

**Supplementary Table 1.** Estimation of nitrogen balance in nation using normalized crop production function.

Nitrogen loading rate	Nitrogen input (kg ha <sup>-1</sup> )								Nitrogen output (kg ha <sup>-1</sup> )				
	Livestock fertilizer	Inorganic fertilizer	Organic fertilizer	Biological nitrogen fixation	Seed & plant	Atmospheric deposition	Irrigation water	Sum	Crop production	Crop byproduct	Atmospheric outflow	Water system outflow	Sum
0.00	0.00	0.00	0.00	1.04	1.71	23.19	4.98	30.92	36.45	28.22	0.00	-33.75	30.92
0.10	4.82	6.10	1.28	1.04	1.71	23.19	4.98	43.11	39.33	30.34	1.63	-28.19	43.11
0.25	12.05	15.24	3.19	1.04	1.71	23.19	4.98	61.40	42.29	32.50	4.07	-17.46	61.40
0.50	24.10	30.48	6.39	1.04	1.71	23.19	4.98	91.88	45.48	34.73	8.14	3.53	91.88
0.75	36.15	45.72	9.58	1.04	1.71	23.19	4.98	122.37	47.56	36.17	12.22	26.42	122.37
1.00	48.20	60.96	12.77	1.04	1.71	23.19	4.98	152.85	48.94	37.16	16.29	50.46	152.85
1.25	60.25	76.20	15.97	1.04	1.71	23.19	4.98	183.33	49.77	37.83	20.36	75.37	183.33
1.50	72.30	91.44	19.16	1.04	1.71	23.19	4.98	213.82	50.14	38.22	24.43	101.02	213.82
1.73 <sup>†</sup>	83.38	105.46	22.10	1.04	1.71	23.19	4.98	241.86	50.11	38.34	28.24	125.17	241.86
1.75	84.35	106.68	22.35	1.04	1.71	23.19	4.98	244.30	50.09	38.35	28.51	127.35	244.30
2.00	96.40	121.92	25.55	1.04	1.71	23.19	4.98	274.78	49.65	38.23	32.58	154.32	274.78
2.25	108.45	137.16	28.74	1.04	1.71	23.19	4.98	305.26	48.83	37.87	36.65	181.92	305.26
2.50	120.49	152.40	31.93	1.04	1.71	23.19	4.98	335.75	47.63	37.27	40.72	210.12	335.75
2.75	132.54	167.64	35.13	1.04	1.71	23.19	4.98	366.23	46.06	36.44	44.79	238.93	366.23
3.00	144.59	182.88	38.32	1.04	1.71	23.19	4.98	396.71	44.12	35.38	48.87	268.34	396.71

<sup>†</sup>National nitrogen loading rate in 2017.

**Supplementary Table 2.** Estimation of nitrogen balance in Gyeong-gi province using normalized crop production function.

Nitrogen loading rate	Nitrogen input (kg ha <sup>-1</sup> )								Nitrogen output (kg ha <sup>-1</sup> )				
	Livestock fertilizer	Inorganic fertilizer	Organic fertilizer	Biological nitrogen fixation	Seed & plant	Atmospheric deposition	Irrigation water	Sum	Crop production	Crop byproduct	Atmospheric outflow	Water system outflow	Sum
0.00	0.00	0.00	0.00	0.85	1.86	23.19	6.95	32.85	38.82	28.07	0.00	-34.04	32.85
0.10	7.27	4.29	0.71	0.85	1.86	23.19	6.95	45.12	39.10	27.97	2.06	-24.02	45.12
0.25	18.18	10.74	1.77	0.85	1.86	23.19	6.95	63.53	41.68	29.47	5.16	-12.78	63.53
0.50	36.36	21.47	3.53	0.85	1.86	23.19	6.95	94.21	44.47	31.17	10.32	8.24	94.21
0.75	54.54	32.21	5.30	0.85	1.86	23.19	6.95	124.89	46.29	32.30	15.49	30.82	124.89
1.00	72.72	42.94	7.06	0.85	1.86	23.19	6.95	155.57	47.45	33.02	20.65	54.45	155.57
1.25	90.90	53.68	8.83	0.85	1.86	23.19	6.95	186.25	48.11	33.43	25.81	78.90	186.25
1.50	109.08	64.41	10.59	0.85	1.86	23.19	6.95	216.94	48.32	33.56	30.97	104.09	216.94
1.75	127.26	75.15	12.36	0.85	1.86	23.19	6.95	247.62	48.12	33.42	36.14	129.94	247.62
2.00	145.44	85.88	14.13	0.85	1.86	23.19	6.95	278.30	47.54	33.03	41.30	156.42	278.30
2.25	163.62	96.62	15.89	0.85	1.86	23.19	6.95	308.98	46.59	32.40	46.46	183.53	308.98
2.34 <sup>†</sup>	170.16	100.49	16.53	0.85	1.86	23.19	6.95	320.02	45.84	32.25	48.32	193.62	320.02
2.50	181.80	107.36	17.66	0.85	1.86	23.19	6.95	339.66	45.27	31.53	51.62	211.24	339.66
2.75	199.98	118.09	19.42	0.85	1.86	23.19	6.95	370.34	43.60	30.41	56.79	239.54	370.34
3.00	218.16	128.83	21.19	0.85	1.86	23.19	6.95	401.02	41.56	29.07	61.95	268.44	401.02

<sup>†</sup>Nitrogen loading rate of Gyeong-gi province in 2017.

