

Lawns and ornamental meadows as an alternative in the South Europe

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Abstract

In the south of Europe, namely in Portugal or Spain, lawns invaded the gardens. Historically, lawns did not belong to the mediterranean garden, but, by anglo-normand influence the turfgrass is now used everywhere (Filippi, 2011). We expect that plants can help us to solve our ecological, technical or social problems. However, the use of plants can bring us some problems too. The use of plants in urban spaces is extremely social and cultural conditioned especially if we think about naturalistic plantings (Hitchmough & Dunnet, 2004). Lawns are an idyllic green soil cover very desired by general public in the Mediterranean climate. But the energy and water necessary to maintain a lawn in Mediterranean conditions is very expensive, economically and ecologically unsustainable. Ornamental meadows are an alternative that has qualities to substitute lawns in extensive framing areas in urban space. It is a very sustainable and biodiverse alternative that is already being used in many cities (Gilsoul, 2011). Ornamental meadows can help us to create more sustainable, diverse and interesting green spaces. Plants with interesting flowers can be used in ornamental meadows and create a spectacular blooming season.

In this work we proposed to study the way Landscape Architects choice to use lawns or ornamental meadows in a Mediterranean climate were water to irrigate is a limit factor. How they are influenced by themes like sustainability, ecology or biodiversity, or conditioned by political or social opinions in their design of urban green spaces, were questions explored.

The methodology used was surveys directed to active Landscape Architects designers that work in the South of Europe in a Mediterranean climate. Questions about what influences

their choices when they have to choose between using lawns or ornamental meadows were asked.

This theme was explored in order to understand what conditions the use of lawns or ornamental meadows at the designing level. With this work we hope to contribute to the knowledge about the use of plants covertures in cities in the South Europe.

Keywords: Sustainability, Biodiversity, Turfgrass, Water.

Introduction

In regions with a Mediterranean climate the use of herbaceous ground covers, including traditional lawns or ornamental flower meadows, must obey ethical principals in order to respect what is morally good or just in a social and sustainable context. Although landscape architects give full consideration to such ethical concepts when preparing their designs, the aesthetic features underlying the plans must be understood by the general public. Indeed, the opinion of the community regarding herbaceous ground cover in urban green spaces is critical in determining the overall success of a project. Aesthetic perceptions and preferences vary enormously between individuals, peer groups and cultures, and correctness is generally relative rather than absolute. However, perceptions may change as a result of experience and learning, and preferences may be altered through diffusion and explanation of the principal underlying concepts to different groups of the public ([Hitchmough and Dunnett, 2004:6](#)).

In Mediterranean regions, the availability of water represents a critical factor especially during the summer, which is typically characterised by lack of rainfall and high temperatures for a period that may last for several months. Under such conditions, the plants used in urban green spaces are subjected to considerable stress and need to be well adapted. Moreover, the normal processes of vegetative growth, blooming and flowering of the selected plants will determine the seasonal changes that become apparent in the urban green spaces, and these are of major importance to the physical and psychological balance of the environment. Additionally, the vegetation of the area can exercise a positive influence on the local climate, playing a key role in the reduction of pollution and the amplitude of the air temperature.

Aesthetically, ground cover grasses often become dormant during the summer months, bestowing an ochre colour to the landscape that, in combination with the blue of the sky and the

sea and the white of the houses, creates one of the characteristic images of the Mediterranean region. In this respect, large areas of monotonous, high-maintenance green lawn are not part of the history of the Mediterranean countryside and the biodiversity of its landscape (Tsalikidis and Athanasiadou, 2007: 194). Furthermore, natural vegetation consumes less resource than artificial lawns and offers many ecological advantages in a Mediterranean climate. However, even if designers and managers believe in the inherent benefits and aesthetic qualities of a naturalistic approach, acceptance by those that have to live, work and play in such a setting is essential if the green areas are to be truly sustainable (Jorgensen, 2004: 295).

In modern times, the Anglo-Norman garden image is a model appreciated by the collective conscience in southern Europe. Lawns, originally popularized in the gardens of France, Italy, Greece and Spain (Filippi, 2011: 2), did not form part of the traditional Mediterranean garden but today they are present everywhere in urban green spaces. In Portugal, most leftover spaces, including those by the sides of roads, in car parks and around buildings, are laid to lawn since this represents a facile method of providing green ground cover. Additionally, the funding available for the upkeep of green spaces is minimal and so the simple maintenance routine associated with lawns is highly advantageous in that it can be carried out by relatively unskilled workers. Traditionally, such lawns are treated according to an industrial-style strategy in that pests and diseases are eliminated when found, irrespective of the damage they cause, and plants are watered and fertilized, irrespective of whether this is required or not (Hitchmough and Dunnnett, 2004: 14). The main disadvantage of lawn cover is, however, that it is not sustainable because of its consumption of resources.

