10.1071/FP14048_AC

Supplementary Material: *Functional Plant Biology*, 2014, 41(9), 893–913.

Supplementary Material

Crop yield components – photoassimilate supply- or utilisation limited-organ development?

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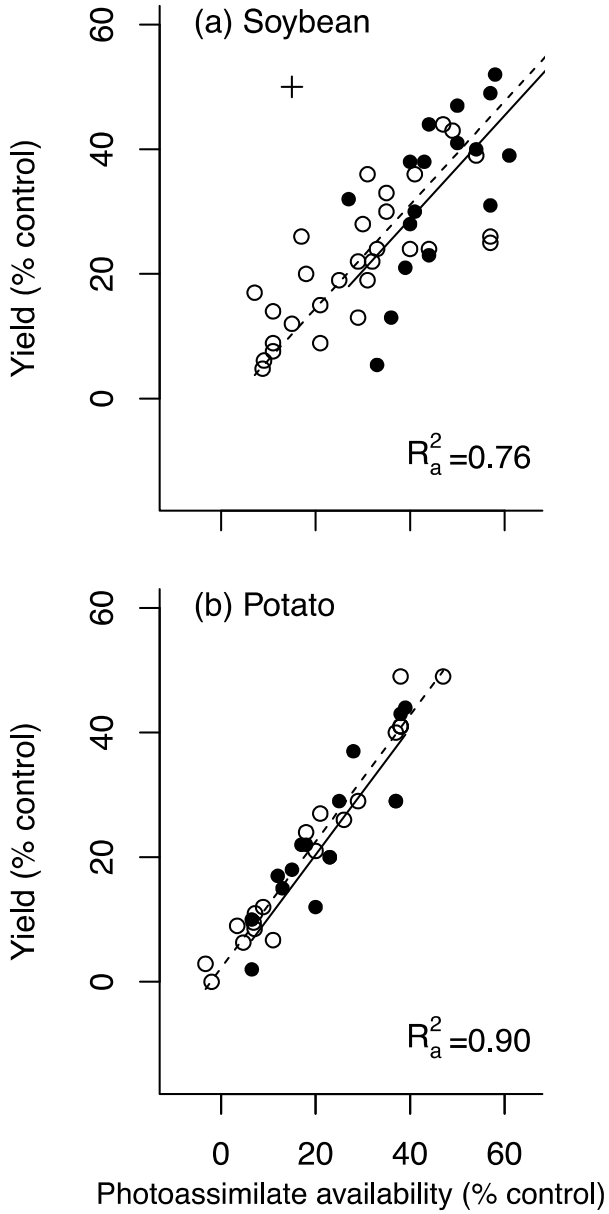

Fig. S1

Fig. S1. Comparison of yield responses of (*a*) soybean and (*b*) potato to eCO_2 between singly potted and spaced plants (solid circles; solid line) with those arranged in mini-crop configurations or raised under field conditions (open circles; dashed line). The fitted relationships were obtained by generalized additive mixed modelling. After adjusting for the effect of photoassimilate availablility, there was no significant difference between the mean yields for these two arrangements for plant growth (P = 0.67 and P = 0.32 for soybean and potato, respectively).

