



EVALUATION OF TOPIARY APPLICATIONS AND PROBLEMS: A CASE STUDY OF KASTAMONU

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Landscape studies in urban planning have become among the most important cases of recent years with the efforts of human beings, being a part of the nature, to reconnect with the nature and especially the use of plants in landscape studies have improved and varied. The art of Topiary, having been used by many civilizations for centuries, have come to the fore recently within this development. Topiary is an art of formal or informal appearance design by pruning trees and bushes. In this study, topiary applications and problems in Kastamonu are observed. In the scope of the study; types of plants used in topiary applications, pruning forms and the areas where these materials are used in have been identified and various evaluations about applications, problems have been reached. The study demonstrated that the major problems of topiary is the lack of maintenance. The study results reveal that topiary applications in Kastamonu major on particular types and forms, too, as is in many cities of Turkey, types and forms which result in a short time have been used, ensuring the materials mostly depend on purchasing and that is why shorter species have been used more and studies demanding for many years have hardly been implemented.

Keywords: Topiary, Kastamonu, Landscape, Turkey.

Introduction

With the rapid development process in the world, economic, social, cultural, and political changes have accelerated urbanization, which has led to the destruction of greenery. Rapid urbanization and industrialization has moved people away from nature more and more each day and disrupted the harmony between people and their environment. Being a part of the nature, people carry something from the nature to all the places they live. These are sometimes houseplants, sometimes small gardens, and sometimes neatly arranged parks. At this point, trees and shrubs provide aesthetic and recreational benefits in addition to their direct benefits, which are of great importance for human health (Yücel et al., 2006).

Plants play important aesthetical and functional roles in the design of environments through landscaping. As a matter of fact, as plant materials are mobile, dynamic, formable, decorative, aesthetic, economical, and functional, they function as rich, varied, and living decoration materials for building and creating spaces (Gül et al., 2006). In the industrializing world, particularly in developed cities, landscaping designs have become indispensable parts of urban planning and turned into a science. Each branch of landscaping designs has turned into fields requiring expertise. The use of materials, particularly the plant elements, has become more varied and developed. The art of topiary is one of the prominent

issues within this area of development. Topiary refers to a type of art shaping trees or shrubs formally or informally through pruning. Known as *topiaria* in Latin, this art was first practiced by ancient Romans. Afterwards, it became more common. This art of gardening has been adopted by many civilizations for centuries and has turned out to be one of the indispensable elements of modern landscaping designs (Nurlu and Erdem, 1995).

However, topiary practices are the products of long and tiresome efforts. They require knowledge, patience, and toil. The plants on which topiary applied are sold for high prices; however, these plants may be deformed due to lack of knowledge and maintenance. This is because plants are living beings, and the interventions made by people who are not knowledgeable or equipped enough may result in failure due to simple plantation and maintenance mistakes. Therefore, the plants may experience drying or decomposition.

This study is an attempt to reveal the mistakes made in plantation and post-plantation periods during topiary practices and to make recommendations regarding these mistakes. Therefore, topiary practices in the central district of Kastamonu province were analyzed starting from the stage of plantation; the mistakes were detected; and appropriate recommendations were made to eliminate these mistakes.

Material and Method

The study was conducted in the central district of Kastamonu province. Initially, information was collected regarding the plantation and maintenance works to be carried out in parks and gardens. Then the practices were examined on site. The relevant details were obtained from the authorities through contact with them. During the plantation and maintenance works, interviews were conducted with the practitioners in addition to observations. Their levels of knowledge were tried to be detected. Afterwards, the poor practices were detected, evaluated, and classified in the light of the data, and the findings section was prepared.

Findings

In the present study, a lot of poor practices were detected in plantation and maintenance works during topiary practices in Kastamonu province. The mistakes are categorized and given below as a list.

1. The mistakes in material supply

- a) Selection of species: It was seen that all the saplings on which topiary was applied were purchased. In other words, organizations do not grow the saplings they need. Therefore, species are selected depending on their costs and benefits. In a sense, the saplings are purchased regardless of their species. This leads to the use of monotype saplings which are not in compliance with ecological conditions of the region. It was seen that nearly all topiary practices are performed on species such as *buxus*, *arbor vitae*, *euonymus*, *berberis*, and *taxus*.
- b) Selection of origin: It was seen that all saplings are selected from the most cost-effective saplings after conducting a market price research. As is known, the cost of saplings is influenced by many factors. As the number of saplings which are grown increases, the cost unit decreases. Therefore, cost unit of saplings which are grown in Yalova, Sakarya, and Adapazarı, which is a region of great sapling potential, is lower, which leads to a lower marketing price. Thus, saplings are generally supplied from this region. However, altitude of this region ranges from 0 to 200 m. The seeds required by the tree nurseries in this region are also supplied from the same region to a great extent. Yet, the altitude of the central district of Kastamonu province is 800 m on average. Therefore, neither the region of the purchased saplings where they are grown, nor their region of origin is in compliance with ecological conditions of Kastamonu province.

