

How Many Acres of Hemp Would Stop Global Warming? – Thought Experiment

I got curious about carbon sequestration and did some math.

According to my sources, we have about 770,000,000,000 (770 billion) tons of excess carbon dioxide that we need to remove from our atmosphere.

One ton of carbon equals 3.67 tons of carbon dioxide (carbon dioxide has two oxygen molecules for every carbon).

So we need to remove 210,000,000,000 tons of carbon from the air.

One tree removes 13 pounds of carbon per year. Let's give it a ten-year lifespan for this purpose. One tree sequesters 130 pounds of carbon in a ten year time period.

A forest contains about 100 trees per acre.

So an acre of trees over a ten year period can sequester 13,000 pounds or 6.5 tons of carbon.

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So we need about 32,300,000,000 (32.3 billion) acres of trees planted to capture the excess carbon within a decade.

And this assumes we don't add any more CO₂ to the atmosphere. Plus we are losing 200,000 acres of rainforest every day (73,000,000 acres a year), so that too would have to stop.

What about hemp?

Glad you asked! An acre of hemp can absorb 4.2 tons of carbon per year per acre. That's 42 tons in a decade. But we can't

just chop down the hemp, let it decompose, and plant more. We need to do something with the hemp, or else much of that carbon goes back into the air. That's where hempcrete (we need this bad, look it up!) and a variety of textiles and other uses come in! We can make much better concrete out of hemp and concrete is a massive source of CO2 output (Cement is the source of about 8% of the world's carbon dioxide (CO2) emissions).

So if we only planted hemp instead of the trees we need (obviously we should do both) we would need 5,000,000,000 (5 billion) acres of hemp. Let's add another billion acres for fertilizer production and transportation and other production-CO2 costs.

If you want to correct my math drop me a comment:

Sources:

- *How much carbon emissions would 1 acre of hemp absorb?* – Quora
- *Hemp: The Solution for Global Warming* – SunStrands
- *Facts and information on the Amazon Rainforest* – Raintree Nutrition
- *We need to get rid of carbon in the atmosphere, not just reduce emissions* – The Conversation
- *How many trees would I have to plant to solve Global Warming?* – Stack Exchange