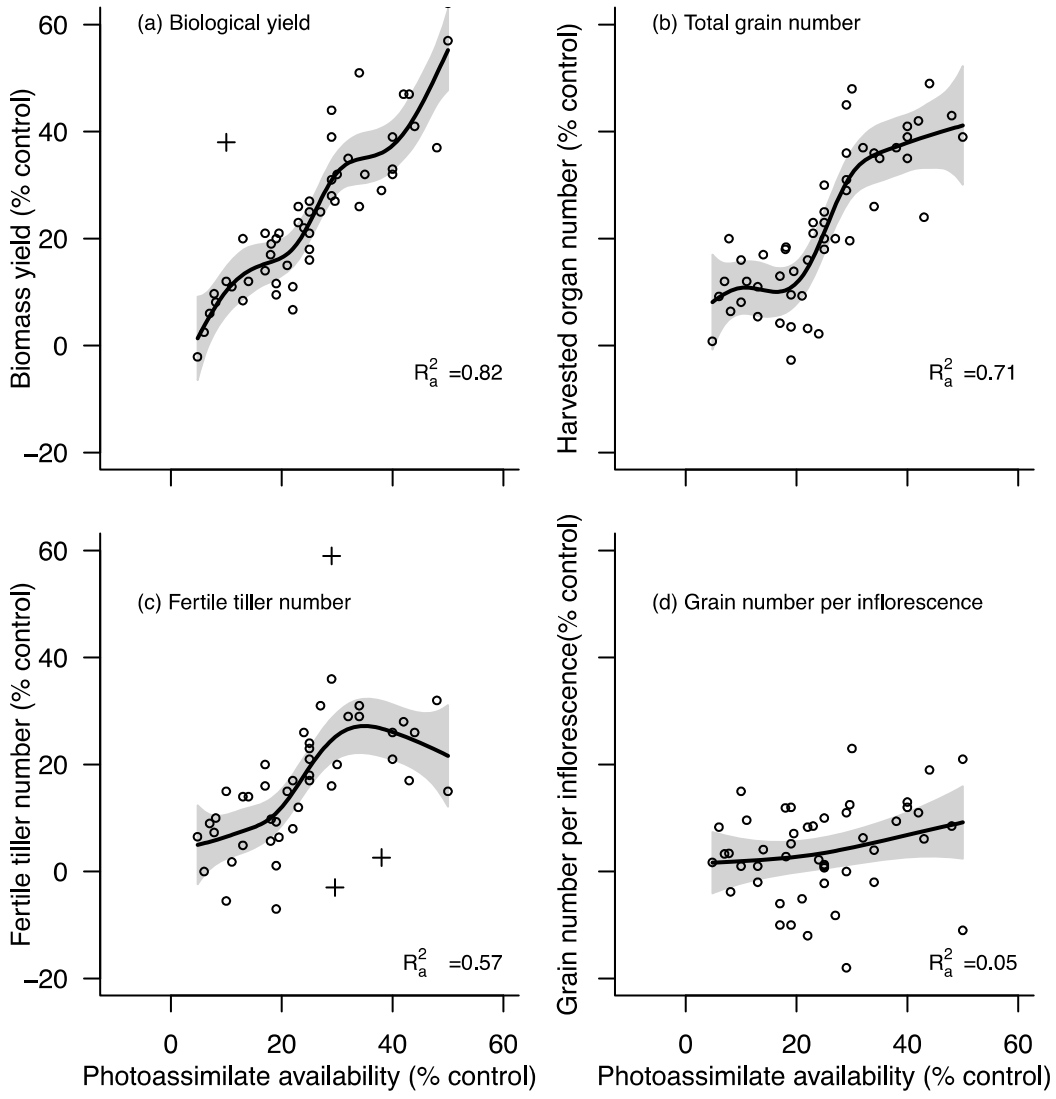

Fig. S2

Fig. S2. Responses of yield components of wheat to eCO_2-driven increases photoassimilate availability fitted using generalized additive modelling. Relationship between percent increase in whole plant or shoot biomass of plants and the corresponding percent increase in (*a*) yield, (*b*) total grain number, (*c*) fertile tiller number and (*d*) grain number per inflorescence. All yield components had a significant association with photo-assimilate availability ($P < 0.0001$) except grain number per inflorescence ($P = 0.13$). A grey-shaded area delimits the 95% confidence limit around each fitted relationship. Outliers excluded from analysis were more than 3.7 residual standard deviations from the fitted line and are identified as crosses.

Table S1. Summary of data sets selected from the literature on impacts of elevated carbon dioxide on key components of wheat yield that are accompanied by records of whole plant or shoot biomass changes