Hence, over the last few years, efforts have been made to find alternatives to turf-grass that are aesthetically pleasing, environmentally sustainable, and able to contribute to the improvement of human well-being (Hitchmough, 2008: 4). Under the climatic conditions of the Mediterranean region, the use of non-native vegetation is subject to a number of limitations.

Portugal is a small European country with a Mediterranean climate. Landscape architecture is a profession in Portugal since 1946. There are about 1385 landscape architects in Portugal (A.A.V.V., 2010). These are professionals that act directly in the way plants are used.

In this study we attempt to explore current attitudes of Portuguese Landscape Architects choice to use lawns or ornamental meadows in public urban green spaces. At the same time how they are influenced by themes like sustainability, ecology or biodiversity, or conditioned by political or social opinions in their design.

Methods

The research strategy employed was that of the sending of enquiries, by e-mail, to all the landscape architects with activity published in the APAP (Portuguese Landscape Architects Professional Association) web site, and to others known by us.

The criterion for the selection of the sample was: landscape architects working, that had projected frequently exterior spaces with vegetable covertures.

An amount of 110 enquiries were sent.

The enquiry asked to show the school of origin and the number of years of professional activity, so that we could see whether there was any correlation between these two factors and the answers that followed.

About the use of lawns it was first asked which criteria could lead to the choice of one lawn for a framing area where people would hardly circulate. The following answers were suggested: easy to install, easy to maintain, always green image, biodiversity, sustainability, lower initial cost, political conditions, social conditions, imposition of the developer, others not mentioned before. The next question was about the origin of the water for the lawns, and had as objective to know if such water was potable, from the public water supply, or not. Water for irrigation is a main issue in Mediterranean climatic conditions.

Then we asked about the choice of species to use in the lawns. Several options were presented: adaptation to the soil and clima conditions, water consumption, description of the developer, advice of the seed supplier.

After this we started the questions about ornamental meadows. The first question was simply devoted to know if the colleagues had ever proposed flower meadows in their projects. Then we asked about the criteria used to choose the species.

The enquiry was sent between March and April of 2012 and the answers were received till May 2012.

Results

The global response rate was 46%, relative to a total of 51 surveys answered, from a universe of 110 landscape architects contacted. The surveys answered were spontaneously returned. The population sample is characterized in table 1.

The number of answers allowed us to group the results in function of the years of professional practice. However, weren't enough to characterize the school of origin. Therefore the results are only presented in function of the years of professional practice in three groups: inferior to 5 years, from 5 to 15 years, and superior to 15 years of professional practice.

Table 1: Survey's population sample in function of the years of professional practice (in percentage).

Years of professional practice	Responses
< 5	12
From 5 to 15	49
> 15	39
Total	100

The results from the survey are presented in figures 1 to 5.

