ПРИРОДНЫЕ ГАЗОНЫ

The current state and maintenance methods of most lawns in Yerevan today face the problem of inefficiency. Most areas formally considered lawns are spontaneously overgrown plots with bare patches. Such "self-seeding" does not perform key ecological functions: it does not retain dust, does not support biodiversity, and poorly absorbs moisture. At the same time, city services spend resources on its regular but unsystematic mowing.

This guide offers a modern, cost-effective, and environmentally responsible solution – the transition to creating natural (meadow) lawns. This approach not only significantly reduces maintenance costs but also transforms neglected areas into aesthetically attractive, living ecosystems that make the city cleaner, healthier, and more comfortable for all its residents.

Brief Summary for Decision Making

The transition from traditional urban lawns to natural (meadow) ones is a strategic decision that brings direct economic and environmental benefits.

- **Savings:** Maintenance cost reduction (mowing, watering, fertilizers) reaches 70-80% from the second year of operation.
- **Ecology:** The lawn becomes part of the urban ecosystem, supporting pollinators, improving soil structure and its ability to absorb water, and effectively combating urban dust.
- **Sustainability:** A natural lawn is much more resistant to drought, diseases, and pests, which reduces risks and costs for its restoration.
- **Aesthetics:** A living landscape that changes throughout the season is created, increasing the attractiveness of the urban environment.

This guide provides all the necessary information for planning and implementing this modern approach to landscaping.

Problems of Traditional Urban Lawns

Before discussing modern alternatives, it is important to understand the shortcomings of the types of lawns that currently prevail in cities. Most often, there are two options: spontaneously overgrown areas and classic monoculture lawns.

Self-seeded Lawn

This is the most common type of landscaping in cities – plots of land overgrown with what could survive in difficult conditions. The basis of such a lawn consists of several aggressive plant species resistant to trampling and pollution, such as couch grass, plantain, dandelion, or wormwood. Their care usually comes down to only periodic mowing.

From the ecosystem's point of view, such a lawn is "green asphalt" that does not support biodiversity and does not provide food for insect pollinators such as bees, bumblebees, and butterflies. The soil beneath it is usually compacted, eroded, and poorly absorbs water. For people, it is aesthetically unappealing and often looks like a neglected, unkempt area with bare patches that become a source of urban dust. Also, some plants commonly found in self-seeding, such as wormwood, are strong allergens.

For city services, despite the seeming "naturalness," such a lawn requires constant labor costs for mowing to maintain at least a minimally acceptable appearance. At the same time, it carries no ecological or aesthetic value, being essentially an expense item with no real return.

Monoculture Lawn

This is an "ideal" lawn of one or two types of cereal grasses, which can often be seen in ceremonial areas. Despite its neat appearance, it is one of the most problematic and expensive types of landscaping. For the ecosystem, such a lawn is a real biological desert, useless for insects and birds. Its maintenance requires a huge amount of resources: constant watering, application of soil-polluting fertilizers, and pesticides and herbicides. This makes it extremely susceptible to drought and diseases.

For people, it is not only aesthetically monotonous but also potentially harmful due to contact with chemicals used. From the perspective of city services, this is the most expensive type of lawn to maintain. It requires frequent mowing (every 1-2 weeks), aeration, watering, and disease control. Any disruption in this complex care cycle quickly leads to a complete loss of appearance and the need for expensive restoration.

Mixed or Natural Lawns: A Modern Alternative

A mixed lawn is a multi-species plant community that mimics a natural meadow. It includes various types of grasses, perennial and annual flowering plants, and is an effective solution to the problems created by traditional lawns.

What is it called? Terminology Options

There are several names for such lawns, reflecting different emphases. The most general is a **meadow lawn**, as it imitates a natural community of perennial grasses and flowers. If the composition includes many bright annuals, such as poppies and cornflowers, it is called a **Moorish lawn**. The terms **natural lawn** or **mixed herbs** emphasize the use of local plants adapted to the climate, while the names **biopositive** or **ecological lawn** highlight its key role in the urban ecosystem.

