Supporting Tables

WH, CARB, and TEM Land Use Emission Factors

Table A1. Emission factors obtained from Woods Hole data sets. for forest and grassland areas* (Mg CO_2 $ha^{-1}y^{-1}$)

Regions	Forest emission factors	Grassland emission factors	Cropland pasture emission factors
United States	19.6	3.7	1.85
Canada	15.3	5.7	2.8
Sub Saharan Africa	10.4	1.5	0.75
European Union 27 East Europe and Rest of Former Soviet Union Rest of European Countries	18.6	6.6	3.3
Russia	14.1	7.0	3.5
Brazil Central and Caribbean Americas South and Other Americas	16.1	2.5	1.25
Middle Eastern and North Africa	12.2	2.2	1.1
East Asia Oceania Japan	13.2	3.5	1.75
China and Hong Kong India	23.0	6.6	3.3
Rest of South East Asia Rest of South Asia Malaysia and Indonesia	23.0	6.6	3.3

*Assumptions:
25% of carbon released from soil during land conversion;
75% of carbon released from vegetation for forest conversion;
100 % of carbon released from vegetation for grassland conversion;
30 years considered in calculating foregone sequestration;
A conversion factor of 3.67 is used to convert of C to CO_2 equivalent per hectare;
Cropland pasture emission factors are equal to 50% of emission factors for grass land.
Source: Tyner et al. (2010).

Table A2.1. CARB land use emission factors for forest-to-cropland (Mg CO_2 $ha^{-1}y^{-1}$)

AEZ/Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	0.0	0.0	11.2	0.0	0.0	0.0	9.8	10.9	13.6	0.0	0.0	0.0	10.3	0.0	0.0	0.0	14.4	16.9	14.4
2	0.0	0.0	9.8	0.0	0.0	0.0	14.4	20.0	19.0	0.0	0.0	0.0	7.0	0.0	0.0	0.0	16.2	21.3	15.4
3	0.0	0.0	17.9	0.0	0.0	0.0	20.8	21.6	16.6	0.0	0.0	0.0	19.5	0.0	0.0	0.0	14.2	19.7	25.0
4	0.0	7.9	24.5	0.0	0.0	0.0	26.7	35.2	21.4	21.6	63.3	29.2	22.7	0.0	0.0	0.0	16.0	21.8	29.0
5	0.0	0.0	32.0	0.0	0.0	28.1	28.7	37.3	25.4	21.2	61.4	30.3	27.1	0.0	0.0	0.0	0.0	29.3	28.9
6	0.0	0.0	34.6	0.0	0.0	26.8	32.6	35.4	31.4	22.7	65.2	30.7	27.2	0.0	0.0	0.0	0.0	35.6	30.1
7	15.6	0.0	0.0	12.9	0.0	12.4	7.4	29.0	10.9	9.0	0.0	0.0	11.9	12.8	17.0	0.0	18.8	20.0	16.3
8	20.4	10.7	0.0	15.3	0.0	11.8	13.0	29.7	10.9	10.6	0.0	0.0	16.7	13.3	19.4	0.0	17.4	19.5	17.2
9	21.9	17.3	0.0	17.0	20.4	10.5	20.5	21.9	13.2	10.0	0.0	0.0	18.7	15.7	14.0	16.5	15.9	19.5	16.8
10	24.7	14.4	16.7	22.7	20.3	9.7	22.7	20.7	17.0	9.0	0.0	22.9	27.0	16.2	11.8	14.6	16.4	18.7	22.0
11	23.8	13.4	12.3	24.0	20.9	19.5	31.5	22.7	17.6	14.7	0.0	28.2	33.3	12.8	10.8	14.7	0.0	19.1	22.2
12	18.0	16.6	17.4	0.0	21.0	25.2	36.6	25.7	20.5	23.6	0.0	29.8	35.5	14.0	14.8	0.0	0.0	20.7	25.0
13	18.5	10.9	0.0	10.9	0.0	23.6	28.2	0.0	15.3	11.3	0.0	0.0	23.2	11.5	10.9	14.6	0.0	0.0	0.0
14	20.6	14.8	0.0	11.5	0.0	23.4	21.5	0.0	18.5	11.9	0.0	0.0	23.3	14.4	12.4	11.2	0.0	0.0	0.0
15	28.3	18.1	0.0	15.3	15.6	25.5	24.5	0.0	18.1	13.0	0.0	28.1	29.8	15.9	12.7	14.1	0.0	0.0	18.5
16	43.3	21.3	0.0	20.0	0.0	27.6	29.1	0.0	23.8	0.0	0.0	35.4	34.0	16.8	18.2	17.5	0.0	0.0	22.7
17	0.0	0.0	0.0	0.0	0.0	28.0	0.0	0.0	25.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.6
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Pleven et al. (2011)

Table A2.2. CARB land use emission factors for pasture-to-cropland (Mg CO_2 $ha^{-1}y^{-1}$)