Reference	eCO_2 delivery system	Cultivar(s) and plant growth conditions	Data selected	Data excluded	Reasons for data exclusion
Gifford (1977)	Growth cabinets in temperature-controlled glasshouses ACO_2: 280 -300 ppm eCO_2: 480 – 500 ppm	Norin (spring wheat) Potted plants at mini-crop spacing Temperature: 21/16°C Solar radiation: Summer: 12–20 MJ m^{-2} day^{-1} Winter: 4–8 MJ m^{-2} day^{-1}	High-light growth conditions yield data	Low-light growth conditions	Low-light conditions – several yield components not recorded.
Havelka *et al*. (1984)	Open-top chambers ACO_2: 340 ppm eCO_2: 1200 ppm	Arthur (winter wheat) Field sown, Delaware USA	1979 and 1980 growth seasons eCO_2 yield data	N/A	
Mitchell *et al*. (1993)	Growth chambers in a glasshouse ACO_2: 361 ppm eCO_2: 692 ppm	Mercia (winter wheat) Potted plants at mini-crop spacing. Temperature: ambient or Ambient + 4°C. Low N: 5 mM nitrate High N: 48 mM nitrate)	eCO_2 yield responses at: Low N: Ambient + 4°C High N: Ambient; Ambient + 4°C	Low N: ambient	Yield reduced under eCO_2.
Weigel *et al*. (1994)	Open-top chambers in a glasshouse ACO_2: 384 ppm eCO_2: 471, 551, 624, 718 ppm	Star and Turbo (spring wheat) Potted plants at mini-crop spacing. Temperature: 18°C PAR: 23.1 mol m^{-2} day^{-1}	Yield data sets at all eCO_2 levels	N/A	
Rawson (1995)	Temperature gradient tunnels ACO_2: 350 ppm eCO_2: 700 ppm	Hartog and Late Hartog Field conditions at two sites: Black Mountain and Ginnindera Exp Station ACT Australia Temperature: summer (35/16°C); winter (23/8°C). Solar radiation: 10–20 MJ m^{-2} day^{-1}	All yield data sets	N/A	

Fangmeier *et al*. (1996)	Open-top chambers ACO_2: 360 ppm eCO_2: 520, 680 ppm	Minaret (spring wheat) Potted plants at mini-crop spacing Temperature: 15–30°C Low N: 150 kg ha^{-1} High N: 270 kg ha^{-1}	Yield responses at: low and high N Two eCO_2 levels	Ozone treatments	Phytotoxicity
Manderscheid and Weigel (1997)	Open-top chamber ACO_2: 379 ppm eCO_2: 689 ppm	German cultivars: Heines Kolben (1890); Janetzkis Früher (1914); Rimpaus Langensteiner (1943); Adler (1965); Turbo (1979); Nandu (1988) Potted plants at mini-crop spacing Temperature: 19°C PAR: 25.2 mol m^{-2} day^{-1}	All yield data sets		
McKee *et al*. (1997)	Growth chambers ACO_2: 350 ppm eCO_2: 700 ppm	Wembley (spring wheat) Potted plants Temperature: 24/18°C PAR: 645 µmol m^{-2} s^{-1}	Yield data for eCO_2 treatments alone	Ozone treatments	Phytotoxicity
Mulholland *et al*. (1997)	Open top chambers ACO_2: 379 ppm eCO_2: 550, 683 ppm	Minaret (spring wheat) Field grown, Nottingham, UK Temperature: 14–21°C Solar radiation: 14 MJ m^{-2} day^{-1}	Yield data for CO_2 treatments alone	Ozone treatments	Phytotoxicity
Sharma-Natu *et al*. (1997)	Open-top chambers ACO_2: 379 ppm eCO_2: 650 ppm	Kalyansona and Kundara Field grown	All yield data sets		
Hakala (1998)	Open-top chambers in a temperature-controlled greenhouse. ACO_2: 379 ppm eCO_2: 700 ppm	Polkka (spring wheat) Field grown; southern Finland Temperature: ambient (min 7°C; max 24°C) and ambient + 3°C. Solar radiation: 6–7 MJ m^{-2} day^{-1}.	All yield data sets		

