The International Solid Waste Association's Study:

Quantifying the Benefit of Organic Matter in Compost and Digestate when Applied to Soils

The World's Waste

Globally, organic wastes form a significant fraction of the solid waste stream, with estimates of between 44-46% (by mass) of the municipal solid waste fraction. It is thought that **just under one billion tonnes of organic waste is produced annually**, equivalent to **0.35 kg / person / day**. With increasing urbanisation and a growing global population, this means that organic wastes will not only continue to grow but will also become increasingly concentrated in cities.

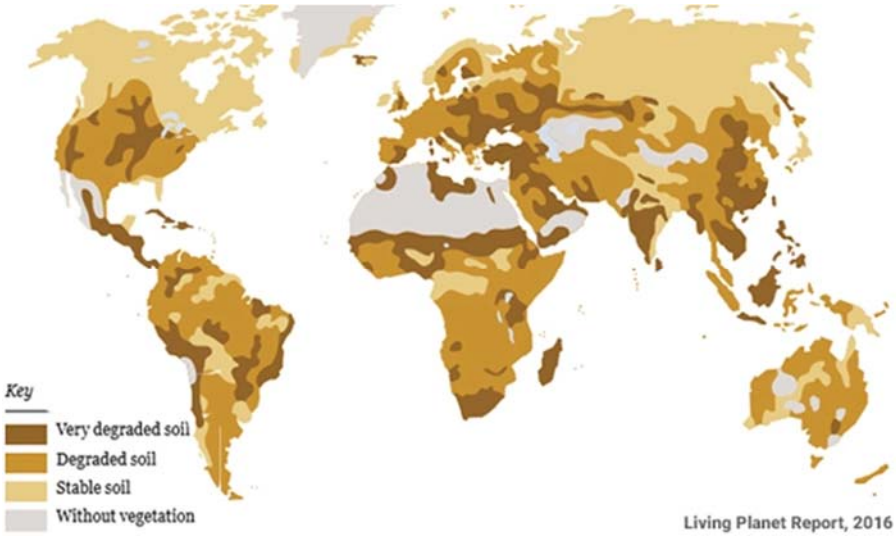
Canada's Composting Stats

Canada has no federal policy or targets for diverting waste, goals are only set at the provincial or municipal level, unlike the European Union. The average Canadian produces **0.45 kg organic waste/day, 28% more than the global average**. Additionally, only 0.11% of kg organic waste produced/person is composted. This rate is lower than in the US, EU, Australia or India!

Why We NEED More Compost

Applying compost to soil helps to create an important reservoir of carbon, storing more than the atmosphere and terrestrial vegetation combined. **One tonne (fresh mass) of green waste derived compost applied to soil over one hectare (10,000 square meters) results in a net CO2- eq saving of 143 kg per ha/year** due to the increase in soil organic matter alone.

Erosion of soils can lead to degradation of soil organic carbon, which can be released as carbon dioxide or methane; both of which are greenhouse gasses. **Soil erosion therefore can contribute to climate change; whilst conversely, increasing soil organic matter can help sequester carbon.**



Regularly applying quality organic materials to soil can result in the following physical, chemical and biological benefits:

• Increasing **soil organic matter** content: stems from the 'stable' humus fraction in compost. This helps reduce organic matter loss and erosion effects and improves tillage.
• Increasing **cation exchange capacity**: binds nutrients and reduces fertiliser run-off.
• Improving **water retention**: buffers against droughts and is particularly important in parts of the world that are prone to desertification. It also helps reduce flooding during wet weather episodes, as the soil's capacity to retain water is improved.

• Improving **soil temperature** regulation: reduces the variability of temperature extremes, which is beneficial for soil organisms and crops.
• Increasing **biological activity**: increases in both micro- and macro-fauna have been noted, due to improved soil physical structure, but also to increased carbon and nutrient availability for food and growth. This has add-on beneficial effects, as it helps improve nutrient cycling and availability to crops for uptake.
• **Decrease pathogens**: some composts can help suppress the growth of phytopathogens.
• Increasing **soil pH** (liming effect): reduce the acidity of soils, which helps release micronutrients, making them available for plant uptake.