

# Landscape fabrics for weed control



Unmulched fabrics on left have no weeds; weeds evident in mulches atop fabrics on right.

Photos courtesy Dr. Bonnie Appleton, Virginia Tech University

## Virginia Tech researchers Bonnie Lee Appleton and Jeff Derr offer insights into using geotextiles in landscapes.

■ Black plastic does a good job of suppressing weeds. That's why it's commonly used in commercial vegetable production. It's made of non-porous polyethylene and works best when laid over moderately moist soil.

However, placing it over wet soil prevents evaporation of excess soil moisture and promotes root rot or fungal decay. It doesn't allow oxygen, needed for root respiration, to infiltrate. Carbon dioxide often builds up to toxic levels. Black plastic can harm valuable trees and shrubs if placed around them.

Landscape fabrics, on the other hand, are porous. They permit exchange of water and gases. This is true, to one degree or another, regardless of composition (polyethylene, polypropylene, polyester),

construction (woven or non-woven, spun-bonded or needle-punched), or color.

But the bigger questions involving landscape fabrics are:

- Do they control all weeds?
- Are they easy to install?
- Do they harm valuable plants?

Virginia Tech researchers Bonnie Lee Appleton and Jeff Derr found some answers to these questions by putting various landscape fabrics through four years of field trials at the Hampton Roads Agricultural Experiment Station in Virginia Beach.

The first thing they noticed was that some fabrics are more porous than others. Even so, most fabrics suppress annual weeds fairly well. In fact, they found that landscape fabrics left uncovered, without mulch, do a very good job of stopping weeds. Most residential and commercial landscape customers don't find this aesthetically acceptable though.

**No guarantee**—Using landscape fabrics does not, however, guarantee weed-free beds.

For example, a layer of more than an

inch or two of a fairly small-particle-size organic mulch, such as ground pine bark, atop a fabric creates a good growing medium for weed seeds, the researchers discovered. The more porous the fabric, the more likely weed roots will push into the soil beneath.

Derr and Appleton say that one inch of ground pine bark is enough to protect the fabric from ultraviolet rays that cause deterioration, yet not deep enough to allow many weeds to sprout.

Larger or less-compacting organic particles (chunk pine bark and pine straw) can be used in deeper layers. These mulches, being more open, are less likely to sustain much weed growth. But, why use an underlying fabric at all with mulch piled as high as four to six inches?

Also, tenacious perennial weeds such as yellow nutsedge and bermudagrass can grow up under geotextiles and force their way up through fabrics. Again, fabrics that are less porous have more of a chance of curbing these weeds.

**How about trees?**—But does the limited porosity of landscape fabrics harm trees and shrubs?

The researchers planted all of their mulch/fabric test plots with red maple whips then monitored soil moisture and temperature for two years on a biweekly basis. Control plots were left bare or covered with black plastic.

Derr and Appleton discovered differences in soil moisture and temperature, but mainly between plots with no cover and plots with black plastic.

Among the geotextiles, almost no statistically significant differences were found in soil conditions, although the textiles' porosity varied from only 3 percent open (Weed-X) to as much as 40 percent open, they report. Very little difference in tree height or caliper was evident from one fabric to another.

The researchers also report that those fabrics that were very porous had tree roots growing in and through them. Sometimes roots even grew on top of fabrics that had a layer of moist organic mulch on top of them. As the fabrics were peeled up, quantities of tree roots often came up with them.

**Caution advised**—The researchers advise caution in installing fabrics in areas where plants may be added or changed every few years. Trees and other established plants can be stressed if portions of fabric surrounding them are pulled up

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Just enough mulch to cover landscape fabric presents finished look.

Photos courtesy Dr. Bonnie Appleton, Virginia Tech University

regularly, they believe. They also advise against using geotextiles around annuals unless you plan to plant year after year into the same holes you initially cut in the fabrics. Cutting new holes each year will increase weed growth. And don't use fabrics in beds planted with bulbs, clumping or rhizomatous perennials, or vines or groundcovers that spread by stolons or stems that root into the ground.

Installing geotextiles isn't complicated but it involves some thought and care, starting with providing a weed-free environment over which to put them.

If you plant first, carefully seam and pin strips of fabric around the plants to cover the soil. Even so, the researchers discovered that some weeds still found the weak points and were able to grow.

If you cover the soil with the fabric first, you must then cut holes through which to dig your planting holes. Remember, the bigger the hole you dig, the more fabric must be cut. Don't leave any of the hole's soil atop the fabric, or you'll have another place for weeds to grow.

**Cost effective**—Landscape fabrics are one of several options available for weed control. Base your decision upon weed spectrum, mulch type requested or desired, permanence of plantings, aesthetics and alternative weed-control options.

Also, consider cost. Though initially expensive to install, a landscape fabric may be a worthwhile investment if it is functional for several years. In the trials, fabric degradation was seen only where fabrics were not evenly covered with mulch, allowing photodegrada-

tion. Most fabrics should last five or more years if properly covered, the researchers found.

## LANDSCAPE FABRICS

**Dalen Products, Inc.**, 11110 Gilbert Drive, Knoxville, TN 37932. (615) 966-3256.

Weed-X, microscopic pores which block weeds, requires less mulch, made in three layers: micro-perforated film layer, porous capillary matting, and non-woven spun-bonded fabric layer.

**Circle No. 311 on Reader Inquiry Card**

**DeWitt Company**, Highway 61 South, RR 3, Box 31, Sikeston, MO 63801. (800) 888-9669.

Pro 5 Weed Barrier, 5 oz. of polypropylene per square yard, woven, needle-punched fabric, 99.8% opaque to sunlight. U.V. stabilized. Available in rolls of 3'-12' wide by 250' long.

**Circle No. 312 on Reader Inquiry Card**

**Reemay**, 70 Old Hickory Blvd., P.O. Box 511, Old Hickory, TN 37138-3651. (800) 321-6271.

Tyrap Landscape Fabric, spunbonded polypropylene, resists tearing, punctures, rotting, etc., can be used for soil retention for timber retaining walls, around blind drains, etc., in rolls 3'-12.5' wide by 300' long.

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**Contech Construction Products, Inc.**, 1001 Grove St., Middletown, OH 45044; (513) 425-5896.

TerraBond products for landscape/mulch separation, slope erosion control, pathway construction, brick patio construction, retaining wall filtration, pathway construction, etc. (shown on cover).

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## Tips from Appleton, Derr

- ✓ Use geotextiles with a high percentage of closed space.
- ✓ If you use organic mulches, use coarse mulch material or thin layers of fine material.
- ✓ Keep geotextiles evenly covered at all times.
- ✓ Remove or kill any mulch-layer weeds while small.
- ✓ Consider applying a pre-emergence herbicide.
- ✓ Avoid unnecessarily pulling up geotextiles around trees and shrubs.