Where is it practiced and why is it effective?

The practice of creating mixed lawns is widespread in Northern and Western European countries (Germany, Great Britain, the Netherlands), and this approach is supported by both legislative incentives and proven effectiveness.

Legislation rarely directly prescribes the composition of the lawn mixture but creates conditions under which the transition to meadow lawns becomes the most logical solution. For example, in France, since 2017, there has been a law prohibiting the use of synthetic pesticides in public spaces, which stimulated services to seek alternative maintenance methods. At the EU level, biodiversity conservation strategies are in place that set goals for cities to restore ecosystems and reduce "biological deserts," and meadow lawns are a key tool for achieving them.

Analysis of effectiveness confirms the correctness of this approach. Municipalities that have implemented this technology report a reduction in lawn maintenance costs by 50-90% due to a reduction in the number of mows from 10-15 to 1-2 per year and a complete rejection of fertilizers and herbicides. Studies show a 3-5 fold increase in the number of insect pollinators as early as the second year, and an improvement in the soil's ability to absorb rainwater by 30-40%, which reduces the load on the sewage system. Thus, this is not just a fashionable trend, but a proven, economically and ecologically sound practice.

What plants are used?

The composition of the mixture is key to success. It usually includes three main groups:

1. **Cereal grasses (50-80% of the mixture):** they create the base, the sod. Non-aggressive, slow-growing species are used: red fescue, colonial bentgrass, timothy grass. They all grow well in Armenia.
2. **Perennial flowering plants and herbs:** this is the core of the meadow lawn. Examples: clover (white and red), yarrow, chicory, veronica, chamomile, bellflowers, meadow sage. These plants are widespread in the region and are an excellent choice.
3. **Annual flowers (for Moorish lawn):** give a quick effect in the first year. Examples: cornflower, common poppy, calendula (marigolds), flax. Given the difficult climatic conditions of Yerevan, periodic reseeding of annuals may be required if their representation in the lawn decreases over time.

The main principle is to choose plants suited to local climate and soil type. A key success factor is adapting the mixture composition to specific light conditions. For open sunny areas, light-loving meadow flowers and grasses are suitable, but for shady places, for example, under tree crowns in parks and courtyards, a completely different mixture is needed. It will consist of shade-tolerant plants, and will look different – the lawn will be less bright, with an emphasis on leaf texture and delicate, understated flowers, creating the atmosphere of a forest clearing.

Benefits for the City, Ecosystem, and People

- **Support for biodiversity and creation of a sustainable ecosystem:** Flowering plants attract bees, bumblebees, and other pollinators, which has a direct practical effect. They are necessary for fruit trees (apricots, apples) and shrubs in parks and courtyards. In addition, the meadow becomes home to beneficial insects (ladybugs, predatory beetles) that control the number of pests, such as aphids. This reduces the need for expensive and harmful chemical treatments of all urban plantings.
- **Improvement of soil condition:** The root systems of different plants penetrate to different depths, loosening and structuring the soil. This increases its aeration and moisture capacity – the ability to accumulate and retain moisture. As a result, such turf can be watered less often, and the effect of watering or rain lasts longer. Improved water absorption also helps combat erosion and reduces the load on the storm sewer system during heavy rainfall.
- **Dust and urban dirt control:** The dense and continuous cover of a mixed lawn completely covers the soil, unlike self-seeded lawns with their bare patches. This effectively solves the problem of urban dust. The air becomes cleaner, and for city services, this means direct savings on street cleaning and washing.
- **Resource savings:** After the lawn takes root (in the 2nd-3rd year), it requires significantly fewer resources. This is a direct saving for city services on watering, fertilizers, and fuel for lawnmowers.

- **Aesthetic diversity:** Such a lawn changes throughout the season: some flowers are replaced by others. This creates a dynamic and more natural landscape, positively affecting people's psycho-emotional state.
- **Increased resilience of the lawn itself:** A multi-species plant community is much more resistant to drought, diseases, and pests. If one species suffers, others take its place. Turf does not lose its appearance and functions.