AEZ/Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	0.0	0.0	2.0	0.0	0.0	0.0	1.4	1.8	2.5	0.0	0.0	0.0	1.9	0.0	0.0	0.0	2.0	1.6	2.0
2	0.0	0.0	1.9	0.0	0.0	0.0	2.4	5.3	1.4	0.0	0.0	0.0	1.9	0.0	0.0	0.0	2.0	1.9	2.2
3	0.0	0.0	2.3	0.0	0.0	0.0	2.2	4.8	1.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	1.8	2.2	2.1
4	0.0	4.8	3.4	0.0	0.0	0.0	3.0	8.1	5.8	4.7	3.9	3.2	4.3	0.0	0.0	0.0	2.6	3.2	3.3
5	0.0	0.0	3.4	0.0	0.0	5.1	3.6	6.4	5.9	4.1	4.0	3.3	3.8	0.0	0.0	0.0	0.0	3.2	1.9
6	0.0	0.0	3.3	0.0	0.0	3.5	3.8	6.1	10.3	4.0	5.4	3.5	3.5	0.0	0.0	0.0	0.0	3.4	6.6
7	3.4	0.0	0.0	3.5	0.0	3.5	2.1	5.5	3.1	3.6	0.0	0.0	2.2	3.4	2.8	0.0	2.5	1.3	2.5
8	3.7	3.1	0.0	4.1	0.0	3.4	2.8	5.8	3.2	4.0	0.0	0.0	2.1	4.4	2.4	0.0	2.6	1.4	2.7
9	3.8	3.6	0.0	13.6	13.0	2.7	2.9	5.1	4.8	3.0	0.0	0.0	2.2	5.4	3.2	3.9	2.7	2.3	2.5
10	4.3	12.5	4.8	7.4	11.5	3.5	3.6	13.2	4.4	3.5	0.0	3.8	3.4	10.5	3.5	6.5	3.4	2.8	3.8
11	3.7	9.8	2.6	3.8	11.4	3.9	3.8	5.0	4.6	3.5	0.0	3.8	6.1	5.1	4.0	6.8	0.0	2.8	4.2
12	3.4	15.4	5.2	0.0	11.4	4.2	3.6	17.1	6.5	4.7	0.0	3.8	9.9	5.3	3.4	0.0	0.0	2.2	6.6
13	1.5	1.6	0.0	1.4	0.0	2.2	0.7	0.0	2.7	1.5	0.0	0.0	1.1	1.6	1.6	1.1	0.0	0.0	0.0
14	1.6	1.7	0.0	1.7	0.0	2.1	1.3	0.0	2.6	2.1	0.0	0.0	1.1	1.8	1.7	0.8	0.0	0.0	0.0
15	2.9	2.0	0.0	2.9	4.1	2.4	1.2	0.0	1.3	2.5	0.0	1.1	1.5	2.6	1.9	1.4	0.0	0.0	1.7
16	5.8	10.6	0.0	5.9	0.0	3.2	2.0	0.0	1.4	0.0	0.0	2.0	2.1	3.0	2.6	6.5	0.0	0.0	2.3
17	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Pleven et al. (2011)

Table A2.3. CARB land use emission factors for cropland pasture-to-cropland (Mg CO_2 $ha^{-1}y^{-1}$)

AEZ/Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	0.0	0.0	1.0	0.0	0.0	0.0	0.7	0.9	1.3	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.8	1.0
2	0.0	0.0	0.9	0.0	0.0	0.0	1.2	2.6	0.7	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	1.0	1.1
3	0.0	0.0	1.1	0.0	0.0	0.0	1.1	2.4	0.5	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.9	1.1	1.1
4	0.0	2.4	1.7	0.0	0.0	0.0	1.5	4.1	2.9	2.4	2.0	1.6	2.1	0.0	0.0	0.0	1.3	1.6	1.7
5	0.0	0.0	1.7	0.0	0.0	2.6	1.8	3.2	3.0	2.1	2.0	1.7	1.9	0.0	0.0	0.0	0.0	1.6	1.0
6	0.0	0.0	1.7	0.0	0.0	1.7	1.9	3.1	5.2	2.0	2.7	1.8	1.7	0.0	0.0	0.0	0.0	1.7	3.3
7	1.7	0.0	0.0	1.8	0.0	1.8	1.0	2.8	1.5	1.8	0.0	0.0	1.1	1.7	1.4	0.0	1.3	0.6	1.2
8	1.8	1.5	0.0	2.0	0.0	1.7	1.4	2.9	1.6	2.0	0.0	0.0	1.1	2.2	1.2	0.0	1.3	0.7	1.3
9	1.9	1.8	0.0	6.8	6.5	1.4	1.4	2.6	2.4	1.5	0.0	0.0	1.1	2.7	1.6	1.9	1.4	1.1	1.3
10	2.2	6.3	2.4	3.7	5.7	1.7	1.8	6.6	2.2	1.8	0.0	1.9	1.7	5.3	1.8	3.2	1.7	1.4	1.9
11	1.9	4.9	1.3	1.9	5.7	2.0	1.9	2.5	2.3	1.7	0.0	1.9	3.0	2.5	2.0	3.4	0.0	1.4	2.1
12	1.7	7.7	2.6	0.0	5.7	2.1	1.8	8.5	3.2	2.3	0.0	1.9	4.9	2.6	1.7	0.0	0.0	1.1	3.3
13	0.7	0.8	0.0	0.7	0.0	1.1	0.4	0.0	1.4	0.7	0.0	0.0	0.6	0.8	0.8	0.6	0.0	0.0	0.0
14	0.8	0.9	0.0	0.9	0.0	1.0	0.6	0.0	1.3	1.0	0.0	0.0	0.5	0.9	0.8	0.4	0.0	0.0	0.0
15	1.4	1.0	0.0	1.5	2.1	1.2	0.6	0.0	0.6	1.3	0.0	0.5	0.7	1.3	0.9	0.7	0.0	0.0	0.9
16	2.9	5.3	0.0	2.9	0.0	1.6	1.0	0.0	0.7	0.0	0.0	1.0	1.1	1.5	1.3	3.2	0.0	0.0	1.2
17	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Pleven et al. (2011)

