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**FLORICULTURE AND LANDSCAPE PLANNING**

**ADVANCES OF HORTICULTURE IN AFRICA**

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**ADVANCES OF HORTICULTURE IN AFRICA**

**INTRODUCTION**

Horticulture [Latin: hortus (garden) + cultura (culture)] is described as the art and science of growing fruits, vegetables, herbs, nuts and ornamental plants (trees, shrubs, flowering plants and turf). Horticulture is distinguished from agriculture by its specialized practices, for example, grafting, and by the smaller scale of its operations. Horticulture can be divided into three main sectors: fruit growing (pomology); market gardening (vegetables and herbs) and ornamentals cultivation (flowers, shrubs, trees) (Edwinna von Baeyer, n.d). The cultivation of ornamental plants, which some call floriculture (flowers, cut foliage, plants and bulbs) and landscape horticulture, can be further divided, for example, into arboriculture (woody plants) and floristry. Nut cultivation (used to produce oils, fats and ornaments) and grape growing (viticulture) are smaller horticultural divisions. Although, horticulture and agriculture are distinct activities, they have many practices in common (weeding, fertilizing, watering, etc.).

Furthermore, there is no doubt that horticulture contributes to food, health, environmental protection/conservation, education, psychological well-being, recreation, architecture and socio-cultural activities. In this vein, the new president of the International Society for Horticultural Science (ISHS), Prof. Rod Drew, noted that "Agriculture supplies protein, carbohydrates and staple crops - but we'd have a pretty boring life without horticulture. Horticulture gives color, horticulture gives us the flavors, it gives us all the health benefits of a balanced diet" (ISHS Secretariat, 2015). Given this, there is no doubt that horticulture contributes greatly to development of countries and continent at large.

However, the practice of horticulture has changed overtime in the African region; it has moved from large expanse of land to confined areas scientifically known as Greenhouse and also it has been mechanized which is adequately explained in this work. Hence, this work will be written in paragraphs, using historical method. Since Africa as a continent is divided into five (5) geographical zones: North, south, central, east and western Africa, the work explains the advancement regionally in which selected country will be used as case study for each region respectively.

**HISTORY AND DEVELOPMENT OF HORTICULTURE**

About 20,000 years ago in the Neolithic age, prehistoric humans began using trial and error process of domesticating wild plants and animals (Edwinna von Baeyer, n.d). By 3000 BCE (Before the Common Era), all our major crops were domesticated. From the Mediterranean centers came cabbage, broccoli and cauliflower and Mesoamerica came corn, beans, tomato, cacao, squash, sweet potato, avocado and potatoes. However, more than half of the world’s food crops originated in Asia as it was the center of development (Edwinna von Baeyer, n.d). The earliest horticultural tools dates back around 40,000 BCE. Further into the middle ages, horticulture continued to evolve into a trial and error manner. Crops were observed for survivability, weeds. pests and diseases were identified. Treatments ranged from animal slaughter to culling. All labor was done by hand or with the help of animal power. In many cultures, women were the main garden cultivators, while men usually worked in the fields. Some horticultural historians believe that horticulture “began” in Egyptian temple gardens where fruit trees, palms and grape vines were cultivated. Irrigation is one of the most important technology developed by the Egyptians. Followed through by pre-Columbian central and south American Horticulture. Then the rise of the Greek civilization by 1600 BCE, and its flourishing during the Hellenic Period (750-450 BCE). China and Japan were also central areas of horticultural development and innovation of metal tools, then the beginning of the middle ages in Europe (1400s). Development further continued and even spread to other areas of the world until the 21st century.

**ADVANCES OF HORTICULTURE IN AFRICA**

**EAST AFRICA (Kenya):** In Kenya, the horticultural sub sector of agriculture has emerged as the most important sector providing not only food and foreign exchange but many new jobs. Food produce are predominantly distributed in zones: In the Kenyan Highlands (potatoes, cabbage, garden peas, carrots, snow peas, snap peas), Nyanza, Western and Central Rift Valley (African leafy vegetables, fruit production). The area under horticulture production in Kenya is well over 700,000 hectares and the sector has a value of over USD 2 million. In Kenya recent trends into cabbage include growing the vegetable in a bucket of clean soil if the soil is disease infected. Poor soil health and fertility has been greatly improved through mobile soil testing combined with technical advice; a solution offered by **AgroCares (**an NGO foundation). Creation of climate smart villages (CSA) in lower Nyando, set up by CGIAR (the world’s largest innovation network) to improved water harvesting technologies, enhance crop and livestock production, increasing household income and food security. **Growpact i**n Kisisi and kitale Kenya, promotes tissue culture using propagation technology that produces many planting materials that are free from pests and diseases. Growpact is an integrated concept that supplies young plants, irrigation, inputs and microfinance to Kenyan farmers. Provision of solar pumps called **‘future pumps’** for irrigation which was developed by Practica Foundation (NL). The pump is solar powered and designed for small scale farmers with parcels ranging from 1 acre to 2 acres. The pumps are wired for remote sensing which allow for the after-sale services including if the pump is working properly, the carbon mileage and the pumps safety.