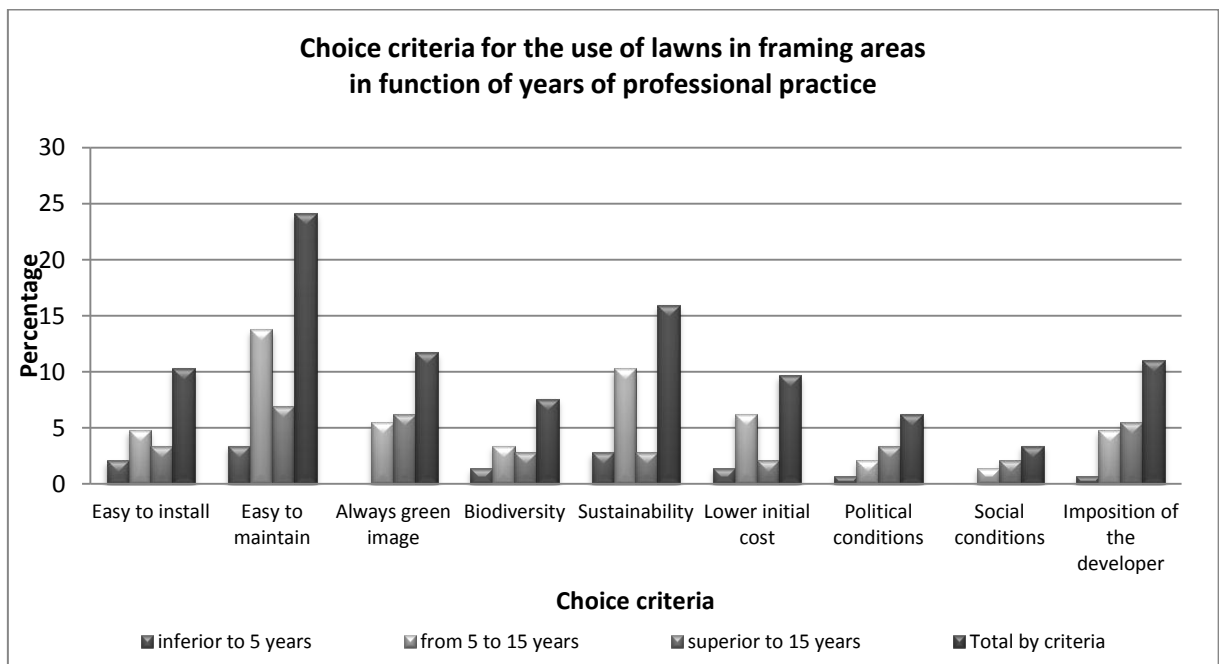


Figure 1. Choice criteria for the use of lawns in framing areas in function of the years of professional practice (in percentage).

For the first question made in the survey, the choice criteria used by landscape architects to propose lawns in framing areas, in their projects, in general, the easiness to maintain is the main choice with 24% of the answers, followed by the sustainability with 16% of the answers.

In the group of 5 to 15 years of professional practice these were the two main choice criteria with 14% and 10% of the answers respectively.

The statistical analysis χ^2 shows that the Professional experience didn't influence significantly the decision making.

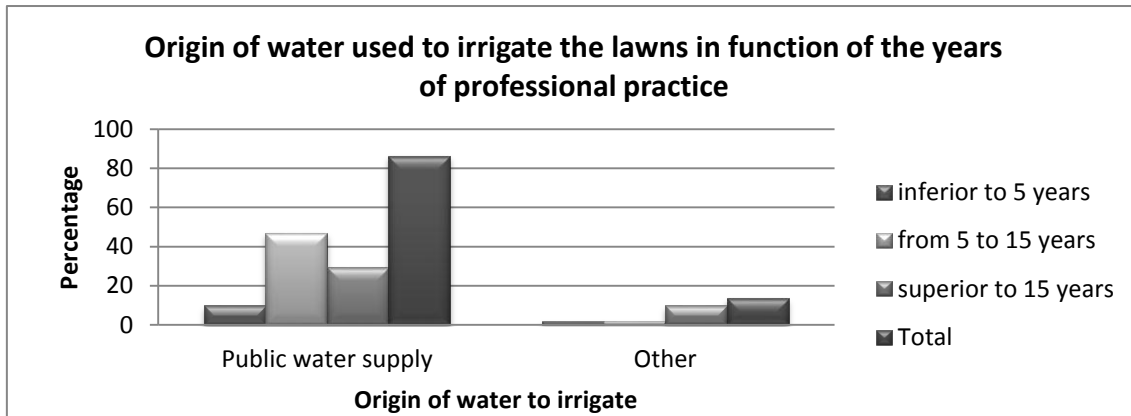


Figure 2. Origin of water used to irrigate lawns indicated by the landscape architects in function of the years of professional practice (in percentage).

In the second question, in general what is the origin of the water used to irrigate the lawns that the landscape architects project in their interventions, the main answer was from the public water supply with 86% of the responses. The water from the public water supply is water for human consumption.