Table A2.4. CARB land use emission factors for pasture-to-forest (Mg CO_2 $ha^{-1}y^{-1}$)

AEZ/Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	0.0	0.0	-5.4	0.0	0.0	0.0	-4.7	-5.6	-7.9	0.0	0.0	0.0	-5.2	0.0	0.0	0.0	-8.3	-8.3	-7.6
2	0.0	0.0	-5.1	0.0	0.0	0.0	-9.2	-7.7	-10.1	0.0	0.0	0.0	-3.8	0.0	0.0	0.0	-8.3	-8.3	-7.8
3	0.0	0.0	-9.2	0.0	0.0	0.0	-15.8	-11.5	-10.1	0.0	0.0	0.0	-14.3	0.0	0.0	0.0	-8.3	-8.6	-15.5
4	0.0	-0.3	-12.1	0.0	0.0	0.0	-15.2	-11.6	-15.2	-14.5	-19.7	-15.2	-15.2	0.0	0.0	0.0	-7.9	-9.8	-19.1
5	0.0	0.0	-19.0	0.0	0.0	-15.2	-15.2	-13.6	-18.0	-14.3	-17.9	-15.2	-15.2	0.0	0.0	0.0	0.0	-16.6	-16.9
6	0.0	0.0	-21.6	0.0	0.0	-15.2	-15.2	-18.2	-22.0	-15.2	-23.4	-15.2	-15.2	0.0	0.0	0.0	0.0	-20.5	-21.9
7	-11.6	0.0	0.0	-8.3	0.0	-6.8	-4.5	-8.2	-6.4	-4.4	0.0	0.0	-7.9	-8.1	-5.3	0.0	-8.3	-8.3	-11.3
8	-13.2	-6.2	0.0	-9.2	0.0	-7.9	-8.5	-8.6	-6.5	-5.8	0.0	0.0	-12.4	-8.8	-9.1	0.0	-8.3	-8.3	-11.3
9	-13.2	-8.1	0.0	-9.6	-9.8	-6.4	-12.4	-7.4	-8.1	-5.1	0.0	0.0	-12.4	-9.0	-10.4	-6.9	-8.3	-9.5	-11.3
10	-12.0	-6.3	-10.6	-8.9	-8.9	-5.3	-11.2	-8.5	-11.0	-3.9	0.0	-11.2	-11.2	-7.7	-5.2	-7.3	-7.1	-8.2	-10.1
11	-12.0	-7.1	-8.2	-8.3	-8.9	-15.4	-11.2	-10.5	-11.0	-5.2	0.0	-11.2	-11.2	-8.2	-5.7	-10.3	0.0	-8.8	-10.1
12	-11.3	-7.1	-11.1	0.0	-8.9	-17.1	-11.2	-11.2	-12.0	-8.9	0.0	-11.2	-11.2	-2.1	-10.8	0.0	0.0	-10.7	-10.1
13	-6.7	-5.6	0.0	-7.3	0.0	-7.1	-7.1	0.0	-7.1	-6.8	0.0	0.0	-7.1	-7.1	-7.0	-7.1	0.0	0.0	0.0
14	-6.7	-5.6	0.0	-6.5	0.0	-7.1	-7.1	0.0	-7.1	-7.0	0.0	0.0	-7.1	-7.1	-7.1	-5.9	0.0	0.0	0.0
15	-6.7	-5.6	0.0	-8.1	-7.1	-7.1	-7.1	0.0	-7.1	-7.1	0.0	-7.1	-7.1	-7.1	-7.1	-7.1	0.0	0.0	-7.1
16	-9.0	-8.0	0.0	-10.4	0.0	-9.5	-9.5	0.0	-9.5	0.0	0.0	-9.5	-9.5	-9.5	-9.5	-9.5	0.0	0.0	-9.5
17	0.0	0.0	0.0	0.0	0.0	-9.5	0.0	0.0	-9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-9.5
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Pleven et al. (2011)

