Elevated Carbon Dioxide and Ozone Effects on Peanut: I. Gas-Exchange, Biomass, and Leaf Chemistry

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In Volume 47, Number 4, pp. 1475–1487, the following corrections are noted:

On page 1484, in Table 8, the units for starch, soluble sugars, N, and total phenolics should have been mg cm^{-2}. The corrected table is presented below.

On page 1485, Figure 3B, the units for starch (y-axis) should have been mg cm^{-2}. The corrected figure is presented below.

On page 1485, Table 9, the units for starch, soluble sugars, N, and total phenolics should have been mg cm^{-2}. The corrected table is presented below.

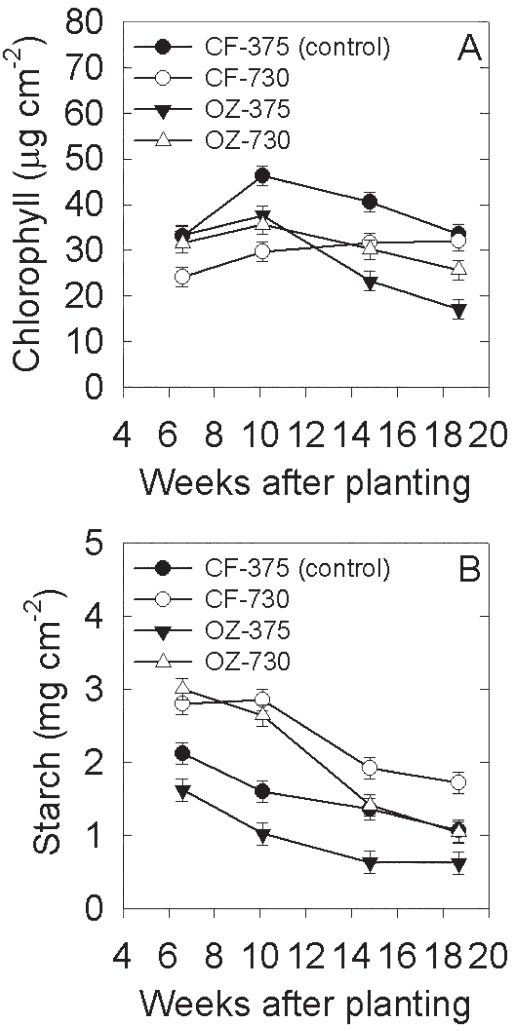

Figure 3. Effects of CO_2 and O_3 on chlorophyll (A) and starch (B) concentrations in upper canopy leaves of peanut from 6 through 19 wk after planting in the 2-yr experiment. Treatments shown are charcoal-filtered air (CF)–ambient CO_2 (CF-375) (control), CF air plus 355 µmol CO_2 mol^{-1} (CF-730), 1.5 × ambient O_3–ambient CO_2 (OZ-375), and 1.5 × ambient O_3 plus 355 µmol CO_2 mol^{-1} (OZ-730). Values are means ± SE from two or three replicate chambers per treatment in each year of the experiment (see Table 1).

Published in Crop Sci 49:732–734 (2009).
doi: 10.2135/cropsci2006.08.0537er

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Table 8. Seasonal average leaf mass per unit leaf area and leaf chemistry of peanut exposed to mixtures of CO_2 and O_3 in the 2-yr experiment.†

