Supplemental Table S1. For primary commodities, experimental data are available showing changes in nutrient concentration when grown at elevated [CO_2]. Other food commodities were designated into one of four composite groups.

Primary Commodities	Composite Groups			
	C3 legumes	C3 tubers	C3 plants	C4 grasses
Barley Maize Peas Potatoes Rice Sorghum Soy Wheat	Beans Groundnuts Pulses, other	Cassava Roots, Other Sugar Beet Sweet Potatoes Yams	Apples Bananas Cereals, Other Citrus, Other Cocoa Beans Coconuts - Inclu Copra Coffee Cottonseed Dates Fruits, Other Grapefruit Grapes Lemons, limes Oats Olives Onions Oranges, Mandarins Palm kernels Plantains Rape and Mustard seed Rye Sesame seed Sunflower seed Tea Tomatoes Tree Nuts Vegetables, Other	Cereals, Other (Teff) Millet Sugar, Refined Sugar Cane Sugar, Non-Centrifugal Sweeteners, Other

Supplemental Table 2. Altered risk of zinc deficiency ± CI under elevated [CO_2] (550 p.p.m.) scenario calculated regionally, using FNB/IOM estimates for physiological zinc requirements

VARIABLE	High-income	Southern and Tropical L. America	Central and Andean L. America and Carib.	Central and Eastern Europe	Central Asia, North Africa and Middle East	Sub-Saharan Africa	South Asia	India	East and Southeast Asia and Pacific	China	Global
Number of Countries	30	5	27	20	28	48	5	1	21	3	188
Population (millions)	937.2	249.4	301.4	330.1	481.4	757.8	355.0	1140.5	606.8	1337.7	6497.5
Energy (kcal)	3423.9	3031.4	2835.7	3285.8	3089.2	2350.5	2233.7	2295.2	2585.2	2905.0	2776.2
Zinc (mg/d)	12.8 (12.7, 12.9)	11.9 (11.8, 12.0)	10.3 (10.2, 10.4)	11.2 (11.1, 11.3)	13.1 (13.0, 13.2)	8.0 (7.9, 8.1)	9.0 (8.9, 9.1)	9.3 (9.1, 9.5)	8.6 (8.5, 8.7)	13.2 (13.0, 13.4)	10.9 (10.8, 11.1)
Phytate (mg/d)	1162.2 (1158.8, 1165.6)	1162.0 (1157.4, 1166.6)	1881.7 (1880.1, 1883.3)	1183.0 (1176.1, 1189.9)	2702.7 (2680.3, 2725.1)	1777.3 (1776.3, 1778.3)	1981.2 (1953.4, 2009.0)	2286.4 (2248.5, 2324.3)	1436.0 (1434.6, 1437.4)	1440.0 (1427.0, 1453.0)	1707.3 (1699.8, 1714.8)
Absorbable zinc (mg/d)	3.27 (3.26, 3.28)	3.17 (3.16, 3.18)	2.47 (2.45, 2.49)	3.04 (3.03, 3.05)	2.48 (2.47, 2.49)	2.10 (2.09, 2.11)	2.18 (2.17, 2.19)	2.11 (2.09, 2.13)	2.41 (2.40, 2.42)	3.12 (3.10, 3.14)	2.65 (2.64, 2.66)
% mean physiological requirement	102.6 (102.3, 102.9)	106.1 (105.4, 106.8)	85.5 (84.6, 86.4)	94.2 (93.7, 94.7)	85.5 (85.2, 85.8)	79.4 (78.6, 80.2)	78.6 (78.0, 79.2)	73.0 (71.9, 74.1)	81.7 (81.0, 82.4)	100.2 (99.4, 101.0)	88.6 (88.3, 88.9)
Estimated % of pop. with inadequate zinc intake	47.3 (47.0, 47.6)	42.8 (42.1, 43.5)	74.6 (73.6, 75.6)	59.9 (53.9, 60.5)	74.9 (74.5, 75.3)	82.7 (81.9, 83.5)	85.8 (85.3, 86.3)	93.1 (92.4, 93.8)	79.4 (78.9, 79.9)	49.8 (49.0, 50.6)	68.9 (68.7, 69.1)
Absolute % increase in population with inadequate zinc intake	2.0 (1.7, 2.3)	2.0 (1.3, 2.7)	3.3 (2.3, 4.3)	3.3 (2.7, 3.9)	4.3 (3.9, 4.7)	3.6 (2.8, 4.4)	3.2 (2.7, 3.7)	2.6 (1.9, 3.3)	2.5 (2.0, 3.0)	2.3 (1.5, 3.1)	2.8 (2.6, 3.0)
Relative % increase in population with inadequate zinc intake	4.5 (3.9, 5.1)	4.5 (2.9, 6.1)	4.7 (3.4, 6.0)	5.8 (4.7, 6.9)	6.2 (5.6, 6.8)	4.9 (3.8, 6.0)	4.0 (3.4, 4.6)	2.9 (2.1, 3.7)	3.6 (2.9, 4.3)	4.8 (3.0, 6.6)	4.4 (4.0, 4.8)
Population newly at risk of inadequate zinc intake (millions)	19.0 (16.6, 21.4)	4.9 (3.1, 6.7)	10.0 (7.1, 12.9)	10.8 (8.8, 12.8)	20.6 (18.8, 22.4)	27.3 (21.4, 33.2)	11.5 (9.7, 13.3)	30.1 (21.6, 38.6)	15.4 (12.4, 15.4)	30.4 (19.4, 41.4)	180.0 (163.8, 196.2)