Van Oijen *et al*. (1999)	Open-top chambers ACO_2: 373 ppm eCO_2: 718 (1995), 753 (1996) ppm	Minaret Field grown, Wageningen, Netherlands Temperature: 15°C Solar radiation: 16–19 MJ m^{-2} day^{-1}	All yield data sets		
Li *et al*. (2007)	FACE ACO_2: 360 ppm eCO_2: 410 ppm	Dingxi 24 (spring wheat) Field grown, Dingxi, China NH_4NO_3: 0, 250, 500 kg m^{-2}	Data not used		CO_2 differential too small.
Ziska (2008)	Open-top chambers ACO_2: 395 ppm eCO_2: 665 ppm	Marquis and Oxen (spring wheat) Field grown, Beltsville, USA Two plant densities	Yield responses at eCO2 for: Marquis: and Oxen at low planting densisties in 2005, 2006. 2007 seasons	Marquis: 2005; 2007 seasons	Marquis 2005: yield response statistical outlier. Marquis 2007: tiller and seed number responses statistical outliers.
Tausz-Posch *et al*. (2012)	FACE ACO_2: 395 ppm eCO_2: 550 ppm	Drysdale and Hartog Field grown, Horsham, Victoria, Australia Temperature: 11–14°C	All yield data sets		
Bourgault *et al*. (2013)	Growth chambers and glasshouses ACO_2: 420 ppm eCO_2: 700 ppm	20 cultivars Potted plants at mini-crop spacing PAR: 600 µmol m^{-2} s^{-1}	Cultivars combined yield data set		
De Oliveira *et al*. (2013)	Tunnel houses ACO_2: 385 ppm eCO_2: 700 ppm	Line 38–19 and Janz Field grown Temperature: 10–15°C rising to 20–25°C Ambient, ambient + 2°C, ambient + 4°C, ambient + 6°C PAR (max): 948 µmol m^{-2} s^{-1}	Yield responses to eCO_2 at: ACO_2 + ambient °C eCO_2 and ambient + 2°C,	eCO_2 and ambient + 4 and 6°C	Treatments depressed yield below the ACO_2 control

Table S2. Summary of data sets selected from the literature on impacts of elevated carbon dioxide on key components of rice yield that are accompanied by records of whole plant or shoot biomass changes

Reference	eCO_2 delivery system	Cultivar and plant growth conditions	Data selected	Data excluded	Reasons for data exclusion
Khan and Madsen (1986)	Growth cabinets ACO_2: 330 ppm eCO_2: 600, 900 ppm	IR-20 Spaced potted plants Temperature: 22/18 to 35/28°C PAR: 133 µmol m^{-2} s^{-1}	All yield data sets		
Baker *et al*. (1990)	Sun-lit growth chambers ACO_2: 330 ppm eCO_2: 500, 660, 900 ppm	IR-30 Paddy culture	All eCO_2 yield data sets		
Baker *et al*. (1992a)	Outdoor, sun-lit growth chambers. ACO_2: 330 ppm eCO_2: 660 ppm	IR-30 Paddy culture Temperature: 25/18; 28/21; 31/24; 34/27°C	eCO_2 yield responses at 25/18, 28/21°C 14/10 h photoperiod	eCO2 responses at 31/24, 34/27°C	Yield less than ACO_2 controls
Baker *et al*. (1992b)	Sun-lit growth chambers ACO_2: 330 ppm eCO_2: 660 ppm	IR-30 Paddy culture Temperature: 28/21, 34/27, 40/33°C	eCO_2 yield responses to eCO_2 at 28/21, 34/27°C	eCO_2 responses at 40/33°C	Plant failure under these conditions.
Bugbee *et al*. (1994)	Growth chambers ACO_2: 340 ppm eCO_2: 680 ppm	29-Lu-1 and Ai-Nan-Tsao Spaced potted plants Temperature: 29/22 or 35/28°C PAR: 600 or 1200 µmol m^{-2} s^{-1}	eCO_2 yield responses at two PARs and a temperature of 29/22°C	eCO_2 responses at 35/28°C	Pollination compromised at higher temperature.
Seneweera *et al*. (1994)	Growth chamber ACO_2: 350 ppm eCO_2: 700 ppm	Jarrah Spaced potted plants $CaHPO_4$: 0, 30, 60, 120, 240, 480 mg kg^{-1} Temperature: 28/21°C PAR: 1200 µmol m^{-2} s^{-1}	eCO_2 yield responses at 120, 240, 480 mg kg^{-1} P	eCO_2 responses at 0, 30, 60 mg kg^{-1} P	Plants P deficient