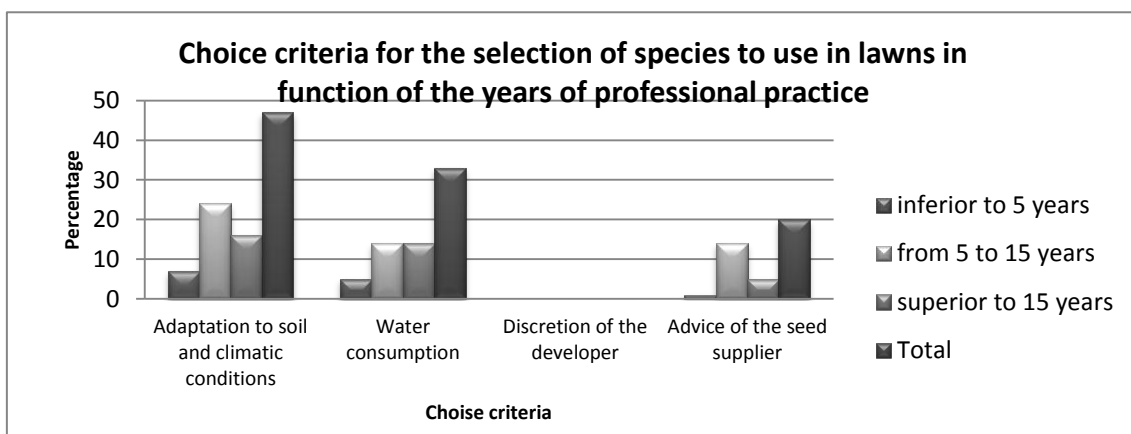


Figure 3. Choice criteria for the selection of species to use in lawns in framing areas in function of the years of professional practice (in percentage).

In the third question, which criteria are used in the selection of turfgrass species to use in lawns, the main answers were the good adaptation to soil and climatic conditions with 47% and 33% respectively.

The statistical analysis χ^2 (to $p < 0,01$) revealed that the criteria used did influence significantly the choice done by the respondents. The number of years of professional practice did influence significantly the options made by the respondents. However the criteria: adaptation to soil and climate conditions did prevail.

The group with 5 to 15 years of professional experience these to criteria had 24% and 14% of the answers. While in the group with more than 15 years of professional practice these to criteria had 16% and 14% of the answers.

It is interesting to see that the criteria: discretion of the developer wasn't a choice to any of the groups.

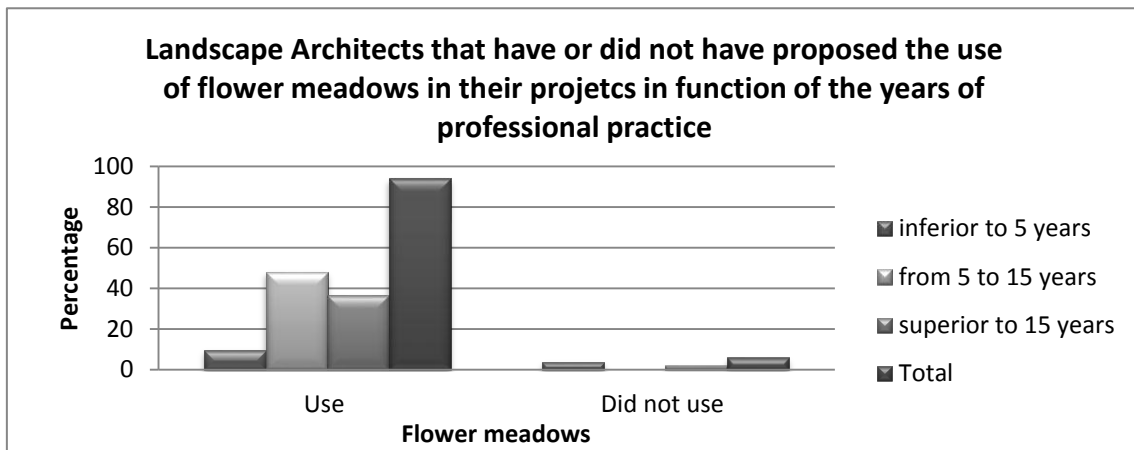


Figure 4. Landscape architects that have or not proposed the use of flower meadows in their projects in function of the years of professional practice (in percentage).

The figure 4 shows us the answers to the question about the proposal of flower meadows in the respondents' projects. It is interesting to see that 94% of the landscape architects inquired had already proposed the use of flower meadows in their projects.

