
Colored Plastic Mulches

ECHO Inc.

COLORLED PLASTIC MULCHES have been found to improve yields and fruit quality in some vegetable crops, according to studies around the US. Black plastic mulches reduce weeds, conserve soil moisture, and warm the soil in cold climates. Colored mulches provide these benefits while also reflecting light up to the plants, giving yield benefits such as larger fruit or earlier maturity. Crops seem to have “preferred colors”; one review (in *AVG 2/95*) cited yield increases of 14-22% over black mulch in cucumber (with red mulch), peppers (yellow, silver), squash (blue, red), and tomato (red, brown).

We called USDA researcher Dr. Michael Kasperbauer, who studies plant response to the light spectrum. He explained that not all shades of color have the same effect on yields. The key factors are the amount of reflected far-red and the ratio of far-red to red light, which can only be measured with a spectroradiometer. A high FR:R ratio of the reflected light stimulates above-ground growth, so many fruit crops respond favorably on certain red mulches. Tomatoes on red mulch yield 15-20% more fruit during the first two weeks of harvest than plants on black mulch. Cotton plants produce more bolls with longer fibers. Pigments which reflect a low FR:R ratio, in contrast, stimulate root growth.

Some colors (such as yellow) attract insects, and growers can use this factor in pest management. In one trial, cucumber beetles infested yellow-mulched rows first; it may be possible to attract pests to one area of a field for spot treatment. Colored mulches tend to cost more than black plastic, and manufacturers have yet to standardize the color intensity in the mulches for best production. This idea may be worth some experimentation in your fields. Research in this area began by painting black plastic with different colors. Let us know your results.

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