Supplemental Table 3. Altered risk of zinc deficiency ± CI under elevated [CO_2] (550 p.p.m.) scenario calculated regionally, with rice included in the C_3 plant model

VARIABLE	High-income	Southern and Tropical L. America	Central and Andean L. America and Carib.	Central and Eastern Europe	Central Asia, North Africa and Middle East	Sub-Saharan Africa	South Asia	India	East and Southeast Asia and Pacific	China	Global
Number of Countries	30	5	27	20	28	48	5	1	21	3	188
Population (millions)	937.2	249.4	301.4	330.1	481.4	757.8	355.0	1140.5	606.8	1337.7	6497.5
Energy (kcal)	3423.9	3031.4	2835.7	3285.8	3089.2	2350.5	2233.7	2295.2	2585.2	2905.0	2776.2
Zinc (mg/d)	12.8 + 0.1	12.0 (11.9, 21.1)	10.4(10.3, 10.5)	11.2 (11.1, 11.3)	13.1 (13.0, 13.2)	8.0 (7.9, 8.1)	9.0 (8.9, 9.1)	9.3 (9.1, 9.5)	8.6 (8.5, 8.7)	13.2 (13.0, 13.4)	10.9 (10.8, 11.0)
Phytate (mg/d)	1162.2 (1158.8, 1165.6)	1162.0 (1157.4, 1166.6)	1881.7 (1880.1, 1883.3)	1183.0 (1176.1, 1189.9)	2702.7 (2680.3, 2725.1)	1777.3 (1776.3, 1778.3)	1981.2 (1953.4, 2009.0)	2286.4 (2248.5, 2324.3)	1436.0 (1434.6, 1437.4)	1440.0 (1427.0, 1453.0)	1707.3 (1699.8, 1714.8)
Absorbable zinc (mg/d)	3.28 (3.275, 3.285)	3.17 (3.16, 3.18)	2.48 (2.46, 2.50)	3.04 (3.03, 3.05)	2.48 (2.47, 2.49)	2.10 (2.09, 2.11)	2.18 (2.17, 2.19)	2.11 (2.09, 2.13)	2.41 (2.40, 2.42)	3.13 (3.12, 3.14)	2.65 (2.64, 2.66)
% mean physiological requirement	158.8 (158.6, 159.0)	162.3 (161.6, 163.0)	130.1 (129.3, 130.9)	146.5 (146.0, 147.0)	129.6 (129.3, 129.9)	119.0 (118.2, 119.8)	118.3 (117.7, 118.9)	110.4 (109.3, 111.5)	124.6 (123.9, 125.3)	153.4 (152.7, 154.1)	135.2 (134.8, 135.5)
Estimated % of pop. with inadequate zinc intake	8.0 (7.9, 8.1)	6.9 (6.7, 7.1)	18.9 (18.3, 19.5)	10.5 (10.3, 10.7)	19.5 (19.3, 19.7)	29.4 (28.5, 30.3)	27.2 (26.5, 27.9)	35.3 (34.0, 36.6)	24.4 (23.7, 25.1)	8.4 (8.2, 8.6)	19.4 (19.1, 19.7)
Absolute % increase in population with inadequate zinc intake	0.5 (0.4, 0.6)	0.4 (0.3, 0.6)	1.9 (1.3, 2.4)	0.9 (0.8, 1.1)	2.4 (2.2, 2.6)	3.8 (2.9, 4.7)	2.9 (2.2, 3.5)	4.1 (2.8, 5.4)	2.3 (1.6, 3.0)	0.5 (0.4, 0.7)	2.0 (1.7, 2.3)
Relative % increase in population with inadequate zinc intake	6.2 (5.4, 7.0)	6.1 (3.9, 8.4)	10.6 (7.4, 13.8)	9.3 (7.5, 11.0)	13.9 (12.6, 15.2)	14.4 (11.2, 17.6)	12.0 (9.7, 14.4)	13.1 (8.8, 17.3)	9.7 (7.2, 12.2)	6.6 (4.3, 9.0)	10.0 (9.0, 11.0)
Population newly at risk of inadequate zinc intake (millions)	4.8 (4.1, 5.5)	1.1 (0.7, 1.5)	5.7 (4.0, 7.4)	3.0 (2.5, 3.5)	11.6 (10.6, 12.6)	28.7 (21.7, 35.7)	10.2 (7.9, 12.5)	46.5 (31.4, 61.6)	13.9 (9.4, 18.4)	7.1 (4.7, 9.5)	132.7 (115.0, 150.4)