Table A2.5. CARB land use emission factors for cropland-to-forest (Mg CO_2 $ha^{-1}y^{-1}$)

AEZ/Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	0	0	-12.9	0	0	0	-11.3	-13.3	-16.6	0	0	0	-12.4	0	0	0	-12.1	-11.1	-16.2
2	0	0	-12.5	0	0	0	-17.1	-14	-17.6	0	0	0	-11.1	0	0	0	-11.6	-11.4	-16.7
3	0	0	-18.2	0	0	0	-22.7	-25.8	-16.9	0	0	0	-23.2	0	0	0	-12.1	-15.7	-20.4
4	0	-8.67	-21.3	0	0	0	-21.2	-35.2	-27.2	-24.6	-31.1	-21.6	-23.8	0	0	0	-14	-20	-30
5	0	0	-28.9	0	0	-23.4	-22.5	-30.6	-33.5	-22.8	-32.6	-21.6	-25	0	0	0	0	-27	-27.4
6	0	0	-29.3	0	0	-22.7	-22.6	-40	-52.4	-24.6	-35.1	-23.5	-25.7	0	0	0	0	-27.7	-37.3
7	-15	0	0	-16	0	-12.2	-9.42	-14	-10.8	-10	0	0	-12.9	-13.7	-10.9	0	-9.75	-9.09	-12.5
8	-15.3	-10.5	0	-16.5	0	-13.7	-13.4	-14.9	-11.6	-11.3	0	0	-13.8	-14.7	-14.7	0	-9.81	-9.05	-12.6
9	-15.4	-10.3	0	-18.4	-14.6	-12.1	-13.9	-13.9	-11.8	-10.6	0	0	-13.6	-14.7	-14.9	-12.9	-9.89	-12.8	-12.5
10	-16.1	-12.3	-17.9	-17.4	-17.8	-10.9	-14.1	-18.2	-19.1	-9.8	0	-14.2	-13.6	-15.6	-13.8	-17.4	-10.1	-13.3	-12.9
11	-15.5	-10.9	-14.6	-17.3	-19.6	-20.3	-15.2	-26.1	-23.2	-11.1	0	-14.5	-13.7	-16.3	-12.4	-18.8	0	-13.5	-13.4
12	-17.9	-10.6	-17.3	0	-12.7	-20.4	-14.3	-19.8	-17.4	-12.3	0	-14.6	-14.2	-10.4	-15	0	0	-15.8	-13.4
13	-8.76	-8.26	0	-10.1	0	-9.99	-7.96	0	-9.3	-9.75	0	0	-8.68	-9.12	-9.57	-10.1	0	0	0
14	-8.54	-8.29	0	-8.53	0	-9.56	-8.02	0	-9.3	-9.75	0	0	-8.64	-9.34	-9.64	-11.9	0	0	0
15	-8.82	-14.2	0	-12.3	-13.5	-9.97	-8.92	0	-8.93	-9.72	0	-9.97	-10.1	-9.78	-9.42	-11.9	0	0	-8.51
16	-12.7	-11.5	0	-21.7	0	-12.9	-12.9	0	-11.9	0	0	-12.3	-11.8	-13.1	-13	-15	0	0	-12
17	0	0	0	0	0	-11.7	0	0	-12.1	0	0	0	0	0	0	0	0	0	-12.6
18	0	0	0	0	0	0	0	0	-12.8	0	0	0	0	0	0	0	0	0	0

Source: Pleven et al. (2011)

Table A2.6. CARB land use emission factors for cropland-to-pasture (Mg CO_2 $ha^{-1}y^{-1}$)

