

**Color Theory** Last fall in New England was warm and dry. Foliage fans swore the autumn palette was drab. Their conclusion: Climate change is killing fall color.

Scientists aren't so sure. Comparing intensity of color from one year to the next "is very difficult," says ecologist John O'Keefe of Harvard Forest in Massachusetts. Even what drives color change is up for debate. "We have new ideas, but much is still a mystery," says botanist David Lee of the National Tropical Botanical Garden.

Now researchers are studying how climate change affects color from year to year. They're tracking the onset of autumn hues and training webcams on trees to gauge intensity. All they know now is warmer temperatures have delayed the fall show a few days—so far.

The forecast for this year is anyone's guess. One thing's certain: Weather always plays a big role. Drought can cause leaves to turn brown and drop off early; cloudy days can slow the creation of red pigment. As for the long run, a balmy Northeast would be bad for cold-loving, colorful sugar maples: Old trees would hang on, but seedlings and saplings wouldn't thrive. So don't delay that Vermont foliage tour until 2058. —Marc Silver



#### FALL'S FORMULA

Shorter days, chillier nights, and ample sun likely spark color change.

#### GREEN

It's the shade of the chemical chlorophyll, which enables leaves to turn CO<sub>2</sub> into sugars.

#### YELLOW

Typically lurking under the green, it's unmasked as chlorophyll breaks down in aging leaves.

#### ORANGE

If newly produced red pigments aren't dominant, they blend with the newly revealed yellow.

#### RED

Why do aging leaves expend energy to make this hue? Perhaps to repel egg-laying bugs or guard nutrients from sun damage so the tree can retrieve them.