

Old King Coal Kills Crops

Dirty Power Plants Threaten Midwest's Agricultural Heritage



"Ozone probably causes more injury to vegetation than any other air pollutant in the United States."

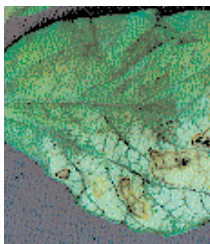
-Edward H. Lee, Plant Physiologist, Climate Stress Laboratory, United States Department of Agriculture

Did You Realize That . . .

- We still generate the majority of our electricity in the Midwest from burning coal?
- Many coal-burning power plants built in the Eisenhower era still operate in the Midwest and are spewing out tons of smog-forming pollutants that adversely impact our agricultural crops?
- Through a loophole in the federal law, these dirty plants have been "grandfathered" from the air pollution controls required by the Clean Air Act for new power plants, and they are exempted from certain emissions standards that the new plants have to meet?
- The pollution from these grandfathered plants costs Midwest farmers hundreds of millions of dollars worth of crop loss each year?

Critical Crop Loss

Farmers in Minnesota, Wisconsin, Michigan, Illinois, Indiana and Ohio lose between \$225 million and \$650 million annually from crop yield losses from ozone exposure. Ozone alone is thought to be responsible for 90 percent of all air pollution damage to crops. This damage to our agricultural heritage is especially distressing today as family farms in the Midwest struggle to survive in a troubled farm economy.



Ozone damage to soybean leaf.

Ozone: Good or Bad

High up in the atmosphere, ozone shields the surface of the Earth from deadly levels of ultraviolet radiation. Ground-level ozone, or ozone smog, however, has adverse human health and environmental consequences. Ground-level ozone is created when nitrogen oxides (NOx) and other air pollutants called volatile organic compounds (VOC's) combine in sunlight and high temperatures, making summer in the Midwest a more dangerous ozone exposure time for humans and our crops. A major source of NOx is the burning of fossil fuels, including coal, for electricity. Cutting ozone means cutting NOx emissions.

Requiring all coal-fired power plants in the Midwest to simply meet the pollution control standards required of new plants (achieving "environmental comparability") would yield reductions in smog-causing ozone emissions equal to removing over **60 million cars** from the road.

How Does Ozone Hurt Our Crops

Crops are adversely impacted by the day-to-day exposure to ozone that occurs throughout Midwest summers, and there is no "safe" level of ozone for crops. After entering a plant, ozone interferes with its ability to absorb sunlight, resulting in plant growth reduction. These changes also may compromise a plant's ability to withstand insects, cold and disease.



Pollution from the Midwest's Dirty Power Plants Harms Human Health and Natural Resources

- Every summer, ozone (smog) sends more than 11,000 Midwesterners to the hospital due to respiratory illness.
- Dangerous levels of mercury have contaminated fish and wildlife in the Midwest. As a result, all Midwest states warn children and women against eating certain types of fish from certain lakes.
- Acid rain continues to threaten the Midwest's lakes and forests.

Global Warming

The impact of global warming, or climate change, on agriculture is difficult to analyze due to the uncertainty of local effects, but certain changes are expected. Though carbon dioxide may act as a fertilizer for certain plants, and some respond well to warmer temperatures, there are many dangerous risks associated with a warming climate. For example, not only are temperatures likely to rise, increasing crop losses due to increased ozone levels, but so is the incidence of extreme events such as heat spells, droughts and floods, causing catastrophes for farmers and others. Many farmers will be required to switch crops more suited to warmer climates and invest more in irrigation. Weeds and insects also will invade new areas, and agricultural pests are likely to thrive under conditions of climate change: Pests currently in the southern United States will become problems in the Midwest corn belt. The implication is substantially more pesticide use, additional costs to farmers and greater environmental hazards.