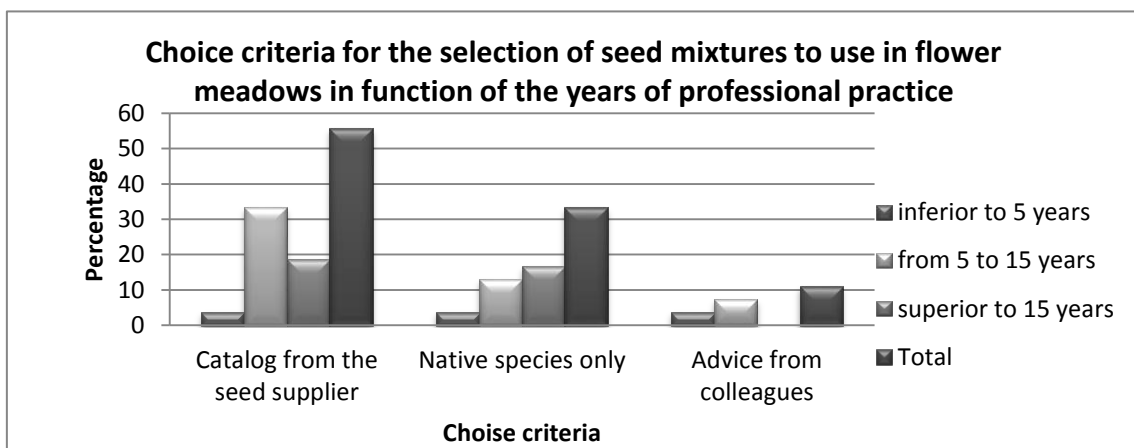


Figure 5. Choice criteria for the selection of seed mixtures to use in flower meadows in function of the years of professional practice (in percentage).

Figure 5 show the choice criteria selected by the respondents when they have to chose the species to use in the flower meadows they proposed. The choice from the catalog from the supplier is the main criteria with 56% of the responses, followed by the selection of native species only with 33% of the responses.

The statistical analyses revealed that the professional practice didn't had influence in the criteria choice.

Discussion

The surveys sample population is very consistent. The response rate of 46% of answers gives us confidence in the results. However, the group with less than 5 years of professional practice is the one with inferior number of responses.

The first stage of the survey, devoted to the use of lawns show us that from the criteria indicated as possible choices the easiness to maintain is to all groups inquired the main criteria to proposed a lawn. This is very important because the costs of maintenance are one of the big problems when we have a lawn in Mediterranean climate. However, has we can see in figure 1, the other choice were representative to. As we already thought the water used to irrigate the lawns is, in general, from the public water supply. This indicates us that the water that is used to irrigate the lawns is drinking water. This increases the costs of the lawns, because the water is treated to have conditions to be drink, and it is not necessary to have such quality only to irrigate a lawn.

In the third question about the use of lawns it is interesting to see, in figure 3, that the main choice criteria to select the species to use is the good adaptation to soil and climatic conditions, followed by the low water consumption. These show us some ecological and sustainable concern when it comes to the selection of species by the landscape architects.

In the second stage of the surveys, devoted to the flower meadows, it is interesting to see that a significant part of the landscape architects that answered, see figure 4, and already have proposed the use of flower meadows in their projects. Other interesting aspect is the responses to the question about the choice criteria for the selection of species to use in flower meadows. I was surprising that 33% of the answers indicate to choose only native species. As far as we know there aren't seed producer of native species for flower meadows in the

Mediterranean countries. However is a good indicator that some landscape architects have this concern.

The statistical analysis shows us that in most of the cases the years of professional practice didn't influence significantly the results.

Conclusions

Portuguese Landscape Architects have a role to play when it comes to choice to use lawns or ornamental meadows in public urban green spaces.

From the results obtained in this study we can conclude that Portuguese landscape architects do use lawns in framing areas mainly because of the easiness of the maintenance. They do know that the water used to irrigate is from the public water supply. However, probably because of a number of factors has the general public preferences or political options, they choose to use lawns. But, they do are influenced by themes like sustainability, ecology or biodiversity in their design, when they choice the species because of their better adaptation to soil and climate conditions, or because there are less water consumers.

The flower meadows have already been proposed by the majority of the landscape architects that answered this survey. The species choice to use in flower meadows is made mainly by consulting the catalog from the seed suppliers. However, some of the responders propose their one mixtures mainly composed by indigenous species.

The results show us that the maintenance is main issue when it comes to chose between lawns and flower meadows. Lawns maintenance is more expensive, but is a well known routine. So, it is considered easy and is used. Flower meadows need to be more studied in order to be accepted by the general public. For this they need to have a good appearance all the year. The maintenance routine of flower meadows in Mediterranean climate must be more studied.

Soil covertures like lawns ore flower meadows play a big role in the sustainability of cities. The areas occupied by these covertures can be huge. The costs of maintenance can chase enormously by choosing a lawn or a flower meadow. The sustainability of a city can be achieved by using flower meadows instead of lawns in framing areas.

Although the population may desire more than nature can offer, their preferences and perceptions can be modified through experience and learning (Hitchmough and Dunnett, 2004).

Acknowledgments

The authors wish to thank the Institute for Mediterranean Agrarian and Environmental Sciences (ICAAM), and the Institute for Advanced Studies and Research (IIFA) for a grant from the “Bento de Jesus Caraça” Program.

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