AEZ/Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	0.0	0.0	-3.2	0.0	0.0	0.0	-2.2	-3.5	-6.0	0.0	0.0	0.0	-2.9	0.0	0.0	0.0	-3.3	-2.3	-4.3
2	0.0	0.0	-3.1	0.0	0.0	0.0	-3.7	-3.4	-7.0	0.0	0.0	0.0	-3.0	0.0	0.0	0.0	-2.8	-2.6	-4.6
3	0.0	0.0	-4.8	0.0	0.0	0.0	-3.7	-10.0	-6.3	0.0	0.0	0.0	-4.6	0.0	0.0	0.0	-3.4	-3.3	-4.4
4	0.0	-7.2	-4.9	0.0	0.0	0.0	-5.5	-19.2	-7.7	-8.9	-7.1	-5.9	-8.1	0.0	0.0	0.0	-5.6	-5.8	-7.6
5	0.0	0.0	-6.4	0.0	0.0	-7.7	-6.8	-12.7	-11.1	-7.1	-10.3	-5.9	-9.3	0.0	0.0	0.0	0.0	-6.1	-6.3
6	0.0	0.0	-6.9	0.0	0.0	-7.1	-6.9	-17.5	-29.9	-8.9	-9.4	-7.8	-10.0	0.0	0.0	0.0	0.0	-6.8	-14.9
7	-1.7	0.0	0.0	-1.7	0.0	-2.0	-1.1	-2.0	-1.5	-1.8	0.0	0.0	-1.2	-2.0	-1.8	0.0	-1.3	-0.7	-1.1
8	-2.0	-2.1	0.0	-1.8	0.0	-2.0	-1.1	-2.5	-1.3	-1.8	0.0	0.0	-1.2	-2.3	-2.2	0.0	-1.4	-0.6	-1.2
9	-2.0	-1.9	0.0	-3.7	-4.3	-1.9	-1.3	-2.7	-1.6	-1.7	0.0	0.0	-1.0	-2.3	-2.4	-2.2	-1.5	-0.7	-1.2
10	-4.0	-5.1	-4.3	-3.9	-8.8	-2.6	-2.8	-6.8	-5.1	-2.9	0.0	-2.9	-2.2	-5.1	-5.7	-7.1	-2.8	-2.0	-2.7
11	-3.3	-3.7	-3.4	-3.9	-10.5	-2.8	-3.9	-14.7	-9.2	-2.9	0.0	-3.1	-2.4	-5.3	-3.7	-7.4	0.0	-1.7	-3.2
12	-2.8	-3.4	-3.2	0.0	-3.6	-2.9	-2.9	-8.4	-3.0	-3.2	0.0	-3.3	-2.8	-5.5	-3.6	0.0	0.0	-2.1	-3.2
13	-2.0	-2.5	0.0	-1.9	0.0	-2.7	-0.7	0.0	-2.0	-2.5	0.0	0.0	-1.4	-2.0	-2.3	-2.9	0.0	0.0	0.0
14	-1.7	-2.5	0.0	-2.0	0.0	-2.3	-0.8	0.0	-2.0	-2.5	0.0	0.0	-1.4	-2.3	-2.4	-4.7	0.0	0.0	0.0
15	-2.0	-8.4	0.0	-4.1	-6.2	-2.7	-1.7	0.0	-1.7	-2.5	0.0	-2.7	-2.9	-2.7	-2.2	-4.6	0.0	0.0	-1.2
16	-3.6	-3.4	0.0	-11.2	0.0	-3.3	-3.3	0.0	-2.4	0.0	0.0	-2.8	-2.2	-3.7	-3.4	-5.4	0.0	0.0	-2.4
17	0.0	0.0	0.0	0.0	0.0	-2.1	0.0	0.0	-2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Pleven et al. (2011)

Table A2.7. CARB land use emission factors for cropland-to-cropland pasture (Mg CO_2 $ha^{-1}y^{-1}$)

AEZ/Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	0.0	0.0	-1.0	0.0	0.0	0.0	-0.7	-0.9	-1.3	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-0.8	-1.0
2	0.0	0.0	-0.9	0.0	0.0	0.0	-1.2	-2.6	-0.7	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-1.0	-1.1
3	0.0	0.0	-1.1	0.0	0.0	0.0	-1.1	-2.4	-0.5	0.0	0.0	0.0	-1.1	0.0	0.0	0.0	-0.9	-1.1	-1.1
4	0.0	-2.4	-1.7	0.0	0.0	0.0	-1.5	-4.1	-2.9	-2.4	-2.0	-1.6	-2.1	0.0	0.0	0.0	-1.3	-1.6	-1.7
5	0.0	0.0	-1.7	0.0	0.0	-2.6	-1.8	-3.2	-3.0	-2.1	-2.0	-1.7	-1.9	0.0	0.0	0.0	0.0	-1.6	-1.0
6	0.0	0.0	-1.7	0.0	0.0	-1.7	-1.9	-3.1	-5.2	-2.0	-2.7	-1.8	-1.7	0.0	0.0	0.0	0.0	-1.7	-3.3
7	-1.7	0.0	0.0	-1.8	0.0	-1.8	-1.0	-2.8	-1.5	-1.8	0.0	0.0	-1.1	-1.7	-1.4	0.0	-1.3	-0.6	-1.2
8	-1.8	-1.5	0.0	-2.0	0.0	-1.7	-1.4	-2.9	-1.6	-2.0	0.0	0.0	-1.1	-2.2	-1.2	0.0	-1.3	-0.7	-1.3
9	-1.9	-1.8	0.0	-6.8	-6.5	-1.4	-1.4	-2.6	-2.4	-1.5	0.0	0.0	-1.1	-2.7	-1.6	-1.9	-1.4	-1.1	-1.3
10	-2.2	-6.3	-2.4	-3.7	-5.7	-1.7	-1.8	-6.6	-2.2	-1.8	0.0	-1.9	-1.7	-5.3	-1.8	-3.2	-1.7	-1.4	-1.9
11	-1.9	-4.9	-1.3	-1.9	-5.7	-2.0	-1.9	-2.5	-2.3	-1.7	0.0	-1.9	-3.0	-2.5	-2.0	-3.4	0.0	-1.4	-2.1
12	-1.7	-7.7	-2.6	0.0	-5.7	-2.1	-1.8	-8.5	-3.2	-2.3	0.0	-1.9	-4.9	-2.6	-1.7	0.0	0.0	-1.1	-3.3
13	-0.7	-0.8	0.0	-0.7	0.0	-1.1	-0.4	0.0	-1.4	-0.7	0.0	0.0	-0.6	-0.8	-0.8	-0.6	0.0	0.0	0.0
14	-0.8	-0.9	0.0	-0.9	0.0	-1.0	-0.6	0.0	-1.3	-1.0	0.0	0.0	-0.5	-0.9	-0.8	-0.4	0.0	0.0	0.0
15	-1.4	-1.0	0.0	-1.5	-2.1	-1.2	-0.6	0.0	-0.6	-1.3	0.0	-0.5	-0.7	-1.3	-0.9	-0.7	0.0	0.0	-0.9
16	-2.9	-5.3	0.0	-2.9	0.0	-1.6	-1.0	0.0	-0.7	0.0	0.0	-1.0	-1.1	-1.5	-1.3	-3.2	0.0	0.0	-1.2
17	0.0	0.0	0.0	0.0	0.0	-1.4	0.0	0.0	-0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.4
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Pleven et al. (2011)