**Supplementary Table 3.** Estimation of nitrogen balance in Gang-won province using normalized crop production function.

Nitrogen loading rate	Nitrogen input (kg ha <sup>-1</sup> )								Nitrogen output (kg ha <sup>-1</sup> )				
	Livestock fertilizer	Inorganic fertilizer	Organic fertilizer	Biological nitrogen fixation	Seed & plant	Atmospheric deposition	Irrigation water	Sum	Crop production	Crop byproduct	Atmospheric outflow	Water system outflow	Sum
0.00	0.00	0.00	0.00	1.30	1.52	23.19	2.02	28.03	30.07	22.55	0.00	-24.59	28.03
0.10	4.35	8.52	2.02	1.30	1.52	23.19	2.02	42.92	34.18	25.98	2.10	-19.34	42.92
0.25	10.88	21.29	5.05	1.30	1.52	23.19	2.02	65.25	38.12	29.00	5.26	-7.13	65.25
0.50	21.75	42.58	10.10	1.30	1.52	23.19	2.02	102.46	42.04	31.44	10.51	18.47	102.46
0.75	32.63	63.87	15.14	1.30	1.52	23.19	2.02	139.68	44.38	32.61	15.77	46.92	139.68
1.00	43.50	85.16	20.19	1.30	1.52	23.19	2.02	176.89	45.82	33.26	21.02	76.79	176.89
1.25	54.38	106.46	25.24	1.30	1.52	23.19	2.02	214.11	46.68	33.62	26.28	107.54	214.11
1.50	65.25	127.75	30.29	1.30	1.52	23.19	2.02	251.32	47.10	33.76	31.53	138.94	251.32
1.54 <sup>†</sup>	66.99	131.15	31.10	1.30	1.52	23.19	2.02	257.28	47.13	33.76	32.37	144.01	257.28
1.75	76.13	149.04	35.34	1.30	1.52	23.19	2.02	288.54	47.17	33.72	36.79	170.86	288.54
2.00	87.00	170.33	40.39	1.30	1.52	23.19	2.02	325.75	46.96	33.52	42.04	203.23	325.75
2.25	97.88	191.62	45.43	1.30	1.52	23.19	2.02	362.97	46.49	33.16	47.30	236.01	362.97
2.50	108.75	212.91	50.48	1.30	1.52	23.19	2.02	400.18	45.78	32.67	52.56	269.18	400.18
2.75	119.63	234.20	55.53	1.30	1.52	23.19	2.02	437.40	44.85	32.03	57.81	302.71	437.40
3.00	130.50	255.49	60.58	1.30	1.52	23.19	2.02	474.61	43.69	31.25	63.07	336.61	474.61

<sup>†</sup>Nitrogen loading rate of Gang-won province in 2017.

**Supplementary Table 4.** Estimation of nitrogen balance in Chung-buk province using normalized crop production function.

Nitrogen loading rate	Nitrogen input (kg ha <sup>-1</sup> )								Nitrogen output (kg ha <sup>-1</sup> )				
	Livestock fertilizer	Inorganic fertilizer	Organic fertilizer	Biological nitrogen fixation	Seed & plant	Atmospheric deposition	Irrigation water	Sum	Crop production	Crop byproduct	Atmospheric outflow	Water system outflow	Sum
0.00	0.00	0.00	0.00	1.88	1.31	23.19	3.40	29.78	27.80	24.72	0.00	-22.74	29.78
0.10	4.51	5.91	1.75	1.88	1.31	23.19	3.40	41.94	30.28	26.09	1.81	-16.24	41.94
0.25	11.27	14.77	4.37	1.88	1.31	23.19	3.40	60.19	32.89	27.64	4.53	-4.87	60.19
0.50	22.54	29.55	8.73	1.88	1.31	23.19	3.40	90.60	35.74	29.38	9.06	16.42	90.60
0.75	33.81	44.32	13.10	1.88	1.31	23.19	3.40	121.01	37.54	30.50	13.59	39.38	121.01
1.00	45.08	59.10	17.46	1.88	1.31	23.19	3.40	151.42	38.68	31.22	18.12	63.41	151.42
1.25	56.35	73.87	21.83	1.88	1.31	23.19	3.40	181.83	39.35	31.64	22.64	88.20	181.83
1.50	67.63	88.65	26.20	1.88	1.31	23.19	3.40	212.25	39.63	31.83	27.17	113.61	212.25
1.70 <sup>†</sup>	76.85	100.74	29.77	1.88	1.31	23.19	3.40	237.14	39.63	31.83	30.88	134.79	237.14
2.00	90.17	118.20	34.93	1.88	1.31	23.19	3.40	273.07	39.29	31.61	36.23	165.94	273.07
2.25	101.44	132.97	39.29	1.88	1.31	23.19	3.40	303.48	38.72	31.23	40.76	192.77	303.48
2.50	112.71	147.75	43.66	1.88	1.31	23.19	3.40	333.89	37.89	30.69	45.29	220.02	333.89
2.75	123.98	162.52	48.03	1.88	1.31	23.19	3.40	364.30	36.82	29.99	49.82	247.67	364.30
3.00	135.25	177.29	52.39	1.88	1.31	23.19	3.40	394.72	35.52	29.13	54.35	275.72	394.72

<sup>†</sup>Nitrogen loading rate of Chung-buk province in 2017.

