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### **The Myth of Paper-Based Sheet Mulch**

*“Newspaper and cardboard sheet mulches are excellent ways to reduce weeds and maintain soil health in permanent landscapes”*

#### **The Myth**

In their quest to create more sustainable landscapes – those that require fewer inputs of fertilizers, pesticides, and other resources – gardeners, landscapers, and restoration ecologists have focused on mulches. Of particular interest are organic mulches, and even more appealing are those that recycle materials that might otherwise contribute to landfills.

The use of mulches to suppress weeds and conserve soil water has a substantial agricultural history. Newspaper mulch, either as intact sheets or chopped and shredded, has been successful in reducing weeds and increasing yield in some row crops. Cardboard sheet mulch, often used in tree plantations, has been less reliable. These paper mulches are increasingly common in urban landscapes, especially restoration sites. Are they effective in suppressing weeds, maintaining soil water, and aiding plant establishment in this context?

#### **The Reality**

The use of newspaper and cardboard sheet mulches in non-crop settings is relatively new and therefore not much scientific literature exists on its efficacy in permanent landscapes. However, there are some caveats from the agricultural literature as well as anecdotal observations that can be applied to permanent installations:

- 1) Newspaper and cardboard sheet mulches can become pest havens. Termites were found to prefer cardboard over wood chips as a food source, and rodents such as voles often nest underneath mulch sheets.
- 2) Newspaper and cardboard sheet mulches were often not as effective as other organic mulches (e.g. wood chips or bark) in preventing weed growth or improving yield.
- 3) Newspaper and cardboard sheet mulches often become dislodged by winds, especially if they are exposed.
- 4) Newspaper and cardboard sheet mulches can induce anaerobic conditions if used on wet, poorly drained soils. When wet, the layers of paper are compacted, creating an impermeable barrier to water and gas exchange.
- 5) Newspaper and cardboard sheet mulches become hydrophobic if allowed to dry out, causing rainfall or irrigation water to sheet away rather than percolate through. This is particularly true of regions with droughty summers or well-drained soils.
- 6) Newspaper and cardboard sheet mulches are not aesthetically appealing when exposed.

Newspaper and cardboard sheet mulches have been effectively used in home gardens where soil is continuously worked and irrigation is applied. For less well maintained sites, they are not the best choice for the reasons given above. I have observed increased shrub death in restoration areas mulched with newspaper and cardboard sheet mulches compared to adjacent sites where wood chips have been used. Puget Sound’s dry summers, coupled with the region’s sandy loam soils, are contraindicative for permanent landscape installations.

### **The Bottom Line**

- Newspaper and cardboard sheet mulches can be effective for annual beds if they are properly maintained.
- Sheet mulches can prevent water movement and gas exchange if they are too wet or too dry.
- Use site-appropriate mulch materials. Permanent, ornamental landscapes, non-maintained sites, and restoration areas are not appropriate locations for newspaper and cardboard sheet mulches.

For more information, please visit Dr. Chalker-Scott's web page at <http://www.theinformedgardener.com>.