Treatment	Leaf mass per area	Chlorophyll	Starch	Soluble sugars	N	Total phenolics
	mg cm^{-2}	μg cm^{-2}	mg cm^{-2}			
CF-375	7.3 ± 0.1 (100)	38.4 ± 1.1 (100)	1.5 ± 0.1 (100)	0.09 ± 0.01 (100)	0.21 ± 0.01 (100)	0.22 ± 0.01 (100)
CF-548	8.4 ± 0.1 (115***)	34.9 ± 1.4 (91*)	2.1 ± 0.1 (140***)	0.13 ± 0.01 (144***)	0.20 ± 0.01 (95)	0.22 ± 0.01 (100)
CF-730	8.8 ± 0.1 (120***)	29.4 ± 1.1 (76***)	2.3 ± 0.1 (153***)	0.12 ± 0.01 (133**)	0.20 ± 0.01 (95)	0.23 ± 0.01 (104)
NF-375	7.1 ± 0.1 (97)	37.6 ± 1.3 (98)	1.2 ± 0.1 (80**)	0.10 ± 0.01 (111)	0.22 ± 0.01 (105)	0.22 ± 0.01 (100)
NF-548	8.3 ± 0.1 (114***)	34.3 ± 1.3 (89*)	2.0 ± 0.1 (133***)	0.13 ± 0.01(144***)	0.21 ± 0.01 (100)	0.22 ± 0.01 (100)
NF-730	8.9 ± 0.1 (122***)	31.2 ± 1.3 (81***)	2.4 ± 0.1 (160***)	0.12 ± 0.01 (133**)	0.20 ± 0.01 (95)	0.25 ± 0.01 (114)
NF-1009	8.7 ± 0.1 (119***)	27.5 ± 1.3 (72***)	2.5 ± 0.1 (167***)	0.12 ± 0.01 (133**)	0.19 ± 0.01 (90*)	0.24 ± 0.01 (109)
OZ-375	6.5 ± 0.1 (89***)	27.7 ± 1.1 (72***)	1.0 ± 0.1 (67***)	0.10 ± 0.01 (111)	0.19 ± 0.01 (90**)	0.21 ± 0.01 (95)
OZ-548	7.7 ± 0.1 (105*)	31.8 ± 1.3 (83***)	1.7 ± 0.1 (113)	0.12 ± 0.01 (133**)	0.20 ± 0.01 (95)	0.23 ± 0.01 (104)
OZ-730	8.3 ± 0.1 (114***)	30.7 ± 1.1 (80***)	2.0 ± 0.1 (133***)	0.12 ± 0.01 (133**)	0.20 ± 0.01 (95)	0.25 ± 0.01 (114)
Source‡						
Year	*	**	**	***	***	***
CO_2	***	***	***	***	NS	***
O_3	***	***	**	NS	**	NS
Year × CO_2	*	NS§	NS	NS	NS	NS
Year × O_3	NS	*	NS	NS	*	NS
CO_2 × O_3	NS	***	NS	NS	NS	NS
Year × CO_2 × O_3	NS	NS	NS	*	NS	NS
WAP	***	***	***	***	***	***
WAP × CO_2	***	***	*	NS	*	NS
WAP × O_3	***	***	**	NS	***	NS
WAP × CO_2 × O_3	NS	NS	NS	NS	NS	NS

*Significant treatment effects and interactions $P \leq 0.05$.

**Significant treatment effects and interactions $P \leq 0.01$.

***Significant treatment effects and interactions $P \leq 0.001$.

†Leaf chemistry components are expressed on a leaf area basis. See Table 1 for treatment descriptions. Values are means ± SE of each treatment combination for all sampling dates in both years of the experiment. Values in parentheses indicate percent of the control treatment and statistical significance of difference from the control treatment (CF-375). WAP, weeks after planting.

‡NF-1009 treatment not included.

§NS, not significant at $P > 0.05$.

Table 9. Open-top chamber effects on visible foliar injury at midseason, harvest biomass, stomatal conductance (g_s), leaf mass per unit leaf area (LMPA), and leaf chemistry of peanut. Plants were exposed to nonfiltered air (NF-375) and ambient air (AA; chamber frames without side panels).†

Parameter	Treatment	
	NF-375	AA
Visible injury (% chlorosis and necrosis)	29.3 ± 1.8	20.6 ± 1.5**
Biomass		
Leaf, g plant^{-1}‡	32.9 ± 2.5	34.2 ± 3.6 (104)
Stem, g plant^{-1}	38.8 ± 2.5	34.8 ± 2.1 (90)
Roots, g plant^{-1}	2.2 ± 0.2	2.0 ± 0.2 (91)
Pods, g plant^{-1}	51.8 ± 3.8	61.0 ± 3.1 (118)
Culls, g plant^{-1}	1.3 ± 0.3	1.1 ± 0.2 (85)
Total, g plant^{-1}	127.0	133.1 (105)
g_s, mmol H_2O m^{-2} s^{-1}	711 ± 19	627 ± 18 (88***)
LMPA, mg cm^{-2}	7.1 ± 0.2	7.7 ± 0.2 (108**)
Leaf chemistry		
Chlorophyll, μg cm^{-2}	37.6 ± 1.2	33.8 ± 1.0 (90*)
Starch, mg cm^{-2}	1.2 ± 0.1	1.6 ± 0.1 (133*)
Soluble sugars, mg cm^{-2}	0.10 ± 0.01	0.12 ± 0.01 (120)
N, mg cm^{-2}	0.22 ± 0.01	0.23 ± 0.01 (104)
Total phenolics, mg cm^{-2}	0.22 ± 0.01	0.24 ± 0.01 (109)

*Significant treatment effects and interactions $P \leq 0.05$.

**Significant treatment effects and interactions $P \leq 0.01$.

***Significant treatment effects and interactions $P \leq 0.001$.

†Values are means ± SE of two (NF-375) or three (AA) replicate chambers for all sampling occasions in both years of the experiment. Values in parentheses indicate percentage of the NF-375 treatment. Effect of year was statistically significant ($P \leq 0.05$) for all parameters, but the treatment × year interactions were not significant.

‡Values and statistics for leaf mass per plant in the AA treatment are for 2002 only because pathogen-related defoliation occurred in this treatment during the last 2 wk of the study in 2003. Leaf mass in 2003 was only 3.6 ± 2.9 g plant^{-1}, and was not included in the analysis. Total biomass value for the AA treatment includes this adjustment as well.