

Carbon Notes

1. Scientists say that more carbon resides in soil than in the atmosphere and all plant life combined; there are **2,500 billion tons of carbon in soil**, compared with 800 billion tons in the atmosphere and 560 billion tons in plant and animal life. And compared to many proposed geoengineering fixes, storing carbon in soil is simple: It's a matter of returning carbon where it belongs.
2. Even at our current level of knowledge, many see great potential for storing carbon in soil. Lal of Ohio State says that restoring soils of degraded and desertified ecosystems has the potential to store in world soils an additional 1 billion to 3 billion tons of carbon annually, equivalent to roughly 3.5 billion to 11 billion tons of CO2 emissions. (Annual CO2 emissions from fossil fuel burning are **roughly 32 billion tons.**)
3. Many call Lal's carbon soil storage figures low. This could reflect the fact that soil carbon is generally measured in the top 15 to 30 centimeters, whereas soil at depth may store carbon at much higher rates. For example, in land with deep-rooted grasses the soil can go down five meters or more. **Research by Australian and British scientists** published last year in the journal *Plant and Soil* examined soils in five southwestern Australia sites at depths as great as nearly 40 meters. These findings add impetus to explore strategies such as working with deep-rooted perennial grasses to secure carbon at depth.'
4. Those who champion soil carbon for climate mitigation frequently look to grasslands, which cover more than a quarter of the world's land. According to the UN's Food and Agriculture Organization, grasslands also hold **20 percent of the world's soil carbon stock**. Much of this land is degraded, as evidenced in the U.S. Great Plains and places like northern Mexico, Africa's Sahel, and Mongolia.
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