Table A2.8. CARB land use emission factors for forest-to-pasture (Mg CO_2 $ha^{-1}y^{-1}$)

AEZ/Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	0.0	0.0	8.6	0.0	0.0	0.0	9.4	8.7	10.9	0.0	0.0	0.0	9.8	0.0	0.0	0.0	13.9	14.2	12.7
2	0.0	0.0	8.2	0.0	0.0	0.0	11.8	10.8	15.2	0.0	0.0	0.0	6.5	0.0	0.0	0.0	14.9	18.8	12.9
3	0.0	0.0	15.1	0.0	0.0	0.0	18.4	17.3	13.4	0.0	0.0	0.0	16.9	0.0	0.0	0.0	13.9	17.4	22.2
4	0.0	2.8	21.1	0.0	0.0	0.0	23.3	20.7	17.5	17.1	29.7	25.7	18.9	0.0	0.0	0.0	15.5	18.7	25.3
5	0.0	0.0	28.0	0.0	0.0	24.3	24.8	22.6	20.3	17.0	28.0	26.7	22.8	0.0	0.0	0.0	0.0	25.4	23.4
6	0.0	0.0	30.6	0.0	0.0	23.4	28.5	27.2	25.2	18.3	33.5	26.9	23.2	0.0	0.0	0.0	0.0	31.6	22.2
7	13.0	0.0	0.0	10.4	0.0	9.2	7.1	17.4	8.9	7.1	0.0	0.0	10.5	10.1	14.2	0.0	17.1	19.0	14.8
8	16.1	8.2	0.0	11.1	0.0	10.3	11.0	17.8	9.0	8.4	0.0	0.0	14.9	10.7	17.3	0.0	15.5	18.2	15.2
9	17.8	9.8	0.0	11.5	15.6	8.8	18.5	16.7	10.6	7.7	0.0	0.0	16.8	10.8	11.8	8.8	13.7	18.2	15.1
10	21.1	8.1	13.6	17.4	14.8	7.7	20.2	11.5	13.8	6.5	0.0	20.7	23.8	9.5	7.2	9.0	14.4	16.9	18.5
11	21.3	10.1	11.2	16.8	16.0	17.4	29.3	13.4	13.8	12.1	0.0	25.8	29.8	9.9	7.7	11.5	0.0	17.5	19.0
12	15.7	10.7	14.0	0.0	16.8	22.7	34.1	17.4	14.8	21.1	0.0	27.2	31.9	11.3	12.0	0.0	0.0	19.3	21.1
13	16.1	8.6	0.0	9.6	0.0	21.5	27.0	0.0	12.8	9.5	0.0	0.0	21.8	10.3	9.2	12.4	0.0	0.0	0.0
14	17.5	7.9	0.0	9.2	0.0	22.0	20.3	0.0	14.6	9.6	0.0	0.0	21.7	11.5	10.6	8.2	0.0	0.0	0.0
15	22.5	9.1	0.0	11.4	12.5	24.1	23.4	0.0	13.6	10.2	0.0	26.0	27.5	12.0	10.8	9.5	0.0	0.0	16.5
16	31.8	12.7	0.0	14.2	0.0	25.7	27.5	0.0	16.4	0.0	0.0	32.4	30.7	14.8	15.6	11.9	0.0	0.0	19.9
17	0.0	0.0	0.0	0.0	0.0	26.2	0.0	0.0	17.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.9
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Pleven et al. (2011)