de Costa *et al* .(2003)	Open-top chambers ACO_2: 370 ppm eCO_2: 570 ppm	BG-300 Field grown, January-March (rainy season) or May – August in sub-humid zone of Sri Lanka Temperature: 28–32°C Solar radiation: 480–650 MJ m^{-2}	All yield data sets		
Kim *et al*. (2003)	FACE ACO_2: 367 ppm eCO_2: 643, 586 ppm	Akitakomachi (japonica) Field grown, Shizukuishi, Japan Three seasons (1998, 1999, 2000) $(NH4)_2SO_4$: 4g (LN), 8g (MN), 12g (HN) m^{-2} Temperature: 20–21°C Solar radiation: 1636 MJ m^{-2}	Responses to eCO_2 for the 1999 and 2000 seasons	1998 season data	Data not available to estimate eCO_2 responses of shoot biomass.
Baker (2004)	Sun-lit growth chambers ACO_2: 350 ppm eCO_2: 700 ppm	Cocodrie, Cypress, Jefferson, Lamont Potted plants at mini-crop spacing Temperature: 24, 28, 32, 36, 40°C	eCO_2 yield responses for Cocodrie, Cypress and Jefferson at constant 28°C	24, 32, 36, 40°C Lamont data set	No data available for ACO_2 No biomass gain with exposure to eCO_2
De Costa *et al*. (2006)	Sun-lit open top chambers ACO_2: 370 ppm eCO_2: 570 ppm	BG300 Field grown, Field grown, January-March (rainy season) or May – August in sub-humid zone of Sri Lanka Temperature: 36/22°C	All yield data sets		
De Costa *et al*. (2007)	Sun-lit open-top chambers ACO_2: 370 ppm eCO_2: 570 ppm	16x genotypes Field grown, sub-humid zone of Sri Lanka Two growth seasons Temperature: 28–32°C Solar radiation: 2067 MJ m^{-2}	Subset of 8 genotypes with reported yield components for November to March season except BG276-5	Excluded all May to August season crop data and BG276-5 from November to March season	eCO2 elicited negative responses for shoot biomass.

Shimino *et al.* (2008)	FACE ACO_2: 366 ppm eCO_2: 570 (2003), 548 (2004) ppm	Akitakomachi (japonica) Field grown, Shizukuishi, Japan Two seasons (2003, 2004) Nitrogen: Controlled release urea or $(NH_4)_2SO_4$ Temperature: 15 to 25°C Solar radiation: 8–26 mol m^{-2} day^{-1}	All yield data sets		
Cheng *et al*. (2009)	Growth chambers Reproductive stage only ACO_2: 380 ppm eCO_2: 680 ppm	IR72 (indica) Potted plants at mini-crop spacing Temperature: 32/32°C, 32/22°C	All yield data sets		
Shimino *et al*. (2009)	FACE ACO_2: 384 ppm eCO_2: 570 (2003), 548 (2004)	Kirara, Kakehashi, Aktakomachi, Hitomebore Field grown, Shizukuishi, Japan Two seasons (2003; 2004). Temperature 15–25°C Solar radiation: 2.6 MJ m^{-2} day^{-1}	All yield data sets		
Yang *et al*. (2009)	FACE ACO_2: 376 ppm eCO_2: 565 ppm	Liangyoupeijiu (hybrid) Field grown. Yangzhou, China Temperature: 15°C Nitrogen; 12.5 g m^{-2} (Low N), 25 g m^{-2} (High N)	All yield data sets		
Hasegawa *et al*. (2013)	FACE ACO_2: 386 ppm eCO_2: 584 ppm	8 cultivars Field grown at two sites - Shizukuishi and Tsukuba, Japan Three seasons (2007, 2008, 2010) Temperature: 27°C Solar radiation: 10–19 MJ m^{-2}	Yield responses to eCO_2 at Tsukuba in 2010 season	Shizukuishi (2007, 2008, 2010), Tsukuba (2007, 2008)	Record of whole plant or shoot biomass not reported

