting	Dicot	Flora	Outdoor	All year round
40	<i>Kalanchoecrenata</i>	Crassulaceae		Shrub	Stem cutting	Dicot	Foliage	Outdoor	All year round
41	<i>Lagerstroemia speciosa</i>	Lythraceae	Crape myrtle	Shrub	Stem cutting	Dicot	Flora	Outdoor	All year round
42	<i>Mussaendaerythrophylla</i>	Rubiaceae	Ashanti blood	Shrub	Stem cutting	Dicot	Flora	Outdoor	All year round
43	<i>Mussaendaluteola</i>	Rubiaceae		Shrub	Stem cutting	Dicot	Flora/Foliage	Outdoor	All year round
44	<i>Opuntiadillenii</i>	Cactaceae	Cactus	Shrub	Seed/ stem cutting	Dicot	Foliage/flora	Indoor/indoor	All year round
45	<i>Pinussylvestris</i>	Pinaceae	Scots pine	Tree	Stem cutting	Monocot	Flora/foilage	Outdoor	All year round
46	<i>Plumbagozeylanica</i>	Plumbaginaceae	Ceylon leadwort	Herb	Stem cutting	Dicot	Flora	Outdoor	All year round
47	<i>Rosa chinensis</i>	Rosaceae	Rose	Shrub	Stem cutting	Dicot	Flora	Outdoor	All year round
48	<i>Roystonearegia</i>	Arecaceae	Cuban royal palm	Tree	Stem cutting	Monocot	Foliage	Outdoor	All year round
49	<i>Tagetes erectus</i>	Asteraceae	Africam marigold	Shrub	Stem cutting	Monocot	Flora	Outdoor	All year round
50	<i>Tecomastans</i>	Bignoniaceae	Yellow elder	Shrub	Stem cutting	Dicot	Flora/foilage	Outdoor	All year round
51	<i>Zebrinapendula</i>	Commelinaceae	Inch plant	Herb	Stem cutting	Monocot	Foliage	Indoor	All year round

## DISCUSSION

A survey of ornamental gardens was carried in five LGA's in Southern Edo State Nigeria. A total of about 54 plants of aesthetic value were encountered. These include herbs and shrubs as well as hedges as barricade shade, dwarf trees as wind break and plants that can be used as fences. It was observed that these plants are distributed in 31 higher plant families including: Euphorbiaceae, Acanthaceae, Agaveaceae, Apocynaceae, Arecaceae, Begoniaceae, Nyctaginaceae, Arecaeae, Zingiberaceae, Fabaceae, Casuarinaceae, Amaranthaceae, Asteraceae, Costaceae, Amaryllidaceae, Cycadaceae, Asparagaceae, Dracaneae, Verbenaceae, Moraceae, Annonaceae, Heliconaceae, Malvaceae, Rubiaceae, Crassulaceae, Lythraceae, Cactaceae, Pinaceae, Plumbaginaceae, Rosaceae and Commenlinaceae. Euphorbiaceae has the highest numbers of species encountered during the study with eight species. Over 2,500 plant species in approximately 500 genera with wide distributed are in this category in the United States, Canada, and Europe (LaMondia, 1995, 1997). A significant proportion of native plants in Nigeria were described as ornamentals in a study by Iduet *al.* (2011). The high aesthetic value of ornamental crops and intensive nature of production systems have created an industry that is heavily dependent on pesticides (Lepllaet *al.*, 2004).

Ornamental plants are grown widely to enhance the beauty of home gardens and community parks and public gardens (Pal and Sarker, 2009). Ruchala (2002) opined that not only are ornamental plants adapted to variety of environment; they also provide much needed food and shelter for countless species of animals. Ornamental plants are an important class of higher plants apart from those in the food chain, and are quite crucial if they have hyper accumulation properties and can be applied to remediation of

contaminated soils (Liu et al. 2006). Stress factors affecting ornamental plants especially in urban areas, cause effects on growth and flowering as well as their aesthetic value (Bachman, 2012). These have resulted in increased interest in growing native plants in the horticulture industry because not only are native plants valued for their countless landscape uses, they are invaluable in preserving natural ecosystems around the world (Ruchala, 2002). There is a need to reduce the ornamental plant producer's reliance on pesticides and integrate the use of agrichemicals with other pest management options (Hudson *et al.*, 1996).

The families encountered included both gymnosperm and angiosperm families. Common names were documented for some of the plants where they exist and are known by the gardeners surveyed. Result from the survey suggested that little use beyond their aesthetic value where recorded for most of the plants encountered in the survey. The most important secondary role of these plants include as medicine and for cultural and spiritual ceremonies and worship. The main purpose of establishing these gardens is mainly for income security. Most gardens are confident that with the advent of improved social amenities and educational status their lot in the business can be improved upon. It is also a potential avenue for job seekers as most gardeners' survey will appreciate additional hands in their garden but for financial constraints and others highlighted in Table 6. They cannot employ at the moment.

Result for ethnic group of respondents (Table 1) show that ninety two percent (92 %) of tribes encountered were Benin. The other major ethnic groups in Edo state were not encountered during the study i.e. Esan and Afemai, others which accounted for eight percent (8 %) of respondent were Yoruba's and Ijaw respectively. The reason for this could be because the study was conducted within Benin metropolis were

majority of the people are Benin. It can be exploited as employment opportunities for the unemployed youths of Benin if more support especially through funding is garnered.