Table A3.1. TEM land use emission factors under base case assumptions for forest-to-cropland ($Mg\ CO_2\ ha^{-1}y^{-1}$)

AEZ/Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	0.0	0.0	4.6	0.0	0.0	0.0	2.0	1.9	6.8	0.0	0.0	0.0	1.0	0.0	0.0	0.0	9.9	3.0	3.0
2	0.0	0.0	5.7	0.0	0.0	0.0	4.4	4.1	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9	5.3	4.4
3	0.0	0.0	7.3	0.0	0.0	0.0	11.8	9.0	9.9	0.0	0.0	0.0	16.5	0.0	0.0	0.0	9.9	11.6	18.5
4	0.0	0.0	17.7	0.0	0.0	27.7	18.6	18.3	16.7	0.0	29.1	27.2	23.8	0.0	0.0	0.0	9.9	21.1	21.5
5	0.0	0.0	30.6	0.0	0.0	26.1	28.5	24.5	27.7	0.0	35.4	30.0	28.0	0.0	0.0	0.0	0.0	28.2	30.9
6	0.0	0.0	31.3	0.0	0.0	25.7	29.3	31.7	33.2	0.0	35.2	32.2	32.7	0.0	0.0	0.0	0.0	30.2	34.6
7	10.6	0.0	0.0	0.0	0.0	2.1	2.3	6.3	5.7	0.0	0.0	0.0	1.5	0.0	2.6	0.0	1.8	0.0	5.1
8	12.2	0.0	0.0	13.6	0.0	8.5	4.9	8.1	7.3	0.0	0.0	0.0	3.1	18.6	3.9	0.0	6.1	8.3	5.8
9	15.5	15.2	0.0	18.1	22.5	16.4	11.5	9.6	7.9	25.1	0.0	0.0	0.0	20.1	17.2	0.0	6.1	8.4	6.7
10	19.4	17.5	21.9	16.9	22.5	20.7	20.1	15.3	11.7	25.1	0.0	27.2	20.3	19.4	20.4	13.6	6.1	13.1	11.3
11	27.4	19.7	0.0	16.9	19.4	27.4	28.8	15.3	14.4	27.1	0.0	30.0	20.3	18.2	19.9	0.0	0.0	10.5	17.6
12	28.7	20.7	22.3	0.0	20.8	20.8	25.3	15.3	19.4	0.0	0.0	32.2	0.0	0.0	32.6	0.0	0.0	10.5	25.8
13	11.5	0.0	0.0	11.3	0.0	20.8	0.0	0.0	19.4	0.0	0.0	0.0	0.0	7.4	13.1	0.0	0.0	0.0	0.0
14	11.2	6.9	0.0	9.6	0.0	20.1	0.0	0.0	19.4	26.2	0.0	0.0	0.0	9.7	13.1	8.6	0.0	0.0	0.0
15	10.0	14.7	0.0	16.5	20.9	20.1	0.0	0.0	27.2	26.2	0.0	27.2	0.0	16.2	13.1	16.1	0.0	0.0	11.3
16	22.9	13.9	0.0	25.0	0.0	20.1	0.0	0.0	24.8	0.0	0.0	30.0	0.0	19.5	13.1	16.1	0.0	0.0	17.6
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.8
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Zhuang et al. (2009) and authors assumptions.

Table A3.2. TEM land use emission factors under base case assumptions for pasture-to-cropland ($Mg\ CO_2\ ha^{-1}y^{-1}$)

