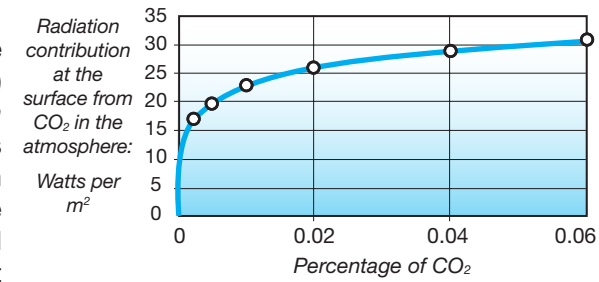


CARBON DIOXIDE AND PLANT NUTRITION

Solar energy and Carbon Dioxide (CO₂) are absorbed by plants to make carbon compounds which are the basic compounds, including carbon in wood fibre.

Graph C. Declining Greenhouse Effect of Carbon Dioxide (CO₂)



Source: Results derived from MODTRANS, an international IPCC accepted standard for atmospheric calculations.

• **Graph C** derived from the MODTRANS model shows the declining greenhouse effect with increasing CO₂. This explains why CO₂ at 1,500ppm, and much higher in the past (**Graph A**), had diminished greenhouse effect.

Conclusion

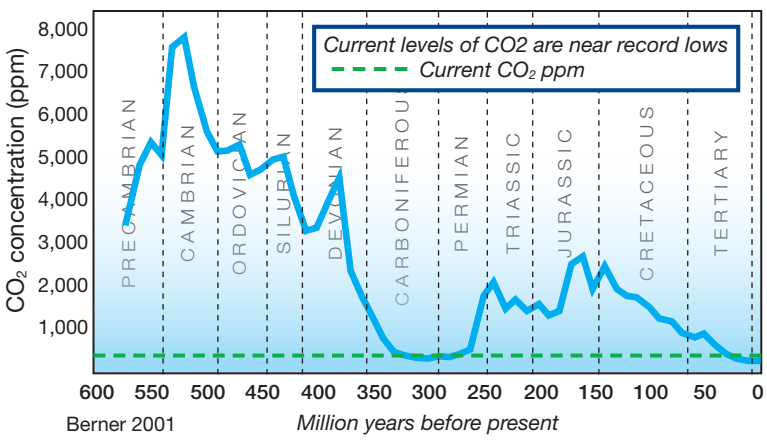
Fossil fuel emissions are essential to maintain the CO₂ level, which has fallen close to when plants can no longer survive.

Carbon dioxide increasing at only 0.00026% per annum removes the threat to plant nutrition from the downward trend of CO₂ (**Graph A**).

Reference:

1 "The Enhancement and Standardization of Climate-Related Disclosures for Investors," William Happer, Professor of Physics, Emeritus, Princeton University. Richard Lindzen, Professor of Earth, Atmospheric, and Planetary Sciences, Emeritus, Massachusetts Institute of Technology, June 17, 2022.

Graph A. Levels of Carbon Dioxide (CO₂) over geological periods



• The atmospheric level of CO₂, a trace gas, is 418 parts-per-million (ppm) (**0.04%**) and "not far above the minimum level when plants die of CO₂ starvation."⁽¹⁾ The level has declined to a near record low for plant nutrition from 1,500ppm (**0.15%**) at the start of the Carboniferous Period (**Graph A** determined by geological markers). It is relevant that glasshouse operators add CO₂ to improve plant growth.

• At the commencement of the Carboniferous Period, despite CO₂ being 3.6 times the present level, it was a very good time for life on land and in the sea. Abundant vegetation captured CO₂, decayed and formed fossil fuels which preserved carbon and solar energy.

• Fossil fuel power stations utilise preserved solar energy to generate electricity and CO₂ is returned to the atmosphere. Vegetation and other CO₂ sinks capture most CO₂ reducing the annual increase from all emissions to the present 2.6ppm (0.00026%).

• Satellites have detected a greening of the planet with increased CO₂ available. Measurements of global temperature by satellites and balloon datasets also reveal the low annual increase of CO₂, together with recovery from the last Ice Age, has only had minor effect on temperature compared with the average of model estimates (**Graph B**).

• Earth is now in an Interglacial Warm Period causing global temperature and sea level to gradually recover from the last Ice Age with interruptions from climate change factors not related to CO₂, these include, El Niños and La Niñas, volcanoes, hot desert winds, sunspot cycles and warm ocean currents.

Graph B. Global Atmosphere Temperature Variations