- c) Selection of quality saplings: The attempt to supply the cheapest saplings is one of the factors decreasing the sapling quality to a considerable extent. This is because saplings are living materials and constantly grow under appropriate conditions. The saplings, which are commercially grown and made ready for sale any time, are grown in flower pots of a particular size. As the sapling grows, the pot should be enlarged as well. However, large pot means increase in the cost of sapling and of transportation. Therefore, the sizes of the pots which are for sale in tree nurseries are not big enough. The balance between roots and height is disrupted to the detriment of root. Such saplings receive nutritional supplement during plantation so that roots are nourished properly. However, as the time goes by, the ends of the saplings start to dry. Therefore, having quality saplings is one of the factors influencing a successful planting. However, this is something ignored while purchasing saplings. Moreover, authorities prefer to buy cheap saplings instead of quality ones.
- d) The mistakes in transportation: It was also seen that saplings are not properly transported after being purchased. The best way to transport saplings can be performed by ensuring stability, protecting from the wind, sun, and cold, and preventing any kind of damage. However, it was seen that saplings are piled over one another; transportation vehicles are overloaded; no protection measures are taken; and saplings experience a shaky transportation for the sake of minimizing the cost of transportation.

2. Plantation mistakes

- a) Time of planting: The best time to plant saplings is spring just before the vegetation. However, since municipalities have a load of park and recreational works in spring time, this principle is also ignored for the planting of many saplings. In addition, the mistake that saplings with tubes can be planted “any time” leads the plantation of the purchased saplings to be delayed until the late spring. Furthermore, vegetation starts early in the region where saplings are supplied, which leads to problems in the saplings transported to Kastamonu.
- b) The type of planting: Some of the most important mistakes are made while planting. The supplied saplings are not put subject to any prior maintenance. Furthermore, they are planted by people who know nothing about planting. Before planting saplings, roots are not cut. Moreover, even if it has an impact on saplings, the authorities do not wait for the appropriate weather conditions, which leads planting under inappropriate weather conditions (e.g. windy, hot, frosty weather). Furthermore, saplings are damaged while planting. Some results even indicate that certain saplings are planted without taking their tubes off.

3. Maintenance mistakes

- a) Time of maintenance: Maintenance works are crucially important for saplings on which topiary is applied in order to preserve the form. All in all, plants on which works are performed are also living beings, and their ultimate purpose is to survive. However, the topiary application is completely contradictive to the biology of the plant. Therefore, the form of the plant is easily disrupted if maintenance is hindered. This study revealed that saplings are given maintenance only for a couple of times per year. Moreover, this maintenance includes only cutting of the extended branches. In fact, maintenance, especially pruning, should be made frequently to preserve the created form.
- b) Type of maintenance: It was seen that topiary maintenance is carried out only when relevant employees are free. No methods are taken into account and no calendar is kept. Maintenance works include protection, watering, fertilization, pruning, and rehabilitation. However, the employees responsible for maintenance only water and put fertilizers and prune either once or twice a year. Therefore, even the topiary in the simplest forms is decomposed, and no maintenance is made.

- c) Selection of materials: Proper equipment is extremely important for maintenance, particularly for pruning. In addition to oval and straight cuts, the thickness of the branches to be cut has an influence on the selection of equipment. However, it was seen that cutting is performed not with the necessary equipment but with whatever available. Moreover, equipment is not cleaned and sterilized properly causes them to be not sharp enough.
- d) Lack of qualified staff: Topiary is indeed a kind of art. Therefore, a person who will perform this art should be knowledgeable enough to engage in it. The biology of the plant, its maintenance requirements, the possible reactions it will show to the applications, its interaction with the environment, and so on are the issues which should be known by people engaging in topiary. However, it was seen that the people who are responsible for topiary are the least qualified employees of the municipality. They do not even have the basic knowledge, and they carry out their responsibilities through a chain of command.

