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Popular Article

Green Carpets of the Urban Landscape: Advances in Lawn and Turfgrass Management

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Introduction

Lawns and turfgrass systems represent an essential component of modern landscape architecture and urban green infrastructure. Traditionally regarded as the central visual element of gardens, lawns serve as a unifying surface around which other landscape components such as trees, shrubs, flower beds and architectural features are arranged. In landscape design, the lawn often acts as the foundational element that enhances the visual harmony and spatial organization of a garden or open space.

A lawn can be defined as an area of land densely covered with uniform turfgrass species forming a continuous and well-maintained green surface. These green surfaces resemble a natural carpet that provides both aesthetic appeal and functional value within landscapes. Lawns are widely used in residential gardens, institutional campuses, recreational parks, sports grounds, road medians and other public spaces.

Historically, lawns were introduced into formal garden design through European landscape traditions and later became an integral part of landscape architecture across the world. In contemporary landscapes, turfgrass areas have evolved beyond their ornamental role and are now recognized as multifunctional green spaces that contribute to ecological stability, environmental sustainability and human well-being. As urban areas continue to expand, the importance of lawns and turfgrass systems in maintaining environmental balance and enhancing the quality of urban life has become increasingly significant.

Importance of Lawns and Turfgrass in Urban Landscapes

In modern urban environments, lawns occupy a substantial proportion of green open spaces, often covering **70–75% of landscaped urban areas** such as parks, residential complexes, institutional grounds and recreational fields. Their widespread use reflects their functional versatility and ecological value.



Lawns play a crucial role in improving environmental quality within cities. Turfgrass surfaces help stabilize soil, reduce erosion and enhance water infiltration, thereby minimizing surface runoff and preventing soil degradation. Additionally, turfgrass contributes to improved air quality by trapping dust particles and absorbing pollutants from the atmosphere. Through the process of evapotranspiration, lawns also help regulate microclimatic conditions by lowering ambient temperatures and mitigating the urban heat island effect commonly observed in densely built environments.

Beyond environmental benefits, lawns serve important social and recreational functions. They provide open spaces for walking, sports, relaxation and community activities, thereby improving physical and psychological well-being among urban residents. Well-maintained lawns also contribute significantly to the aesthetic quality of landscapes, enhancing the visual appeal of urban environments and increasing property values.

Role of Lawns in Urban Landscaping

In urban landscaping, lawns act as an essential design element that connects various landscape components and creates a cohesive spatial structure. The uniform green surface of turfgrass provides a visual contrast to trees, shrubs, flowering plants and architectural elements, thereby enhancing the overall composition of the landscape. Lawns also function as transitional spaces that link built structures with natural elements, allowing smooth integration between buildings, pathways and planting areas.

From an ecological perspective, turfgrass areas contribute to urban environmental sustainability by improving soil health, enhancing rainwater infiltration and supporting microhabitats for insects and small organisms. In densely populated cities where natural vegetation is often limited, lawns provide accessible green spaces that improve environmental quality and support urban biodiversity. Furthermore, lawns offer multifunctional surfaces suitable for recreation, public gatherings and cultural activities, making them indispensable components of urban parks, institutional campuses and residential landscapes.

Characteristics of Ideal Lawn Grasses

For effective performance in landscape settings, turfgrass species must possess specific characteristics that ensure durability, aesthetic quality and adaptability to environmental conditions. Ideal lawn grasses generally exhibit the following traits:

- Dense and compact growth forming a uniform turf
- Attractive green coloration throughout most of the year
- Rapid establishment and regenerative ability
- Tolerance to frequent mowing and foot traffic



- Adaptability to different climatic and soil conditions
- Resistance to pests, diseases and environmental stresses
- Soft texture suitable for recreational use
- Ability to suppress weed growth through dense coverage

These characteristics ensure that lawns remain functional and visually appealing even under intensive use in urban environments.

Classification of Turfgrasses

Warm-Season (Tropical) Grasses

Warm-season grasses thrive in temperatures between 25–35°C and are commonly used in tropical and subtropical regions. These grasses are highly tolerant of heat, drought and intense sunlight.

Important warm-season turfgrasses include:

- **Bermudagrass** (*Cynodon dactylon*)
- **Bahia grass** (*Paspalum notatum*)
- **Buffalo grass** (*Bouteloua dactyloides*)
- **Blue grama** (*Bouteloua gracilis*)
- **St. Augustine grass** (*Stenotaphrum secundatum*)
- **Zoysia grass** (*Zoysia spp.*)

Among these, Bermudagrass is widely used due to its rapid growth, strong adaptability and ability to form dense turf suitable for lawns and sports fields.

Bermudagrass



Bahia grass



Buffalo grass



Blue grama



St. Augustine grass



Zoysia grass



Cool-Season (Temperate) Grasses

Planning and Establishment of Lawns

Successful lawn development depends on proper planning, site selection and soil preparation.

Site Selection

An ideal lawn site should receive sufficient sunlight and should preferably be located in open areas with good air circulation. Excessive shading from large trees should be avoided to ensure uniform grass growth.

Soil Requirements

Turfgrass grows best in **well-drained sandy loam soil rich in organic matter**. Soil should have adequate moisture retention capacity while allowing proper drainage. A soil pH between **6.0 and 7.0** is considered optimal.

