

# Does Elevated CO<sub>2</sub> Protect Grain Yield of Wheat from the Effects of Ozone Stress?

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This study has investigated the effects of elevated CO<sub>2</sub> and elevated O<sub>3</sub>, both singly and in combination, on the yield of spring wheat (*Triticum aestivum* L., cv. Minaret). Plants were grown in open-top chambers and exposed to three CO<sub>2</sub> concentrations (ambient, 510 and 680 ppmv) and two O<sub>3</sub> concentrations (ambient and ambient +50 or +90 ppbv) either from anthesis onwards or for the full growing season.

To date, experiments that have investigated the interactive effects of these gases have shown a variety of responses, ranging from an amelioration of the damaging effects of high O<sub>3</sub> to a greater sensitivity to O<sub>3</sub> at elevated CO<sub>2</sub>. The effects on grain yield and yield components were determined. Our results confirm that elevated CO<sub>2</sub> provides some protection to a wheat crop against the damaging effects of O<sub>3</sub> on grain yield. However, the level of protection varies from one growing season to the next and also appears to be related particularly to the timing of exposure to elevated O<sub>3</sub>.