

## S1 File. Monetary value per ecosystem service and land use

### 1. Details on the monetary data for food provisioning per land use:

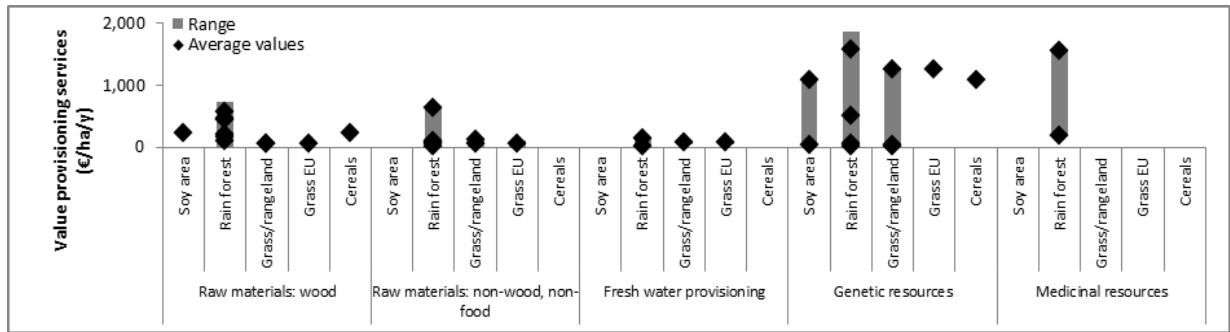
Land use	US\$/ha/y (\$-2008)		Comment	Reference
	Min.	Max.		
Soybean area (crop land)	119	242	Net income soy production	Vera-Díaz and Schwartzman 2005
	125	438	Soybean net profitability	Vera-Díaz et al 2008
	110		Gross annual return of the agricultural production in the Brazilian Amazonia	Portela 2001
	420	754	Annual output cropland Amazon per hectare	Andersen 1997
Rain forest	208		Food provisioning rain forest	Costanza et al 2014
	0	1746	Food provisioning rain forest	De Groot et al 2012
	207		Food provisioning rain forest; mean value	De Groot et al 2012
	78		Food provisioning tropical forest	TEEB
	600		Net revenues resulting from extraction of fruits and latexes, Peruvian Amazon	Peters et al. 1989; Pinedo-Vasquez et al. 1992; Torras 2000
	195		Value food Amazonian forest	Torras 2000
Grass/rangeland	1238		Food provisioning grass/rangeland	Costanza et al 2014
	23	2447	Food provisioning grassland	De Groot et al 2012
	1238		Food provisioning grassland, mean	De Groot et al 2012
Grass EU	1238		Food provisioning grass/rangeland	Costanza et al 2014
	23	2447	Food provisioning grassland	De Groot et al 2012
	7	888	EU: cost of maintaining permanent grassland	EC 2011
	321		EU: mean cost of maintaining permanent grassland	EC 2011
Grain maize	1614		EU average gross margins for maize	EU cereal farms report 2010
	1428	2000	EU gross margins for maize	EU cereal farms report 2010
Common wheat	571	880	EU 2007 gross margin for common wheat	EU cereal farms report 2010
	777		EU 2007 average gross margin for common wheat	EU cereal farms report 2010
Barley	286	571	EU 2007 gross margin for barley	EU cereal farms report 2010
	611		EU 2007 average gross margin for barley	EU cereal farms report 2010
all cereals	714	1143	gross margin for cereals	EU cereal farms report 2010
Other	816		Average gross margin for cereals	EU cereal farms report 2010

#### References:

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- Costanza, R., R. de Groot, P. Sutton, S. van der Ploeg, S. J. Anderson, I. Kubiszewski, S. Farber, and R. K. Turner. 2014. Changes in the global value of ecosystem services. *Global Environmental Change* 26:152-158.
- de Groot, R., L. Brander, S. van der Ploeg, R. Costanza, F. Bernard, L. Braat, M. Christie, N. Crossman, A. Ghermandi, L. Hein, S. Hussain, P. Kumar, A. McVittie, R. Portela, L. C. Rodriguez, P. ten Brink, and P. van Beukering. 2012. Global estimates of the value of ecosystems and their services in monetary units. *Ecosystem Services* 1:50-61.
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2 Monetary value per land use, with indication of the value range (bar) and average values (diamonds) from literature: A: provisioning services, B: regulating services, C: supporting and cultural services.