Zhang *et al*. (2013)	FACE ACO_2: 386 ppm eCO_2: 584 (2010), 560 (2011) ppm	Koshihikari Filed grown,Tsukuba, Japan Two seasons (2010, 2011) Temperature: 25°C	All yield data sets		

Table S3. Summary of data sets selected from the literature on impacts of elevated carbon dioxide on key components of soybean yield that are accompanied by records of whole plant or shoot biomass changes

Reference	eCO_2 delivery system	Cultivar and plant growth conditions	Data selected	Data excluded	Reasons for data exclusion
Ackerson *et al*. (1984)	Open-top chambers ACO_2: 336 ppm eCO_2: 1200 ppm	Wye (determinant) Field grown, Delaware, USA eCO_2 from: • emergence to anthesis or maturity. • anthesis to early pod fill • early pod fill to maturity.	Yield data following exposure to eCO_2 from seedling emergence to maturity	Remaining eCO_2 exposure periods	Consistency to eCO_2 developmental states across data sets.
Sionit *et al*. (1987)	Growth chambers ACO_2: 350 ppm eCO_2: 675, 1000 ppm	Ransom (determinate) Spaced potted plants Temperature: 18/12, 22/16, 26/20°C PAR: 550 µmol m^{-2} s^{-1}	Yield response at eCO2 of 675 ppm and 26/20°C	18/12, 22/16°C 1000 ppm at 26/20°C	18/12°C: no seed set 22/16°C: no effect of eCO_2 on seed yield 26/20°C: no effect of 1000 ppm on whole plant biomass
Cure *et al*. (1988)	Growth chambers ACO_2: 350 ppm eCO_2: 700 ppm	Lee (non-nodulating soybean) Spaced potted plants KNO_3: 0.05, 1.0, 2.5, 5.0, 10.0 mM Temperature: 28/22°C PAR: 1000 µmol m^{-2} s^{-1}	eCO_2 yield responses at 1.0, 2.5, 5.0 and 10 mM KNO_3	0.05 mM KNO_3 treatment	Severe N deficiency.
Allan *et al*. (1991)	Outdoor, sun-lit controlled-environment chambers ACO_2: 330 ppm eCO_2: 660, 990 ppm	Bragg (indeterminate) Potted plants at mini-crop spacing Temperature: 31/23°C	eCO_2 yield responses at 660 ppm	eCO_2 yield responses at 990 ppm	Insect attack
Mulchi *et al*. (1992)	Open-top chambers ACO_2: 350 ppm eCO_2: 400, 500 ppm	Clark Field grown, Beltsville, USA	Yield responses to 400 and 500 ppm CO_2.	Ozone treatments	Ozone phytotoxicity

Miglietta *et al*. (1993)	Solfatara, Italy, spring emitting CO_2 ACO_2: 350 ppm eCO_2: 652, 2370 ppm	Cresir (determinate) Space potted plants	eCO_2 yield responses at 652 ppm	eCO_2 yield responses at 2370 ppm	Data not available.
Heagle *et al*. (1998)	Open-top chambers ACO_2: 350 ppm eCO_2: 482, 599, 713 ppm Ozone: 20, 50, 79 ppb	Essex, Holladay, Northrup King Field experiment North Carolina, USA Potted plants	Yield responses to eCO2 at 20 ppb ozone concentration for 1993 and 1994 seasons	Treatments containing ozone at 50 and 79 ppb.	Ozone phytotoxicity
Ziska *et al*. (1998)	Glasshouse ACO_2: 390 ppm eCO_2: 700 ppm	Clark (indeterminate), D-70 (determinate), Fiskeby (indeterminate), l-62-1579 (indeterminate), Spencer (indeterminate) Spaced potted plants Temperature: Min 17^oC; Max 31^oC PAR: 18.6 mol m^{-2}	All yield data sets		
Heagle *et al*. (1999)	Open-top chambers ACO_2: 350 ppm eCO_2: 700 ppm	Essex Field experiment North Carolina Potted plants Temperature: 25^oC Pots ± insulation (1994) Soil sown plants (1995)	All yield data sets		
Ferris *et al*. (1999)	Glasshouse ACO_2: 362 ppm eCO_2: 685 ppm	Fiskeby V Spaced potted plants Temperature: 25/15^oC High temperature and water stress treatments t	Yield responses to eCO2 of well watered plants at ambient temperature	High temperature and water stress	Stress responses confounding eCO_2 effects on photoassimilate availability.
Ziska and Bunce (2000)	Open-top chambers ACO_2: 370 ppm eCO_2: 680 ppm	Ripley (semi dwarf determinate), Spencer (indeterminate) Two seasons (1998, 1999) Field grown, Beltsville, USA	All yield data sets		

