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Supplement of

Global cropland monthly gross primary production in the year 2000

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1 **Supplementary Material**

2

3 Table S1. Experimental light use efficiency values for various crops

4

ϵ^*_{GPP} (g MJ ⁻¹)	C	crop ID	crop type	references	comments
3,23	1	Maize		Sinclair and Horie (1989)	
4,16	1	Maize		Kiniry et al. (1989)	
4,37	1	Maize (dentcorn)		Koizumi et al. (1990)	
4,51	1	Maize		Lindquist et al. (2005)	
2,57	2	Rice		Koizumi et al. (1990)	
2,61	2	Rice		Kiniry et al. (1989)	
2,66	2	Rice		Sinclair and Horie (1989)	
2,88	2	Rice		Katsura et al. (2007)	
3,25	2	Rice		Zhang et al. (2009)	
2,61	3	Forage and grain legumes		Charles-Edwards (1982)	extract from Cannell et al. (1987)
3,04	3	Lucerne		Brown et al. (2006)	
3,90	3	Italian ryegrass		Koizumi et al. (1990)	
2,46	4	Wheat (spring wheat)		Caviglia and Sadras (2001)	
2,53	4	Wheat		Muurinen and Peltonen-Sainio (2006)	
2,55	4	Wheat		Koizumi et al. (1990)	
2,61	4	Wheat		Jamieson et al. (1991)	
2,85	4	Wheat barley		Gallagher and Biscoe (1978)	extract from Cannell et al. (1987)
2,93	4	Wheat		Foulkes et al. (2007)	
3,21	4	Wheat (spring wheat)		Abbate et al. (1997)	
3,33	4	Wheat		Kiniry et al. (1989)	

3,80	4	Wheat	Kemanian et al. (2004)	
1,60	5	Olive	Mariscal et al. (2000)	
4,20	6	Cassava	Leepipatpaiboon et al. (2009)	
1,52	7	Bell pepper	Vieira et al. (2009)	
1,73	7	Sweet pepper	del Amor and Gomez-Lopez (2009)	
2,26	7	Fibre hemp	Meijer et al. (1995)	
2,38	7	Garlic	Rizzalli et al. (2002)	
2,54	7	Oat	Muurinen and Peltonen-Sainio (2006)	
3,18	7	Quinoas	Ruiz and Bertero (2008)	
3,44	7	Garlic	Rizzalli et al. (2002)	
4,16	7	Lettuce	Hand et al. (1985)	extract from Cannell et al. (1987)
2,09	7	Chrysanthemum	Charles-Edwards (1982)	extract from Cannell et al. (1987)
2,99	8	Sugarcane	Muchow et al. (1997)	Kunia, H73-6110
3,18	8	Sugarcane	Muchow et al. (1997)	Kunia, H78-7234
3,61	8	Sugarcane	Muchow et al. (1997)	Macknade, Q117
3,71	8	Sugarcane	Muchow et al. (1997)	Macknade, Q138
4,09	8	Sugarcane	Muchow et al. (1997)	Ayr, Q96
4,28	8	Sugarcane	Muchow et al. (1997)	Ayr, Q117
2,04	9	Soybean	Mastrorilli et al. (1995)	
2,09	9	Soybean	Muchow et al. (1993)	
2,28	9	Soybean	Sinclair and Horie (1989)	
3,04	9	Soybean	Unsworth et al. (1984)	
1,82	10	Pigeon pea	Nam et al. (1998)	
2,23	10	Mungbean	Muchow et al. (1993)	
2,49	10	Cow pea	Muchow et al. (1993)	
2,92	10	Pigeon pea	Hughes and Keatinge (1983)	

4,87	10	Field beans	Fasheun and Dennett (1982)	
3,33	11	Sorghum	Kiniry et al. (1989)	
3,98	11	Sorghum (sweet sorghum)	Varlet-Grancher et al. (1992)	extracted from Dercas and Liakatas (2007)
4,03	11	Sorghum (grain sorghum)	Mastrorilli et al. (1995)	
4,11	11	Sorghum (grain sorghum)	Rosenthal et al. (1993)	
4,22	11	Sorghum (sweet sorghum)	Dercas and Liakatas (2007)	
4,39	11	Sorghum (sweet sorghum)	Mastrorilli et al. (1995)	
2,43	12	Barley	Whitman et al. (1985)	
2,60	12	Barley	Muurinen and Peltonen-Sainio (2006)	
2,61	12	Barley (spring barley)	Legg et al. (1979)	extract from Cannell et al. (1987)
2,77	12	Barley	Jamieson et al. (1995)	
2,85	12	Barley	Koizumi et al. (1990)	
3,12	12	Barley	Bingham et al. (2007)	
3,80	12	Barley (spring barley)	Kemarian et al. (2004)	
1,90	13	Oil palm	Hand et al. (1985)	extract from Cannell et al. (1987)
2,14	13	Oil palm	Squire (1990)	chapter 11
3,09	15	Millet	Azamali et al. (1984)	
3,44	15	Millet	Begue et al. (1991)	
4,04	15	Millet	Mcintyre et al. (1993)	
2,14	16	Cocoa	Squire (1990)	