Maintenance Features

Maintenance is fundamentally different from traditional. It is not "more" or "less" care, but "different" care, based on ecological knowledge, not brute force.

- **Mowing:** This is a key element of care that mimics natural processes occurring in nature (e.g., grazing by animals). Mowing is done 1-2 times PER YEAR. It evens out the chances of all plants, preventing the dominance of several aggressive species (mainly grasses) and allowing a wider range of herbs to flower and reproduce. The first mow is done in mid-summer, after most plants have flowered and produced seeds. The second is in late autumn, to prepare the lawn for winter. It is extremely important to remove all mown grass, not leave it on the lawn.
- **Watering:** Intensive watering is only needed in the first year for rooting. Subsequently, the need for water sharply decreases, but it is important to consider the peculiarities of the local climate. The average annual precipitation in Yerevan is about 300 mm, while the summer is very hot and dry. Natural rainfall will not be enough to maintain the lawn. To keep plants alive during the hottest months, rare but deep watering will be required. Nevertheless, this is a radical reduction in water consumption compared to the daily surface watering necessary for a monoculture lawn.
- **Fertilizer:** Fertilizer is unnecessary and harmful. They stimulate the growth of grasses, which begin to crowd out flowering species. Such a lawn grows well on poor soils.
- **Weeding:** Manual weeding may be required in the first 1-2 years to remove aggressive undesirable species. Subsequently, a stable community itself suppresses most weeds.
- **Usage Features:** It is important to understand that this is not a lawn for active games or constant walking. It is a landscape element for contemplation and quiet recreation. Paths and picnic areas should be mown separately.

How to create a natural lawn

Success directly depends on proper preparation at the start. Sowing over an existing self-seeded lawn will not yield good results, so it is necessary to completely remove the old sod and dig up the soil, removing the roots of perennial weeds.

Separately, it is worth mentioning the technology of ready-made roll-out lawns. For creating natural mixed herbs, this method is risky. Imported lawns tend to contain plants grown in different climatic conditions and not adapted to the hot and dry summer of Yerevan. As a result, such turf degrades rapidly and loses its species composition. Given

the absence of local nurseries producing roll-out lawns from adapted drought-resistant grasses, the most reliable and sustainable solution remains direct sowing of seeds on site.

For creating a lawn, it is easiest and most reliable to use ready-made, balanced seed mixtures that are available for purchase. Compiling them yourself is also possible but requires specialized knowledge.

A key feature is the seeding rate, which is significantly lower than for ordinary lawns – about 3-5 grams per square meter (for comparison, for an ordinary lawn – 30-50 g). This is done so that delicate flowering plants have enough light and space to develop, and are not choked out by fast-growing grasses.

For uniform distribution of such a small amount of seeds, they are mixed with sand (in a ratio of approximately 1:10), sown, and lightly incorporated into the soil with a rake. After this, it is recommended to cover the area with non-woven agricultural fabric – it will protect the seeds from birds and drying out, accelerating germination.

Possible difficulties and their solutions

- **Negative perception by residents.** One of the main difficulties is that, at the initial stage, residents may perceive a natural lawn as "unkept" or "abandoned." This problem is solved by proactive informational support: installing signs explaining the essence of the project ("Here we are creating a flowering meadow for bees and butterflies"), publications in local media and social networks, and holding public discussions.
- **Initial costs.** It is important to properly evaluate initial investments. Creating a high-quality monoculture lawn, as a rule, **requires significant initial costs** due to the need to import expensive fertile soil and a high seeding rate (or the use of roll-out lawn). A natural lawn is less demanding; it does not need black soil, and the seed seeding rate is 10 times lower. Thus, its creation **is most often cheaper**. To justify these costs, it is useful to compare them to the colossal annual maintenance savings.
- **Availability of seeds.** A practical challenge may be finding ready-made mixtures ideally suited for a specific climate, for example, for the hot and dry summer of Yerevan. The solution here is to search for specialized suppliers and cooperate with local nurseries or botanical gardens to develop adapted mixtures based on local, drought-resistant plant species.