

Could Global CO2 Levels be Reduced by Planting Trees?



Could planting trees make enough difference to impact increased CO2 levels on a global level? The idea seems simple enough. Since trees and plants take in carbon dioxide (CO2) for photosynthesis, theoretically planting enough trees should reduce CO2.

The terrestrial biosphere - which includes plants and trees - does have an impact on global CO2 levels. Combined with oceans, the terrestrial biosphere removes about 45% of the CO2 emitted by human activities each year.

[According to research done at UC Berkley](#), there is evidence that as global CO2 levels have increased, the terrestrial biosphere is responding by taking up more CO2 and reducing the rate of growth of global CO2.

This makes sense. Here at CO2Meter, our clients report to us that in controlled conditions like indoor greenhouses, doubling/tripling the CO2 levels can act as fertilizer, which increases the growth of plants.

Could enough trees be planted to impact CO2?

Research has shown that this answer could vary. While a typical hardwood tree can absorb as much as [48 pounds of carbon dioxide per year](#). This means it will sequester approximately 1 ton of carbon dioxide by the time it reaches 40 years old.

One ton of CO₂ is a lot. However, on average human activity puts about [40 billion tons of CO₂ into the air each year](#). This means we'd theoretically have to plant 40 billion trees every year, then wait for decades to see any positive effect. By the time 40 years had passed, the trees we had originally planted would only cancel out the increased CO₂ levels today.

Contrary to this statement, the [national geographic](#) states "An area the size of the United States could be restored as forests, with the potential of erasing nearly **100 years** of carbon emissions." This is based off of the [first study](#) of its kind on determining how many trees the earth could actually support.

In addition to combating the rise in CO₂ emissions, we would have to continue to plant more trees each year. Not all land can support trees. Eventually, wouldn't we run out of land?

Could we plant that many trees?

In July of 2019 - Science Magazine published a report titled, "[The global tree restoration potential](#)" which concluded that there may seem to be enough land to increase the world's forest areas by approximately one third. The downside to this is that the potential for land space can diminish quite quickly given global temperature rising. Additionally the report states, "Even if global warming is limited to 1.5 degrees Celsius, the area available for forest restoration could be reduced by a fifth by 2050 because it would be too warm for some tropical forests."

This same topic was researched in July of 2016, where a research group of 800,000 volunteers in India planted 50 million tree saplings in an effort to re-green the country. While there are many good reasons to combat deforestation, this project would have to be replicated 800 times to cancel out the CO₂ created by humans.

This does not mean that there is still not some importance in doing so, however. Global CO₂ levels could be reduced by planting trees as [national geographic](#) concludes, "If we act now we could cut carbon dioxide emissions by at least 25% - these levels would not have been seen until almost a century ago".

Aren't loggers required to replace the trees they cut down?

In many countries there are regulations that require logging companies to replace the trees they log. According to AppalachianWood.org "three quarters of all the trees planted in America last year were planted by forest product companies and private timberland owners. And logging companies pay a special fee to fund for replanting and reforestation when they buy the right to harvest a section of timber on state or national forests." Americans plant at least 1.6 billion trees or about 6 trees for each one we use.

However, the same philosophy of forest management is not occurring in other countries. While there are [conflicting data sets](#) as to the rate of deforestation, all scientists agree that we are continuing to have a net loss of forests year after year.

For example, more than half the potential to restore trees can be found in these additional countries: Russia (373 million); Canada (78 million); Australia (58 million); Brazil (50 million); and China (40 million).

So the answer seems to be that planting trees, while a good idea, would not in itself cancel all of the effects of human production of CO₂. However, we can take steps to reduce CO₂ emissions now, or wait and see what happens.

Take it from French Agricultural Research Centre for International Development (CIRAD) researcher [Alain Karsenty](#), "Reforestation alone is "insufficient", but still "better than nothing", and, for the time being it is just one tool among others that we need to be active in to reduce emissions."

Only good science and good data will give us a valid answer.

Photo by [Brodie Vissers](#) from [Burst](#)