Ziska *et al* (2001)	Glasshouse ACO_2: 370 ppm eCO_2: 680 ppm	Nine cultivars (determinate, indeterminate) Spaced potted plants Temperature: 22°C Solar radiation: 13–21 mol m^{-2} day^{-1}	All yield data sets		
Nakamoto *et al*. (2004)	Sun-lit growth chambers ACO_2: 350 ppm eCO_2: 700 ppm	Fukuyutaka Spaced potted plants Temperature: 28/22°C eCO2 delivered for: • whole growth period • vegetative growth alone • reproductive growth alone	eCO2 responses for exposure for the entire growth period	eCOr for: • vegetative growth • alone • reproductive growth alone	Consistency for evaluation
Booker *et al*. (2005)	Open-top chambers ACO_2: 371 ppm eCO_2: 708 ppm	Essex Plants potted or soil grown. Potted plants at min-crop spacing Two seasons (1999, 2000)	All yield data sets		

Table S4. Summary of data sets selected from the literature on impacts of elevated carbon dioxide on key components of potato yield that are accompanied by records of whole plant or shoot biomass changes.

Reference	eCO_2 delivery system	Cultivar(s) and plant growth conditions	Data selected	Data excluded	Reasons for data exclusion
Wheeler *et al*. (1991)	Controlled-environment rooms ACO_2: 350 ppm eCO_2: 1000 ppm	Norland, Russett Burbank, Denali Spaced potted plants Temperature: 16^{o}C PAR: 400 µmol m^{-2} s^{-1} Photoperiod: 12/12, 24 continuous light	All yield data sets		
Miglietta *et al*. (1998)	FACE ACO_2: 335. 380 ppm eCO_2: 716 (1995), 733 (1996) ppm	Primura Field grown, Tuscany, Italy Temperature: 12–25^{o}C PAR: 20–40 MJ m^{-2} day^{-1}	All yield data sets		
Schapendonk *et al*. (2000)	Open-top chambers ACO_2: 370 ppm eCO_2: 540, 715 ppm	Gloria, Elles Field grown, Wangingen, Netherlands Temperature; 16^{o}C Solar radiation: 18 MJ m^{-} day^{-1}	All yield data sets		
Donnelly *et al*. (2001)	Open-top chambers ACO_2: 370 ppm eCO_2: 550, 680 ppm Ozone: 65 ppb	Bintje Field grown, Nottingham, UK Temperature; 16^{o}C Solar radiation: 12 MJ m^{-2} day^{-1}	Response of yield parameters to eCO2 alone	Ozone treatments	Ozone phytotoxicity
Lawson *et al*. (2001)	Open-top chambers ACO_2: 370 ppm eCO_2: 550, 680 ppm Ozone: 60 ppb	Bintje Field grown, Nottingham, UK Temperature 15^{o}C Solar radiation: 12.1 MJ m^{-} ^{2} day^{-1}	Response of yield parameters to eCO2 alone	Ozone treatments	Ozone phytotoxicity

