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Methyl Bromide Alternatives Research: Plant Pathology Outcomes

The ozone hole: Anthropogenic sources of methyl bromide and recent data on atmospheric methyl bromide levels

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Methyl bromide (MeBr) is classified as a Class I ozone depleting substance (ODS) under the Montreal Protocol on Substances that Deplete the Ozone Layer and the U.S. Clean Air Act and, therefore, use has declined over the past decade. MeBr has been the focus of scientific and political controversy that stems from the role of MeBr in stratospheric ozone depletion and its toxicity to humans, contrasted with its value as an agricultural fumigant. Updated measurements show that anthropogenic ODSs have declined by 12% in the troposphere from their peak values in 1992–1994. This decline is due in large part to the shorter-lived gases such as MeBr. MeBr abundance decreased in the troposphere by over 18% from 1997–2008. This decline is greater than was originally forecasted but is attributed to decreased anthropogenic uses. Whereas tropospheric abundance data are encouraging, stratospheric bromine levels have yet to show a decline. MeBr is responsible for slightly less than half the bromine reaching the stratosphere today and is very efficient in depleting ozone. The Montreal Protocol does seem to be working. Outside of the polar regions, the decline of stratospheric ozone depletion has not continued and the ozone layer has shown some signs of recovery. Atmospheric scientists appreciate the role agricultural scientists have contributed to finding MeBr alternatives in crop production.