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Ecofocus: To benefit the environment most, try a living tree

By William H. Schlesinger

It's mid-December and time for the annual question: Should we get an artificial Christmas tree this year? And with so much interest in carbon sequestration and high energy costs, what are the comparative environmental effects of having a real tree versus an artificial tree in your living room?

Christmas trees have been popular in the U.S. since the early 1800s, when the tradition was transplanted from Germany. Last year, Americans bought nearly 38 million Christmas trees, spending \$1.8 billion. Nearly 1/4 of these were artificial trees, which now include a number of pre-decorated options.

At 6 to 8 feet tall, both varieties weigh around 50 lbs., which is about as much tannenbaum as the average American wants to haul around the house, even once a year. Real trees get approximately half their mass from carbon, which is taken from Earth's atmosphere by photosynthesis and accumulated in their wood. (Score 1 for the real tree.) Plastic trees are largely composed of a byproduct of non-renewable petroleum, which originates from carbon that was removed from the atmosphere some 70 million years ago by marine phytoplankton. (Minus 1 for the artificial tree.)

Real trees are grown in a farm field, perhaps here in the Hudson Valley, preserving a rural economy with minimal impact on the landscape. The 500,000 acres of Christmas trees being grown in the U.S. provide significant wildlife habitat. They require only modest pruning and horticultural care and no large energy input. (Score 1 for the real tree.) Artificial trees trace their origins to distant oil fields. They require the conversion of oil to plastic, refining, factory assembly and international shipping. (Minus 1 for the artificial tree.)

Unless you are one of the hardy few who cut down your own tree, both varieties arrive at your house after considerable highway travel. There is a good chance the artificial tree was made in China. But for our purposes, let's assume that for equivalent size, the diesel fuel to haul the trees is roughly equal, except the artificial tree makes the journey once, whereas the real tree must be replaced each year. (Score 1 for the artificial tree.)

At the end of Christmas, most of us unceremoniously dump our real Christmas tree in the local landfill, where it decomposes, releasing all its previously stored carbon back into the atmosphere as carbon dioxide. (Minus 1 for the real tree.) The fate of a plastic tree is likely similar, except less frequent, and its decomposition may take more than a thousand years. We can be thankful for this slow decomposition; when we burn the fossil carbon in gasoline or plastic Christmas trees, it raises the concentration of carbon dioxide in Earth's atmosphere, which causes global warming.

Fake, real trees tie

At this point, the score is about equal, which is also reflected in the price of real and artificial trees. But, unless you change your mind abruptly, you probably anticipate amortizing the investment in an artificial tree over many years. (Of course, how many of us have an artificial tree in the attic and a real tree in the living room?) The best alternative is to buy a live Christmas tree and replant it in the early spring, so it can resume its role removing carbon dioxide from the atmosphere.

So, what will we be displaying in our living room this year? A real tree; you can't beat the scent of a conifer at Christmas.

Happy Holidays to one and all from the Institute of Ecosystem Studies, where we do the science that makes advocacy possible.

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