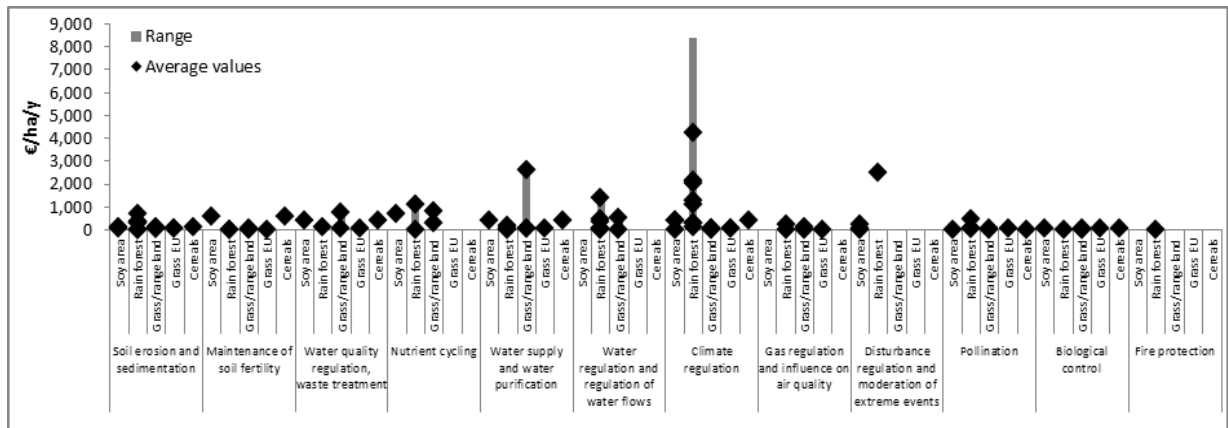
A: Provisioning services (not food)



ES	Soybean			Tropical forest			Tropical grass/rangeland			Grass EU			Crop EU		
	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.
Raw materials: wood	227		a	87		a	56		a	56		a	227		a
				0	417	b	60		f						
				457		c									
				736		d									
				461	677	e									
				150	185	f									
Raw materials: non-wood, non-food				448		g									
				633		h	2	112	b	2	112	b			
				33	173	c	108		j						
				75		i									
				55	110	e									
Fresh water provisioning				16		f									
				0	100	k									
Genetic resources				8	48	b	43	88	b	43	88	b			
				148		g									
	1082		a	1575		a	1260		a	1260		a	1082		a
	35		l	14		b	39		l						
Medicinal resources				502		g	12		j						
				3	1867	k									
				50		l									
				1562		b									
SUM prov services				188		g									
	262	1,309		199	4,946		113	1,520		1,361	1,516		1,309	1,309	

List of references at the end of Appendix 1.