AEZ/Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	0.0	0.0	12.8	0.0	0.0	0.0	3.8	1.7	9.7	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.7	1.4	1.6
2	0.0	0.0	12.8	0.0	0.0	0.0	2.6	1.7	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	2.1	3.0
3	0.0	0.0	6.7	0.0	0.0	0.0	5.5	1.7	2.5	0.0	0.0	0.0	1.6	0.0	0.0	0.0	1.4	4.7	6.4
4	0.0	6.9	11.3	0.0	0.0	3.1	3.8	9.6	9.7	0.0	16.9	13.8	1.6	0.0	0.0	0.0	3.6	9.5	10.9
5	0.0	0.0	15.3	0.0	0.0	3.1	3.8	3.1	14.9	0.0	16.9	15.1	1.6	0.0	0.0	0.0	0.0	12.7	15.9
6	0.0	0.0	13.9	0.0	0.0	17.3	3.8	1.7	16.4	0.0	16.9	14.0	1.6	0.0	0.0	0.0	0.0	15.4	14.6
7	1.8	0.0	0.0	1.7	0.0	1.4	3.8	1.3	1.5	8.1	0.0	0.0	1.1	1.3	2.6	0.0	0.9	2.2	2.2
8	1.8	2.1	0.0	3.7	0.0	2.6	2.6	2.1	3.1	8.1	0.0	0.0	1.8	2.6	2.7	0.0	1.6	2.6	4.8
9	2.6	6.1	0.0	8.5	8.1	11.5	4.1	1.4	3.2	8.1	0.0	0.0	1.6	7.8	3.2	0.0	2.4	4.8	6.3
10	7.9	7.5	9.9	10.6	8.1	10.7	3.8	1.7	4.0	8.1	0.0	14.5	2.6	7.7	8.6	5.7	4.7	11.1	7.9
11	11.3	9.0	12.8	4.0	8.1	3.8	3.8	1.7	5.8	8.1	0.0	14.5	3.6	5.2	10.0	0.0	0.0	12.0	8.0
12	5.8	15.4	7.8	0.0	8.1	3.1	3.8	1.7	6.5	0.0	0.0	14.5	1.6	0.0	2.3	0.0	0.0	5.7	12.6
13	4.2	6.9	0.0	3.2	0.0	3.8	3.8	0.0	13.1	8.1	0.0	0.0	1.6	5.1	1.6	0.0	0.0	0.0	0.0
14	6.2	5.7	0.0	4.8	0.0	4.9	3.8	0.0	12.9	8.1	0.0	0.0	1.6	5.3	4.3	5.5	0.0	0.0	0.0
15	7.6	6.2	0.0	9.4	8.1	8.7	3.8	0.0	9.7	8.1	0.0	14.5	1.6	8.3	2.3	7.9	0.0	0.0	3.8
16	4.3	6.9	0.0	10.8	0.0	3.1	3.8	0.0	9.7	0.0	0.0	14.5	1.6	5.2	2.3	5.7	0.0	0.0	3.8
17	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Zhuang et al. (2009) and authors assumptions.

Table A3.3. TEM land use emission factors under base case assumptions for cropland pasture-to-cropland ($Mg\ CO_2\ ha^{-1}y^{-1}$)

AEZ/Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	0.0	0.0	6.4	0.0	0.0	0.0	1.9	0.9	4.9	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.3	0.7	0.8
2	0.0	0.0	6.4	0.0	0.0	0.0	1.3	0.9	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.0	1.5
3	0.0	0.0	3.3	0.0	0.0	0.0	2.7	0.9	1.3	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.7	2.3	3.2
4	0.0	3.4	5.6	0.0	0.0	1.5	1.9	4.8	4.8	0.0	8.4	6.9	0.8	0.0	0.0	0.0	1.8	4.7	5.4
5	0.0	0.0	7.6	0.0	0.0	1.5	1.9	1.6	7.4	0.0	8.4	7.6	0.8	0.0	0.0	0.0	0.0	6.4	7.9
6	0.0	0.0	6.9	0.0	0.0	8.6	1.9	0.9	8.2	0.0	8.4	7.0	0.8	0.0	0.0	0.0	0.0	7.7	7.3
7	0.9	0.0	0.0	0.9	0.0	0.7	1.9	0.6	0.7	4.0	0.0	0.0	0.5	0.7	1.3	0.0	0.5	1.1	1.1
8	0.9	1.1	0.0	1.8	0.0	1.3	1.3	1.0	1.6	4.0	0.0	0.0	0.9	1.3	1.3	0.0	0.8	1.3	2.4
9	1.3	3.1	0.0	4.2	4.0	5.8	2.0	0.7	1.6	4.0	0.0	0.0	0.8	3.9	1.6	0.0	1.2	2.4	3.2
10	3.9	3.8	4.9	5.3	4.0	5.3	1.9	0.9	2.0	4.0	0.0	7.3	1.3	3.8	4.3	2.8	2.3	5.5	4.0
11	5.7	4.5	6.4	2.0	4.0	1.9	1.9	0.9	2.9	4.0	0.0	7.3	1.8	2.6	5.0	0.0	0.0	6.0	4.0
12	2.9	7.7	3.9	0.0	4.0	1.5	1.9	0.9	3.2	0.0	0.0	7.3	0.8	0.0	1.2	0.0	0.0	2.8	6.3
13	2.1	3.4	0.0	1.6	0.0	1.9	1.9	0.0	6.6	4.0	0.0	0.0	0.8	2.6	0.8	0.0	0.0	0.0	0.0
14	3.1	2.9	0.0	2.4	0.0	2.4	1.9	0.0	6.5	4.0	0.0	0.0	0.8	2.7	2.2	2.8	0.0	0.0	0.0
15	3.8	3.1	0.0	4.7	4.0	4.3	1.9	0.0	4.9	4.0	0.0	7.3	0.8	4.1	1.2	3.9	0.0	0.0	1.9
16	2.1	3.4	0.0	5.4	0.0	1.5	1.9	0.0	4.9	0.0	0.0	7.3	0.8	2.6	1.2	2.8	0.0	0.0	1.9
17	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Zhuang et al. (2009) and authors assumptions.