Soil Preparation

Soil preparation involves deep cultivation, removal of weeds and debris and incorporation of organic matter such as compost or farmyard manure. Proper leveling and drainage arrangements are essential to prevent water stagnation.

Methods of Lawn Establishment

Table 3: Methods of Lawn Making (Establishment of Turfgrass)

S. No.	Method	Description / Procedure	Advantages	Disadvantages	Suitable Situation
1	Seeding Method	Lawn is established by sowing turfgrass seeds directly on well-prepared soil. The soil is ploughed,	Economical for large areas, easy to establish different grass varieties, suitable where seed	Slow establishment, weed invasion possible, requires careful maintenance during early growth.	Large lawns, parks, golf courses and public landscapes.



		leveled and enriched with organic manure. Seeds are broadcast uniformly, lightly raked into the soil and irrigated regularly until germination occurs.	availability is good.		
2	Turfing (Sodding)	Pre-grown turfgrass sod pieces with soil attached to the roots are placed closely on a prepared soil surface. The pieces are arranged in a brick-like pattern and pressed firmly to ensure root contact with the soil. Irrigation is done immediately after laying.	Instant lawn effect, quick establishment, minimal weed problem, uniform appearance.	Expensive, requires transportation and skilled labor.	Residential gardens, institutional lawns, sports fields and ornamental landscapes where quick results are required.



3	Dibbling (Planting of Grass Slips)	Rooted grass slips or small clumps of turfgrass are planted manually into the soil at regular spacing (usually 10–15 cm apart). After planting, irrigation is provided to encourage rapid spreading of the grass.	Less expensive than turfing, suitable for grasses that spread through stolons or rhizomes.	Takes longer time to cover the entire area, requires careful irrigation and weed control.	Medium-sized lawns, gardens and landscapes where budget is limited.
4	Turf Plastering Method	A mixture of garden soil, fresh cow dung, water and chopped grass pieces is prepared into a slurry. This mixture is spread evenly over the prepared soil surface. The grass fragments root and spread quickly to form a lawn.	Low cost, rapid spreading of grass, easy to apply on small areas.	Requires proper moisture maintenance, uneven coverage possible if mixture is not uniform.	Small lawns, home gardens and rural landscaping.



5	Sprigging Method	Small pieces of stolons or rhizomes (sprigs) of turfgrass without soil are planted in rows or broadcast over the prepared land and lightly covered with soil. Irrigation is required for establishment.	Uses less planting material, economical compared to turfing.	Requires careful irrigation, slower establishment than sods.	Golf courses, sports fields and large landscapes.
6	Plugging Method	Small blocks or plugs of turfgrass (5–10 cm diameter) are planted in holes at regular spacing across the lawn area. The grass gradually spreads to cover the ground surface.	Requires less planting material, suitable for slow-spreading grasses.	Slow coverage of area, requires time for full lawn development.	Large lawns and areas where gradual establishment is acceptable.
7	Hydroseeding Method	A slurry containing grass seed, water, mulch, fertilizer and	Rapid and uniform coverage, suitable for large or	Requires specialized equipment, relatively expensive.	Roadside slopes, embankments, large landscapes and



	<p>binding agents is sprayed over the soil using specialized equipment.</p> <p>The mulch protects seeds and enhances germination.</p>	<p>sloping areas, prevents soil erosion.</p>		<p>erosion control areas.</p>
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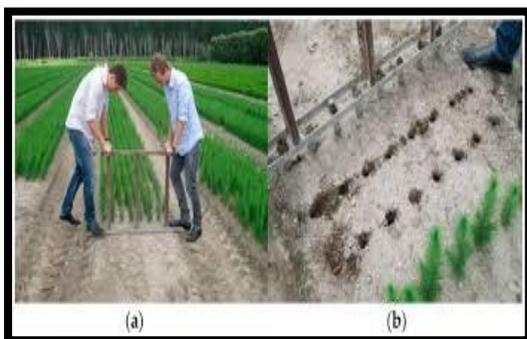
Seeding method



Turfing method



Dibbling



Plugging method



Sprigging method



Hydroseeding method



Maintenance of Lawns

Regular maintenance is essential to preserve turf quality and ensure long-term sustainability.

Major maintenance practices include:

- **Mowing** to maintain uniform height and density
- **Fertilization** to sustain nutrient supply
- **Irrigation** during dry periods
- **Weed control** to prevent competition
- **Aeration and raking** to improve soil conditions
- **Pest and disease management**

Proper maintenance ensures that lawns remain healthy, attractive and functional.

Conclusion

Lawns and turfgrass systems are integral components of modern landscapes and urban green infrastructure. In addition to their aesthetic value, they provide numerous ecological, environmental and social benefits. By improving microclimatic conditions, reducing soil erosion, enhancing water infiltration and providing recreational spaces, turfgrass landscapes contribute significantly to sustainable urban development. Careful planning, appropriate species selection and regular maintenance are essential for establishing high-quality lawns that enhance the beauty and functionality of landscapes. As cities continue to expand and environmental challenges intensify, integrating well-designed turfgrass systems into urban planning will play a crucial role in creating healthy, resilient and livable urban environments.