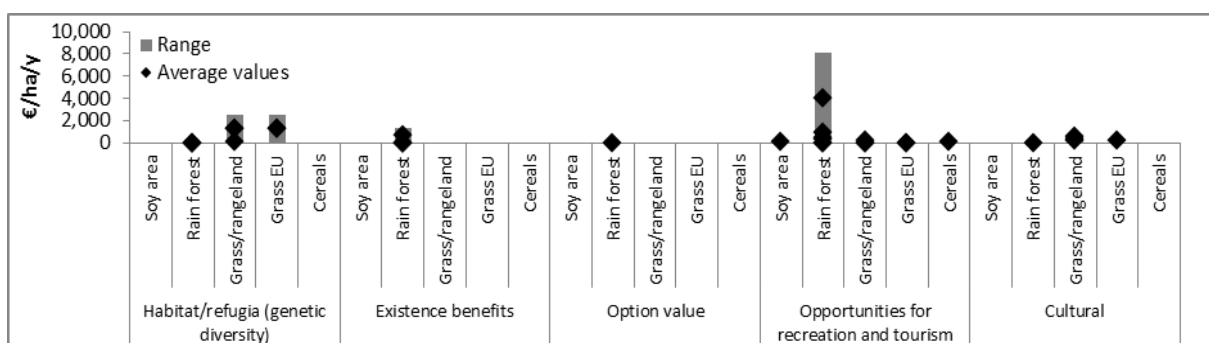
B: Regulating services



ES	Soybean			Tropical forest			Tropical grass/rangeland			Grass EU			Crop EU		
	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.
Soil erosion and sedimentation	81		l	350		a	46		a	46		a	111		a
	111		a	4	32	b	39	51	b	39	51	b			
				721		g	74		l						
				355		c	92		j						
				299		l									
Maintenance of soil fertility	552		a	15		a	2		a	2		a	552		a
				0	7	b	32		j						
Water quality regulation, waste treatment	412		a	125		a	78		a	78		a	412		a
							729		j						
Nutrient cycling	678		l	3		a	826		l						
				1125		l	267		j						
Water supply and water purification	415		a	28		a	62		a	62		a	415		a
				0	10	b	13	143	b						
				184		g	2588		j						
Water regulation and regulation of water flows				8		a	3		a						
				2	708	b	547		j						
				1412		g									
				28		c									
Climate regulation				15	850	k									
				80		f									
	9		l	2122		a	42		a	42		a	427		a
	429		f	4	8415	b	0	117	b	0	117	b			
	427		a	2040		g	13		l						
				88	500	c	65		j						
Gas regulation and influence on air quality				360	2200	k									
				100	144	e									
Disturbance regulation and moderation of extreme events				272		l									
				715	1430	f									
				12		a,b	9		a	9		a			
Pollination				239		g	97		j						
				68		a	2523		j						
Biological control				1	405	B									
				6		c									
	23		a	31		a	36		a	36		a	23		a
				6	55	b	18		j						
Fire protection				458		m									
				52		e									
SUM regulating services	2,204	2,654		176	13,118		2,965	7,619		258	387		1,974	1,974	

List of references at the end of Appendix 1.

### C: Habitat and supporting ES and cultural ES



ES	Soybean			Tropical forest			Tropical grass/rangeland			Grass EU			Crop EU		
	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.
Habitat & refugia (genetic diversity)				40		a	1261		a	1261		a			
				0	98	b	0	2521	b	0	2521	b			
				1	43	f	153		j						
Existence benefits				4	1330	c									
				2	23	k									
				16	41	e									
				10		f									
Option value				13	48	c									
SUM supporting services				15	1,476		0	2,521		0	2,521				

Cultural ES	Soybean			Tropical forest			Tropical grass/rangeland			Grass EU			Crop EU		
	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.	Min	Max	Ref.
Opportunities for recreation and tourism	85		a	900		a	27		a	27		a	85		a
				0	8092	b	2	62	b	2	62	b			
				396		g	227		j						
				7	82	c									
				2	1000	k									
Cultural				5	11	e,f									
				2		a	173		a	173		a			
							1	614	b						
SUM cultural services	85	85		2	8,094		3	841		175	235		85	85	

#### References:

- Costanza, R., R. de Groot, P. Sutton, S. van der Ploeg, S. J. Anderson, I. Kubiszewski, S. Farber, and R. K. Turner. 2014. Changes in the global value of ecosystem services. *Global Environmental Change* 26:152-158. (HCPI 2007-2008: 1,0383955) –ES review worldwide for Rain forests, grassland, cropland; update of Costanza et al. 1997
- de Groot, R., L. Brander, S. van der Ploeg, R. Costanza, F. Bernard, L. Braat, M. Christie, N. Crossman, A. Ghermandi, L. Hein, S. Hussain, P. Kumar, A. McVittie, R. Portela, L. C. Rodriguez, P. ten Brink, and P. van Beukering. 2012. Global estimates of the value of ecosystems and their services in monetary units. *Ecosystem Services* 1:50-61. (HCPI 2007-2008: 1,0383955) –ES review worldwide for Rain forests, grassland
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