

FABRICS AND MULCHES FOR WEED MANAGEMENT IN THE LANDSCAPE

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Landscape fabrics, or geotextiles, are opaque high-strength polypropylene or polyethylene materials which are either spun-bonded or woven. They are generally black but gray and white fabric are also available. These materials inhibit the germination and rooting of seeds as does black plastic but they have the added advantage of allowing air and water to diffuse through them. These fabrics are best utilized in permanent plantings such as shrub beds and around trees. As most are not UV resistant, they must be covered with another mulch to prevent photodegradation as well as improving the appearance. Common mulches used to cover landscape fabrics are wood chips and gravel.

Landscape fabrics may not control some perennials such as yellow nutsedge or bermudagrass. These weeds can penetrate some landscape fabrics. We have found that Washingtonia palm seedlings will penetrate spunbound polypropylene rated at a puncture strength of 40 lb.

Landscape fabrics are usually available in rolls 3 to 6 feet wide and 25 to 250 feet long. There are a number of manufacturers including:

1. Dewitt™, Dewitt Co., Sikeston, MO
2. Duon™, Blunks Wholesale Supply Inc., Bridgeview, IL
3. Typar™, Remy, Inc., Old Hickory, TN
(This company also manufactures Biobarrier II™)
4. Visqueen™, Visqueen Film Products, Richmond, VA
5. Exxon™, Landscape Supply Inc., Roanoke, VA

Organic mulches, such as bark or wood chips, will also limit weed growth. Advantages include reducing moisture loss and soil compaction. However, the microorganisms breaking down the mulch draw nitrogen away from the plant. Additional nitrogen may be needed if the plants or a soil test indicate nitrogen deficiency.

Because organic materials do break down, they need to be replenished periodically, usually yearly. Additional mulch to bring the depth to 2-4 inches is recommended. Lesser amounts are not adequate for weed control and greater depths limit gas and water exchange. Deep mulch applied right against the stem or trunk of woody landscape plants may increase the likelihood of collar rot or other disease.

Other landscape mulches:

Stone, pebbles, and gravel: Used to achieve color and texture changes. These materials are fire resistant and do not break down. Weed control is variable depending on the weed spectrum of the planting and the size of the material.

Plastic film: Not recommended for landscape use because of limited gas exchange and water movement. If plastic is used, it should be the type specified as needle-punched or perforated to allow aeration and moisture penetration.

Determining how much rock or organic mulch to apply:

Loose mulch is typically sold in bags or in bulk, and is measured in cubic feet or cubic yards. To figure out the number of cubic feet needed, determine the area in square feet. Multiply that number by the depth of the mulch layer (also in feet). For example, a 3 inch depth would be 3in X12in/ft =0.25ft. Therefore, a 250 square foot area would need $250 \times 0.25 = 62.5$ cubic feet of mulch. To convert to cubic yards, divide the result by 27 ($62.5/27 = 2.3$ cubic yards).

In new plantings, soil levels should be 1-3 inches below the level of sidewalks to keep the mulches, particularly rocks, contained. An alternative would be to use an edging material. Slope the soil towards the plants to before covering with mulch to allow water to move towards the plant.

We currently are examining some landscape fabrics and herbicides for weed control in the landscape. Herbicides we are testing include Gallery, Surflan, and Snapshot (a granular formulation of Gallery plus Treflan). Landscape fabrics used in the studies are Typar 3201G, Typar 3401G, and Biobarrier II, a landscape fabric that has a root inhibiting herbicide (trifluralin) inside nodules attached to the fabric.

In this ongoing study, we used a chipped wood mulch to cover the fabrics and planted roses. All herbicides were applied to bare ground. Predominant weeds were spurge and puncturevine.

Of the herbicides tested the combinations provided greater weed control than that of the single herbicide treatments. No phytotoxicity of the roses was observed. Landscape fabrics provided excellent weed control in this study. Additionally, roses in the mulched treatments (with or without fabric) were noticeably more vigorous than those in the unmulched treatments (data not shown).

Treatment	Riverside 90 days after treatment			
	%Cover		% Control	
None	84.75	a*	0.00	a*
Mulch alone	26.25	c	68.75	cd
Fabric 3201	5.00	cd	92.50	e
Fabric 3401	5.00	cd	93.75	e
Biobarrier	0.00	d	100	e
Gallery 1 lb a.i./A	58.75	b	38.75	bc
Surflan 4 lb a.i./A	21.25	cd	78.75	cde
Gallery 1 lb + Suflan 3 lb a.i./A	10.00	cd	86.25	de
Gallery1 lb + Suflan 4 lb a.i./A	17.50	cd	81.25	de
Snapshot 5 lb a.i./A	35.00	b	58.75	c

*Means within a column followed by the same letter are not significantly different at the P=0.05 level by Fischer's Protected t-test.