Craigon *et al* (2002)	Open-top chambers ACO_2: 370 ppm eCO_2: 680 ppm Ozone: 60 ppb FACE ACO_2: 370 ppm eCO_2: 550 ppm	Bintje Field grown in open-top chambers at six sites: Tervuren (Belgium), Jokioinen (Finland), Giessen (Germany) Carlow (Ireland) Gottenburg (Sweden), Sutton Bonnington (UK) Field grown in FACE, Italy, Germany Two seasons (1998, 1999)	Response of yield parameters to eCO2 in open-top chambers alone	FACE and ozone data sets	FACE data sets do not report yield components Ozone phtotoxicity
Finnan *et al*. (2002)	Open-top chambers ACO_2: 370 ppm eCO_2: 680 ppm Ozone: 50, 70 ppb	Bintje Field grown, Carlow, Ireland. Two seasons (1998, 1999) Temperature: 12.4, 13.4^oC	Response of yield parameters to eCO2 alone	Ozone treatments	Ozone phytotoxicity
Heagle *et al*. (2003)	Open-top field chambers ACO_2: 370 ppm eCO_2: 540, 715 ppm Ozone: 15, 45, 80 ppb	Dark Rd Norland, Superior Spaced potted plants	Response of yield parameters to eCO2 at 15 ppb ozone	Treatments containing 40 and 80 ppb ozone	Ozone phytotoxicity
Persson *et al*. (2003)	Open-top field chambers ACO_2: 370 ppm eCO_2: 650 ppm Ozone: 20 ppb	Bintje Field grown, Gottenberg, Sweden	No data used. Response of yield parameters to eCO2 alone in OTCs	Ozone treatment Negative whole plant biomass response to eCO2	Ozone phytotoxicity
Högy and Fangmeier (2009)	Open-top field chambers ACO_2: 380 ppm eCO_2: 550, 680 ppm	Bintje Field grown, Giessen, Germany Two seasons (1998, 1999) Temperature: 20^oC Solar radiation: 10 MJ m^{-2} day^{-1}	All yield data sets		

Table S5. Summary of data sets selected from the literature on impacts of elevated carbon dioxide on key components of sugarbeet yield that are accompanied by records of whole plant or shoot biomass changes.

Reference	eCO_2 delivery system	Cultivar and plant growth conditions	Data selected	Data excluded	Reasons for data exclusion
Wyse (1980)	Open-top chamber ACO_2: 330 ppm eCO_2: 600–800 ppm	AH-10 Field grown, Logan Utah, USA	All yield data sets		
Ziska *et al*. (1995)	Controlled environmental chambers – indoors, outside ACO_2: 366, 332 ppm eCO_2: 700, 725 ppm	Spaced potted plants Outside: two growth periods – Sept/Oct (19^oC) and July/Aug (31^oC) PAR: 690 and 894 µmol m^{-2} s^{-1}	All yield data sets		
Demmers-Derks *et al*. (1998)	Sun-lit growth chambers ACO_2: 360 ppm eCO_2: 600, 700 ppm	Celt Potted plants outdoors at mini-crop spacing, Rothamstead, UK Three growth seasons (1993, 1994, 1995). Nitrate: 1 and 10 mM Temperature: ambient (15^oC; 5 to 30^oC), ambient + 3^oC PAR: 3692–3892 mol m^{-2}	All yield data sets		
Wolf (1998)	Glasshouse ACO_2: 3i5 ppm eCO_2: 695 ppm	Spaced potted plants NPK concentrations 10 and 30% of optimal supply. Temperature: $20/15^oC$ Solar radiation: 3.1 MJ m^{-2} day^{-1}	Yield data responses of full nutrient plants to eCO_2	Data obtained from plants grown under nutrient deficiency	Nutrient deficiencies attenuated sink strength.

Manderscheid *et al*. (2010)	FACE ACO_2: 375 ppm eCO_2: 550 ppm	Impuls Field grown, Braunschweig, Germany Nitrogen. Normal agronomic rates and 50% of normal rates Temperature: 10–18^{o}C Solar radiation: 10–20 MJ m^{-2} day^{-1}	All yield data sets		
Weigel and Manderscheid (2012)	FACE ACO_2: 375 ppm eCO_2: 550 ppm	Wiebke, Impuls Field grown, Braunschweig, Germany Temperature: 14^{o}C Nitrogen. Normal agronomic rates and 50% of normal rates	All yield data sets		

Table S6. Numbers of observations used in the eCO_2 response analyses of crop yield components obtained from plants raised singly in spaced pots versus those from potted plants arranged in mini-crop configurations or raised under field conditions

Crop species	Numbers of observations obtained from:	
	Singly potted/spaced plants	Potted mini-crop/field raised plants
Wheat	0	52
Rice	4	54
Soybean	20	35
Potato	16	23
Sugar beet	4	15

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