Conclusion and Discussion

Rapid urbanization and industrialization moves people away from nature more and more each day and disrupts the harmony between individuals and their environment. Being part of the nature, human beings' attempts to re-connect with the nature have brought landscape studies to the agenda recently. Especially the use of plant material in landscape studies has developed and become varied. As part of this development, the art of topiary, which has been employed by many civilizations for centuries, has become more prominent in recent years. Topiary refers to the art of shaping the trees or shrubs formally or informally.

Plants reduce the air pollution (Papinchak vd., 2009; Tani ve Hewitt, 2009; Öztürk and Bozdoğan, 2015; Sevik et al., 2015) and noise (Yigit et al., 2014), increase the aesthetic value (Sevik et al., 2014), have positive influence on psychology (Belkayali and Kesimoglu, 2015; Cetin, 2015a ; Cetin, 2015b), save energy (Cetin, 2015c), reduce the speed of winds, prevent erosion of the soil by precipitation and streams as it keeps the soil with its roots, and protect the wildlife and hunting sources. They relieve the individuals psychologically and reduce the stress and negativity (Turna and Guney, 2009; Chang and Chen, 2005; Lohr et al., 1996). The green places where there are plants are important activity areas for both adults and children (Tekce et al., 2010; Talay et al., 2010). The development of topiary art has added another dimension to plants' aforementioned functions, and topiary practices have become one of the status indicators of cities.

However, topiary requires expertise, and the applications made by people without adequate level of knowledge result in failure. This study revealed that topiary practices performed in the central district of Kastamonu province are full of negligence from material supply to maintenance works and are conducted by people without adequate level of technical knowledge. Therefore, majority of the products of these applications dry either completely or partially in a short period of time. Misapplications lead to waste of money to a great extent. Also, the saplings which partially or completely dry lead to unpleasant views and visual pollution. However, the mistakes mostly stem from trying to be low-cost. Hence, the cheapest materials are preferred; the cheapest equipment is used; and the cheapest employees are assigned. However, as topiary practices require high-level knowledge, they result in failure, leading to waste of all the money spent on them. The fact that majority of the saplings planted all around the city were seen to have dried either partially or completely is an indicative of this fact.

Following the sapling supply, the biggest mistakes are made during plantation. The studies which have been conducted so far revealed that a considerable amount of problems regarding the trees in the city stem from the mistakes made in planting. If planting mistakes are minimized, fewer problems will be encountered during growth and maintenance works (Bozkuş, 1994).

Pruning plays an important role in the development of plant body through regular guiding and shaping of trees and shrubs with a variety of interventions (Çoban, 2013). The best period of pruning is from late winter to early spring (Bedker et al., 1995; Lilly, 2010). However, there is a need for frequent

pruning to keep their volumes within the desired spatial model (Minelli et al., 2008). After the pruning, certain substances (conservation substances) are applied on wounds so as to prevent the penetration of fungi through the points where they have been cut (Çoban 2013). However, it was seen that almost no maintenance is made after pruning. Yet, trees are constantly growing, developing, and changing biological (living) beings, and they need to be under constant control and put subject to periodical maintenance. More clearly, each planted tree brings along loads of protection and maintenance problems (Bozkuş, 1994).

Maintenance works do not include only pruning. Watering, fertilization, and rehabilitation works are also included in maintenance. At the end of this study, it was seen that there is no watering problem in the central district of Kastamonu province; however, fertilization is made regardless of plant species, sizes, and needs and thus turns out to be inadequate and inefficient. On the other hand, no rehabilitation works are carried out.

Recommendations

This study revealed that each phase of topiary practices from material supply to maintenance involves poor practices. In order to eliminate these mistakes, the principle of cheap sapling and cheap labor should be given up. The number of topiaries within the province can be reduced, if necessary, to adopt the principle of quality sapling and qualified labor. Thus, few saplings will be used, but they will not dry. The same amount of money will be paid for less but more quality and healthy saplings, leading to success in practices.

What is more, with the use of available materials and adoption of “do your own” principle, the conduction of topiary practices in tree nurseries belonging to the public institutions of Kastamonu province will both reduce the costs and eliminate the problems stemming from the incompliance of sapling origins and lack of adaptation. Employment of few but qualified employees who engage only in topiary practices will be sufficient. In fact, if the products obtained through production based on one’s equity are released to the market, this can create a source of income and financing which is needed for certain public practices.

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