The age distribution pattern of respondent in the study area was middle aged. These middle age groups in well – planned areas are educated and aware of the aesthetic and protective measures given by ornamental plant, especially grasses to prevent soil erosion. The percentage of the respondent's shows that 32 % were male while 68 % were female which implies that most of the garden visited were managed by female and so the government should use this medium to empower them as to be gainfully employed in order to assist their husband. Though, 48 % of the respondent shows formal education that is primary school while 48 % of respondent show secondary school education while 4 % of the respondent show tertiary educational experience. However, due to the low percent of respondent in tertiary education, it can be deduced that education is one of the major factors initiating individual to planning his environmental as well as to evaluate ornamental plants its role and importance in the environment. On the part of the respondent in respect to religion 92 % were Christian while 8 % were Muslim an indication that the study area is been dominated by Christian while Muslim are few.

The mode of propagation shows that about 56 % are propagated vegetative, especially from stem cutting. This is probably the fastest mode of regenerating the plants among garden mature plants are easily gotten with this means. The advantages of vegetative propagation would likely be the needs of the gardeners vegetative propagation reduces variability among the plants and retention of the phenotypic integrity of the plant. This might be the desire

of the gardener. In these plants variation occurs in their aesthetic features. However, (*Hibiscus rosasinensis*) with stem cutting mode of propagation has range of floral and foliage variation. This is likely to be due to selection of desirable aesthetic features by gardeners.

The importance of plant to man and its environment is not only for beautification but also for shelter (shade) food, clothing (fibre), for environmental management (erosion and wind break) and gate way to gods. Therefore plants uses to man are unlimited generally in the developing countries of the world, there is lack adequate knowledge or recognition of the true nature of the environment. Environmental awareness, in Nigeria is still young as it is shown from the study. As such an effective public awareness campaign must be launched.

The study also revealed the lack of public awareness on the importance of ornamental garden in our environment. The non – participatory approach of the respondent in environmental management is highly demonstrated. The need to emphasize the training of landscape personnel and more town planners in Nigeria is an important issue to be addressed. The effort of the government agencies concerned with protecting the environment can greatly be achieved and aided by emphasizing conscious aesthetics maintenance and careful design of home and the environment. The main causes of the environmental problems (life erosion flood and others) are due to, illiteracy, ignorance and lack of extension services, it is therefore important for the policy makers to embark on mass education of the populace on the importance of ornamental gardens in the environment since ornamental garden could serve as complement or, attractors emphasize, diverter, indicators and provide aesthetic function by creating attractiveness for human activities it is believed that proper

education of the masses will go a long way in creating employment for the teeming unemployed youths.

In Edo state the Ministry of Environment and Public Utilities are responsible as custodians for the establishment of Ornamental gardens. They are responsible for providing basic amenities to ensure safe running of the business by operators but facts on ground suggest they are lagging in that regard. Most of the gardens surveyed in this study attest to the fact that they are rarely attended to or visited by officials of this ministry. More so the ministry faces challenges regarding ensuring a safe environment. No doubt the ornamental garden can play key roles in beautifying and safeguarding the environment polluted by street trading among other things. They can also contribute to the perennial problems of erosion and flood problems. Government and Non-Governmental Organization (NGO) should support the dissemination of information of the role of ornamental plants in the environmental conservation. The ornamental and landscape specialists should be encourage as they utilize the traditional agro forestry farming system approach predominantly in the compound farm system to check the menace of soil erosion. For the fact that environmental problems are now on top priority in government agenda, every effort should be made to mobilize the people and the NGOs to complement the environmental protection efforts of government.

According to Anoliefo (2011) development that is gradual, step wise, progressive and sustained is sustainable and accommodating all life forms in the

biosphere. The development that does not respect nature mortgages the needs of future life forms is disjointed, lacking continuum and any been seen as unsustainable. Plant life forms as in ornamental plants and environmental service plants to mankind ranges from non - flowering plants (fern) to higher plants are a means of sustainability of the biosphere as a whole. Ornamental plants can also be used as cover mat on eroded areas, they help in eliminating dust, and they reduce glare, air pollution, heat buildup and noise pollution (Baiyewuet *al.*, 2005). They provide good location for leisure parks, children playing ground rest areas and other social events. Ornamental plants also serve as to complement, attract, emphasize, divert, indicate and provide aesthetic function by creating attractiveness for human activities. For example, the beautiful trees along the road provide unquantifiable shade and comfort for pedestrians while keeping the road intact from solar radiation and other inclement climatic conditions.

### **CONCLUSION**

This study has revealed that several ornamental plant species are cultivated to beautify the human environment as well as to provide shade, modify temperatures, reduce wind speed, abate noise, provide privacy and prevent soil erosion. People use cut flowers, dried flowers and indoor plants. Outdoors, they use town grasses shade trees, ornamental frees shrubs, vines, herbaceous perennials as habit and bedding plants. Images of plants are often used in arts, architectures, human and photography as well as on textiles, money, stamps, flags and coats of arms.

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