

# Impacts of Air Pollution on Agriculture

**Air pollution** is a growing concern worldwide, and its effects extend beyond human health to agriculture.

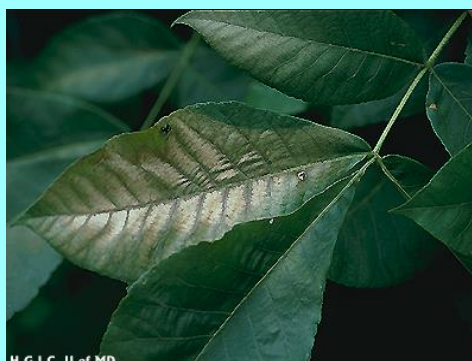
**Pollutants** such as ozone ( $O_3$ ), sulphur dioxide ( $SO_2$ ), nitrogen oxides ( $NO_x$ ), particulate matter (PM), and heavy metals can have detrimental effects on crops, soil, and overall agricultural productivity.

Pollutant	Symptoms	Leaf Affected	Leaf part affected	Injury threshold		
				Ppm (vol)	$\mu g/m^3$	exposure time
$SO_2$	Bleached spot, bleached area b/w veins, chlorosis, insect injury, winter & drought conditions may cause similar markings	Middle-aged leaves most sensitive, oldest least sensitive	Mesophyll cells	0.3	785	8hr
$O_3$	Flecking, stippling, bleached spotting, pigmentation, conifer needle tips become brown and necrotic	Oldest leaves most sensitive, youngest least sensitive	Palisade parenchyma in leaves with no palisade	0.03	59	4hr
$NO_2$	Irregular, white or brown collapsed lesions on intercostal tissue and near leaf margins	Middle-aged leaves most sensitive	Mesophyll cells	2.5	4700	4hr
PAN	Glazing, silvery or bronzing on lower surface of leaves	Youngest leaves most sensitive	Spongy cells	0.01	50	6hr
HF	Tip & margin burns, dwarfing, leaf abscission, narrow brown red band separates necrotic from green tissue, fungal disease, cold & high temp., drought and wind may produce similar markings	Youngest leaves most sensitive	Epidermis & mesophyll cells	0.1(ppb)	0.08	4hr

Common effects of air pollutants on plants: **Chlorosis, glazing/silvery and flecking & stippling**



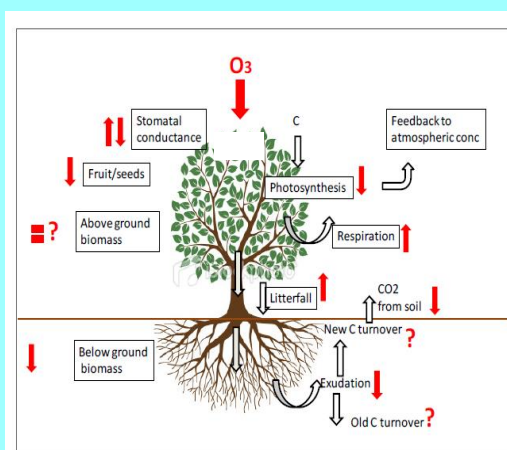
**Flecking and stippling**



**Glazing or silvery**



**Chlorosis**



Addressing the air pollution challenges require a combination of improved agricultural practices, stricter pollution controls, and sustainable policies to protect our food systems and environment.

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