Supplemental Table S4. Increased risk of zinc deficiency in response to elevated [CO_2] under three different models for the most affected countries

Country	% Zn def	Change % Zn def (w/o rice)	Change % Zn def (w/ rice)	% Zn def IOM	Change % Zn def IOM (w/o rice)
Democratic Republic of the Congo	54.3	9.9 (1.2, 19.5)	9.7 (1.1, 19.2)	98.3	1.1 (0.2, 1.5)
Sao Tome and Principe	31.7	7.5 (2.8, 13)	7.2 (2.6, 12.5)	90.2	2.8 (1.2, 4.1)
Sri Lanka	45.7	6.9 (2, 12.7)	6.7 (1.9, 12.4)	97.5	3.3 (1.1, 5.1)
Zambia	44.9	6.6 (0.7, 13.1)	6.5 (0.6, 12.9)	96.2	2.2 (0.3, 3.6)
Malawi	40.6	6.2 (0.5, 12.3)	6.1 (0.4, 12.1)	94.6	1.6 (0.1, 2.5)
Burundi	38.0	5.3 (0.9, 9.8)	5.3 (0.8, 9.7)	93.9	1 (0.2, 1.6)
Rwanda	34.9	5.2 (3.2, 7.3)	4.8 (2.9, 6.7)	92.0	1 (0.6, 1.3)
Liberia	35.2	5.2 (2, 8.7)	4.9 (1.8, 8.3)	92.1	2.8 (1.2, 4.2)
Qatar	33.4	5.2 (1.2, 10.1)	5 (1.1, 9.7)	90.0	4.2 (1.1, 7)
Zimbabwe	48.4	5.2 (0.8, 9.9)	5.1 (0.8, 9.7)	97.4	2 (0.4, 3.2)
Chad	34.5	5.1 (2.8, 7.6)	4.6 (2.5, 6.8)	91.5	2.7 (1.6, 3.7)
United Republic of Tanzania	34.1	5.1 (1.3, 9.2)	4.9 (1.2, 9)	91.4	2.8 (0.8, 4.4)
Lesotho	38.3	4.9 (1.6, 8.8)	4.8 (1.5, 8.5)	94.3	2.5 (0.9, 3.9)
Bhutan	31.7	4.3 (2.1, 6.8)	4.1 (2, 6.5)	90.2	3.7 (2, 5.4)
Haiti	34.9	4.2 (1.5, 7.2)	4 (1.3, 6.9)	92.6	2.5 (0.9, 3.8)
Comoros	32.0	4 (3.3, 4.8)	3.8 (3.2, 4.5)	90.2	2.5 (2.1, 3)
Cameroon	33.8	4 (1.5, 6.7)	3.8 (1.4, 6.4)	91.5	2.1 (0.9, 3.3)
Democratic People's Republic of Korea	31.2	3.5 (1.5, 5.5)	3.3 (1.4, 5.3)	91.7	2.4 (1.1, 3.5)
India	31.2	3.5 (1.1, 6)	3.4 (1.1, 5.9)	90.4	2.7 (0.9, 4.2)
Gambia	34.9	3.4 (0.9, 5.9)	3.2 (0.9, 5.7)	91.9	2.6 (0.8, 4.3)
Côte d'Ivoire	33.4	3.3 (1.8, 4.8)	3.2 (1.7, 4.8)	90.9	2.4 (1.3, 3.3)
Mozambique	31.4	3.3 (0.9, 5.8)	3.3 (0.8, 5.7)	90.0	1.3 (0.4, 2.2)
Indonesia	31.2	3.2 (2.6, 4)	3.1 (2.5, 3.7)	91.1	3.4 (2.8, 4.1)
Burkina Faso	39.4	3.1 (2.6, 3.6)	2.9 (2.5, 3.4)	94.2	3.4 (3, 4)

Supplemental Figure S1. The choice of model for estimating increased risk of zinc deficiency from elevated atmospheric [CO_2] has little impact on how the most impacted countries are ranked.