**SOUTHERN AFRICA (South Africa):** For South Africa, there are three production areas; cape town, Durban and Johannesburg. These areas have their own distinct characteristics (differences in climate with respect to rainfall distribution over the years. temperature, air humidity and to a lesser extent for radiation) in relation to the crops produced. According to recent FAO statistics, the total production of vegetables is approximately 2,426 million tonnes with tomatoes production (roma, jam and the smaller cocktail tomatoes) increasing over 35% in the last decade despite a strong decrease in the production area. Also, the cucumber production has increased due to a strong increase in production area. The main cut flower is rose (T-Hybrid), and production varies between 150 and 200 stems per square meter. The second important cut flower is chrysanthemum, grown in greenhouses that are relatively high-tech, since screening and lighting are required for this short-day crop. The average chrysanthemum yield is 300 stems per square meter per year, thus producing 20 kg per square meter at 50 g per flower. According to data from older studies, the average flower farm has roughly 4.5 hectares of cultivated land and employs 16 full-time and three part-time laborer’s per hectare (SADC, 2005). The seedling business started late making use of shade net or tunnels. Most seedling growers are located in KwaZulu Natal in the eastern part of the country. On average seedling growers produce 40 million trays per annum but a few large growers produce between 100 to 150 million trays per year. Most of these produce for local growers and the majority are vegetable seedlings. Of the flower production area, old numbers estimate that roughly 45% is gown unprotected, 27% under shade netting and 28% in greenhouses (SADC, 2005). The cut flowers are mostly produced in greenhouses and tunnels. High temperatures have negative impact on growth and quality for both ornamentals and vegetables. A limited range of technology levels exists with reference to the technology described by (Garcia Victoria et al. 2011, Lamas Nolasco (2010), their highest-level greenhouse type having a CO2 fumigation system and recirculation of fertilizer solution, either under glass or plastic cover, is absent except for 2 greenhouses (Dube greenhouse complex near Durban airport and LVG near Pretoria). Hydroponics having pad and fan as cooling systems are used at a high rate. Roofing materials mostly used range from shadow net, plastic roof, net walls and glass.

**WEST AFRICA (Ghana)**. There have been recent collaborations involving Stratcomm Africa to promote and deepen the gardening and flower culture in Ghana; by organizing the Ghana Garden and Flower Show and promoting a Garden and Flower movement in Ghana in the process generating awareness amongst Ghanaians about available natural resources for livelihood enhancements and national development and also facilitating information sharing, knowledge transfer, and skills development through its role in the Garden and Flower Show and its related conference and workshops. Also, Hortifresh project focuses on fruit and vegetables including linking vegetable producers and other value chain operators with the Dutch private sector.

**NORTH AFRICA:** The Egyptian agricultural and horticultural sectors contribute approximately 15% to the gross national product and approximately 40% to the employment. With about 50% of the total agricultural production being lost after harvest, advancement in horticulture is necessary.

Horticultural crops include citrus, consisting of oranges which represent 85 percent of total citrus production, making up 50% of Egypt’s total fruit production. Land devoted to fruit plantations has expanded over the last 30 years currently reaching about 84,000 hectares (EI-Sherif, 2009). Green house is the major source of fruit and vegetable production in Egypt bringing about increased production levels, better quality, less use of scarce resources (water and nutrients), longer production periods and better timing of production. The technology level of current greenhouses in Egypt range from low to medium. Thermal shade screens are used to reduce the radiation intensity in the green house.

**CENTRAL AFRICA:** The case study is the democratic republic of Congo. Many farmers have started participating in the FAO’s” Growing greener cities”. Through farmer field schools, 10 000 local gardeners have learned to reduce pesticide use, thus protecting family health and the environment. Political instability in the Democratic Republic of the Congo in the 1990s and early 2000s contributed greatly to its current urban problems. The few who managed to carve out gardens and plant vegetables on unused land in and around the cities were usually considered squatters, because they were using the land illegally. Yet for many it was their only access to food. FAO's Programme for Urban and Peri-urban Horticulture has adopted a five-point approach to the sustainable development of the sector:ensure political and institutional commitment, Secure land and water for horticulture, ensure product quality while protecting the environment, Secure new markets for fruit and vegetables. Through micro-gardens leafy vegetables, tubers and herbs grown in simple containers help low-income families meet their daily needs for fresh, nutritious produce. Where no land is available, vegetables can be planted in a container filled with garden soil or a "substrate" made from local materials, such as peanut shells, coconut fibre, rice husks, coarse sand or laterite. If substrates are unavailable, there is another option: growing the vegetables on water enriched with a soluble fertilizer.

**CONCLUSION**

From the above, Horticultural practices in Africa has advanced with technological applications to it. However, limited progress has been recorded considering the underdevelopment that ravages the regions within the continent. Going by this, we can say that Africa has advanced greatly from 20,000 years ago when horticulture was first practiced with trial and error method. More so, the critical role of horticulture in Africa today cannot be overemphasized. But it is continuously facing some significant challenges as regards to pest and disease, labor, cost of procurement of equipment to list a few.Considerably,the Dutch initiatives and other scientific cum technological applications have played major roles in providing innovations for African countries, lack of awareness about the benefits of horticulture and illiteracy has hindered the growth and advancement of Horticultural practices.

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