The Perils of Landscape Fabric

Alison Shadwell-Williams - Garden Designer, Royal Horticultural Society Level 2 and graduate of London College of Garden Design; Shadwell-Williams Design Studio

Landscape fabric is considered a low-maintenance, long term solution for weed control amongst many home gardeners and garden maintenance companies. It is marketed as a permeable, durable material that prevents weeds from growing throughout the garden. But what is it and is it good for the garden?

It is a manmade woven geotextile often made from polyester, polypropylene, or recycled plastic. Although sold as a solution to weeds, it often causes more harm than good. None are suitable for the health of the soil or the well-being of the plants it supposedly protects. This fabric blocks sunlight, impedes soil aeration, disrupts water infiltration, and prevents natural soil enrichment. In other words, it kills the soil microorganisms, prevents water from reaching the roots, and as it degrades, the plastic decomposes and filters into the rivers and ocean, continuing a path of destruction.

Dry cracked soil beneath fabric

Soil aeration is vital to the health of the soil. Aeration helps prevent compaction of the soil that causes numerous issues including drainage, inhibition of root depth, and growth of microorganisms that provide nutrients to the roots. As landscape fabric ages, the woven fabric accumulates dirt, blocking air and water from reaching the soil and effectively killing all living organisms beneath the barrier.

Roots found attached to fabric

Water that is unable to filtrate through the fabric causes the soil to turn into hard, cracked dirt that cannot sustain life. Roots need water and will search and grow towards the closest available source. Since some water collects near the fabric, roots will stay just beneath it, absorbing whatever moisture they can. As roots remain close to the surface, they do not grow deep, exacerbating soil compaction and reducing the plant's chances of survival during a drought. In contrast, in winter, compacted soil causes rainwater to either run off

or pool on the surface, leading to waterlogged conditions where the plants may die due to anaerobic stress.

Landscape fabric prevents natural soil enrichment, which is built through organic matter feeding the microorganisms. According to the University of California Agriculture and Natural Resources, "organic matter refers to the material derived from the remains of decomposing plant and animal matter, including living and dead organisms in various stages of decay." If there is a barrier preventing the decomposition of leaf and animal matter, there can be no transfer of organic matter to the soil beneath, preventing nutrients from reaching the roots.

There are many pollinators, especially ground nesting bees, who are prevented from accessing the soil for hibernation and egg laying due to landscape fabric. Disrupting the soil ecosystem weakens the food chain for all organisms, indirectly impacting pollinators by diminishing their available food resources. The native bee population is dwindling, and removing vital habitat for insects reduces the chance of boosting their populations.

Weeds will grow anywhere — even in pavement cracks — and will eventually find their way through landscape fabric. As the fabric begins to degrade, the weeds will grow more and can often be harder to eradicate, as they are embedded in the fabric itself. As the fabric degrades, larger holes form, allowing more weeds to grow. Even more concerning is the release of microplastics into the soil. Over time, these microplastics will infiltrate the waterways, harm marine life, and ultimately make their way into human bodies.

There are further environmental concerns using synthetic landscape fabric besides the degradation itself. The manufacturing of plastics, shipping, and landfill waste are all large contributors to our greenhouse gases. Every item purchased has an environmental footprint with regards to production and shipping impacts, and the cost-benefit of that footprint should be considered.

There are better alternatives to using man-made synthetic materials to combat weeds. Although time consuming, manual weeding is more effective and healthier for the soil. It is also great exercise for the gardener. Mulching with leaf litter, compost, bark, or sheet mulching (lasagna layering) using biodegradable cardboard and newspaper provides food for the soil while preventing sunlight for weeds. Alternatively, adding more plants to the area produces more shade on the soil, preventing weeds from growing in the first place.

Even though landscape fabric may seem like the best solution for weed control, it causes more harm than good. It disrupts the natural life cycle of the soil and microorganisms, as well as burrowing native bees, pollinators, and insects. Additionally, its synthetic material contributes to greenhouse gases, environmental waste, and microplastics in oceans and human bodies. Choose a more sustainable alternative, reduce space between the plants, mulch or use hand methods of weeding to promote the natural wellbeing of soil, and increase the wellbeing of the soil, oceans, and human lives.

The Myth of Landscape Fabric
The disadvantages of landscape fabric | Good Growing | Illinois Extension | UIUC
Healthy Soils for a Healthy California
Compost and soil organic matter: The more, the merrier? | UMN Extension
Weed Management in Landscapes