1,48	17	Cotton	Pinter et al. (1994)	
1,56	17	Cotton ‘tamcotcd3h’	Rosenthal and Gerik (1991)	
1,73	17	Cotton ‘Deltapine 50’	Rosenthal and Gerik (1991)	
1,87	17	Cotton	Pinter et al. (1994)	
1,90	17	Cotton ‘Acala SJ-2’	Rosenthal and Gerik (1991)	
3,35	18	Summer rape	Morrison and Stewart (1995)	
2,28	18	Oilseed rape	Mendham et al. (1981)	Justes et al. (2000)
2,22	18	Oilseed rape	Justes et al. (2000)	
1,98	19	Sunflower	Trapani et al. (1992)	
2,61	19	Sunflower	Kiniry et al. (1989)	
2,97	19	Sunflower	Mastrorilli et al. (1995)	
2,07	21	Peanuts	Koizumi et al. (1990)	
2,61	21	Peanuts	Bell et al. (1987)	
2,26	22	Potato	Shah et al. (2004)	
2,46	22	Potato	Haverkort and Harris (1987)	
2,47	22	Potato	Kooman et al. (1996)	
2,57	22	Potato	Opoku-Ameyaw and Harris (2001)	
3,42	22	Potato	Allen and Scott (1980)	extract from Cannell et al. (1987)
2,19	25	Sugar beet	Martin (1986a)	
2,47	25	Sugar beet	Martin (1986b)	
2,70	25	Sugar beet	Clover et al. (2001)	
3,23	25	Sugar beet	Sott and Jaggard (1993)	extract from Clover et al. (2001)
3,42	25	Sugar beet	Biscoe and Gallagher (1977)	extract from Cannell et al. (1987)

1 Table S2. Rotation history of the eddy covariance flux sites used in our study.

site ID	country	latitude	longitude	crop type	period (year, month)	PI / references
BE_Lon	Belgium	50.5522	4.74494	Sugar beet	2004-04, 2004-09	Aubinet et al. (2009); Moors et al. (2010)
				Winter wheat	2004-10, 2005-09 2006-10, 2006-12	
				Potato	2005-10, 2006-04	
CN_Du1	China	42.0456	116.671	Wheat	2005-05, 2005-09	Chen et al. (2009)
DE_Geb	Germany	51.1001	10.9143	Rapeseed	2003-08, 2004-08	Kutsch et al. (2010); Moors et al. (2010)
				Winter barley	2004-09, 2005-07	
				Sugar beet	2005-11, 2006-09	
DE_Kli	Germany	50.8929	13.5225	Rapeseed	2004-09, 2005-08	Christian Bernhofer
				Winter wheat	2005-10, 2006-09	
DK_Ris	Denmark	55.5303	12.0972	Winter wheat	2004-01, 2005-12	Henrik Soegaard ; Ceschia et al. (2010); Moors et al. (2010)
ES_ES2	Spain	39.2755	-0.31522	Rice	2004-05, 2004-09 2005-05, 2005-09 2006-05, 2006-09	Maria Jose Sanz; Moors et al. (2010); Kutsch et al. (2010); Ceschia et al. (2010)
FR_Gri	France	48.844	1.95243	Wheat	2005-11, 2006-07	Pierre Cellier
IE_Ca1	Ireland	52.8588	-6.91814	Spring barley	2004-03, 2004-07 2005-03, 2005-07 2006-03, 2006-07	Mike Jones; Ceschia et al. (2010); Moors et al. (2010)
JP_Mas	Japan	36.05397	140.0269	Rice	2002-05, 2002-09 2003-05, 2003-09	Akira Miyata
NL_Lan	Netherlands	51.9536	4.9029	Maize	2005-06, 2005-10	Eddy Moors; Moors et al. (2010);
US_ARM	USA	36.6058	-97.4888	Wheat	2003-01, 2003-07 2003-09, 2004-06	Marc Fischer Fischer et al. (2007)

US_Bo1	USA	40.0062	-88.2904	Maize	2001-05, 2001-10 2003-05, 2003-10 2005-05, 2005-10	Meyers and Hollinger, (2004); Meyers et al. (2006)
				Soybean	2000-05, 2000-10 2002-05, 2002-10 2004-05, 2004-10 2006-05, 2006-10	
US_Bo2	USA	40.009	-88.29	Maize	2004-05, 2004-10 2006-05, 2006-10	Carl Bernacchi
				Soybean	2005-05, 2005-10	
US_Ne1	USA	41.1651	-96.4766	Maize	2001-06, 2001-10 2002-06, 2002-09 2003-06, 2003-10 2004-06, 2004-10	Shashi Verma; Verma et al. (2005)
US_Ne2	USA	41.1649	-96.4701	Maize	2001-05, 2001-10 2003-05, 2003-10	Shashi Verma; Verma et al. (2005)
				Soybean	2002-06, 2002-10 2004-06, 2004-10	
US_Ne3	USA	41.1797	-96.4397	Maize	2001-05, 2001-10 2003-05, 2003-10	Shashi Verma; Verma et al. (2005)
				Soybean	2002-06, 2002-10 2004-06, 2004-10	

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