Cost Comparison

Organic vs Chemical Land Management

Differentiating Two Approaches

While chemical land management focuses on treating symptoms, the organic approach is a preventive approach that addresses root causes. In this context, unwanted organisms (pests, including insects and weeds) are the symptoms of a problem caused by poor soil health.

Organic land management emphasizes managing weeds and insects through the building of soil conditions and employing cultural practices, such as aeration, overseeding, dethatching, and proper mowing and watering. Nutrients are cycled naturally and, if determined to be necessary by a soil test, soil amendments are used to feed biological life in the soil, which in turn feeds the plant.

With the chemical approach, focus is placed on using synthetic, petrochemical pesticides and fertilizers that adversely affect life in the soil. These chemicals are typically applied based on a calendar date, or by a “see and spray” approach to weed and insect management. Soil tests and cultural practices are not prioritized.

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<th>CHEMICAL-INTENSIVE</th>
<th>ORGANIC</th>
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<td>• Treats symptoms; “see and spray,” ignore underlying conditions that contribute to pest issue.</td>
<td>• Addresses root causes; focus on soil health through testing and analysis.</td>
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<td>• Pesticides and fertilizers are fossil fuel-based synthetics that are harmful to soil biology and biodiversity.</td>
<td>• Uses naturally derived fertilizers and pesticides with a systems-based approach, nurturing soil biology and biodiversity.</td>
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<td>• Does not often focus on cultural practices.</td>
<td>• Prioritizes cultural practices for turf management, such as aeration, overseeding, dethatching, and proper watering.</td>
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An organic approach corrects nutrient and pH per a soil test and focuses on soil aeration.

A chemical approach focuses on killing the weed. However, this is only a short-term solution.

Unless the reason why dandelions are in the turf is addressed, chemical land managers will more likely than not be back next season to spray again.

The organic approach saves money on material inputs like pesticides, by providing long-term solutions.
ORGANIC VS CHEMICAL LAND MANAGEMENT

ORGANIC SAVES OVER TIME
Healthy soil reduces the need for expensive outside inputs

COST COMPARISONS
A report from the non-profit Grassroots Environmental Education and organic turf expert Chip Osborne, with Osborne Organics, concludes that, once established, an organic turf management approach results in savings greater than 25% over chemical management.\(^1\) While initial expenditures over the first two years may be slightly higher, costs decrease as soil biology improves. Healthy soil reduces the need for expensive outside inputs.

Harvard University’s experience with the organic approach on its campus found similar results. There were initial costs required to train staff, purchase equipment, and improve soil health, but at maturity costs are now expected to stay the same as its previous chemical-based program.\(^2\)

Connecticut’s Department of Energy and Environmental Protection (encourages residents to maintain landscapes with organic practices. They note, “If your lawn is currently chemically dependent, initially it may be more expensive to restore it. But in the long-term, an organic lawn will actually cost less money. Once established, an organic lawn uses less water and fertilizers, and requires less labor for mowing and maintenance.”\(^3\)

The cost to manage a football field using natural programs is less expensive than chemical-intensive programs over time.


ORGANIC TRENDS ARE EMERGING NATIONWIDE
In 2019, the City of South Miami completed a two-year pilot program that required city staff and contractors to follow practices intended to eliminate toxic pesticide use, and limited inputs only to organic-certified products. A city memorandum codifying these practices into law describes the success of this approach regarding cost. It reads, “Thus-far, this initiative has been a qualified success, allowing the city to cut down on its waste-footprint significantly at relatively little expense, and providing a model for other local government to use as guidance.”\(^4\)
CONSIDERING EXTERNALITIES

There are costs from the chemical approach not captured by the shelf price of a pesticide bottle or bag of synthetic fertilizer. While chemical manufacturers profit, the public pays a steep price through increased health care expenditures and the need to clean up environmental contamination.

A 2016 literature review determined the health costs from pesticide use in the U.S. to be $15 billion annually. The most significant cost is death due to chronic pesticide exposure, such as fatal outcomes after contracting cancer. The authors indicate that environmental costs of pesticide use total roughly $8 billion, but that is likely an underestimate due to the difficulty in pricing ecosystem services (economic value of nature, such as pollination and nutrient cycling) and obtaining accurate data on wildlife mortality.

A study from Seattle Public Utilities determined that, by moving toward natural and organic practices, some of these external costs can be recouped. Households switching from synthetic to natural practices generate roughly $75 in ongoing public health, ecological, water conservation, and hazardous waste management benefits each year. Cost savings came primarily from reducing the use of chemical pesticides and fertilizers and the need for irrigation.

CONCLUSION: ORGANIC IS WORTH IT

Cost concerns of switching from chemical to organic land management should be considered negligible over the long-term. There may be some initial upfront costs for staff training, or the purchase of new material or equipment, but these costs decline significantly as focus shifts to root causes and soil health improves. The transition to organic also captures additional external health and environmental costs that are currently borne by the public at-large.

Organic land management represents an economically viable approach for individual homeowners, landscapers, local parks departments, and school districts willing to commit to the change in practices organic land management entails.

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6 Ibid.
8 Ibid.