**Supplementary Table 5.** Estimation of nitrogen balance in Chung-nam province using normalized crop production function.

Nitrogen loading rate	Nitrogen input (kg ha <sup>-1</sup> )								Nitrogen output (kg ha <sup>-1</sup> )				
	Livestock fertilizer	Inorganic fertilizer	Organic fertilizer	Biological nitrogen fixation	Seed & plant	Atmospheric deposition	Irrigation water	Sum	Crop production	Crop byproduct	Atmospheric outflow	Water system outflow	Sum
0.00	0.00	0.00	0.00	0.78	2.18	23.19	8.98	35.13	48.00	34.55	0.00	-47.42	35.13
0.10	5.20	5.47	0.71	0.78	2.18	23.19	8.98	46.51	50.56	36.28	1.74	-42.08	46.51
0.25	13.00	13.66	1.79	0.78	2.18	23.19	8.98	63.58	53.31	38.22	4.36	-32.32	63.58
0.50	25.99	27.33	3.57	0.78	2.18	23.19	8.98	92.02	56.46	40.44	8.72	-13.59	92.02
0.75	38.99	40.99	5.36	0.78	2.18	23.19	8.98	120.47	58.57	41.91	13.08	6.91	120.47
1.00	51.99	54.66	7.15	0.78	2.18	23.19	8.98	148.92	59.96	42.87	17.44	28.65	148.92
1.25	64.98	68.32	8.93	0.78	2.18	23.19	8.98	177.36	60.72	43.41	21.80	51.44	177.36
1.50	77.98	81.98	10.72	0.78	2.18	23.19	8.98	205.81	60.92	43.57	26.16	75.16	205.81
1.75	90.97	95.65	12.50	0.78	2.18	23.19	8.98	234.26	60.60	43.37	27.20	80.99	234.26
2.00	103.97	109.31	14.29	0.78	2.18	23.19	8.98	262.70	59.76	42.82	30.52	99.77	262.70
2.06 <sup>†</sup>	107.09	112.59	14.72	0.78	2.18	23.19	8.98	269.53	59.49	42.64	35.92	131.48	269.53
2.25	116.97	122.97	16.08	0.78	2.18	23.19	8.98	291.15	58.42	41.94	39.24	151.56	291.15
2.50	129.96	136.64	17.86	0.78	2.18	23.19	8.98	319.60	56.58	40.73	43.60	178.69	319.60
2.75	142.96	150.30	19.65	0.78	2.18	23.19	8.98	348.04	54.25	39.19	47.96	206.65	348.04
3.00	155.96	163.97	21.44	0.78	2.18	23.19	8.98	376.49	51.42	37.32	52.32	235.43	376.49

<sup>†</sup>Nitrogen loading rate of Chung-nam province in 2017.

**Supplementary Table 6.** Estimation of nitrogen balance in Jeon-buk province using normalized crop production function.

Nitrogen loading rate	Nitrogen input (kg ha <sup>-1</sup> )								Nitrogen output (kg ha <sup>-1</sup> )				
	Livestock fertilizer	Inorganic fertilizer	Organic fertilizer	Biological nitrogen fixation	Seed & plant	Atmospheric deposition	Irrigation water	Sum	Crop production	Crop byproduct	Atmospheric outflow	Water system outflow	Sum
0.00	0.00	0.00	0.00	0.96	2.00	23.19	3.89	30.05	42.42	30.36	0.00	-42.74	30.05
0.10	4.33	5.66	0.67	0.96	2.00	23.19	3.89	40.71	44.61	31.54	1.60	-37.04	40.71
0.25	10.83	14.14	1.67	0.96	2.00	23.19	3.89	56.69	47.48	33.48	3.99	-28.26	56.69
0.50	21.67	28.29	3.34	0.96	2.00	23.19	3.89	83.34	50.76	35.53	7.99	-10.94	83.34
0.75	32.50	42.43	5.00	0.96	2.00	23.19	3.89	109.99	53.06	36.94	11.98	8.01	109.99
1.00	43.34	56.58	6.67	0.96	2.00	23.19	3.89	136.64	54.62	37.87	15.97	28.17	136.64
1.25	54.17	70.72	8.34	0.96	2.00	23.19	3.89	163.28	55.56	38.42	19.97	49.33	163.28
1.50	65.01	84.87	10.01	0.96	2.00	23.19	3.89	189.93	55.94	38.62	23.96	71.41	189.93
1.75	75.84	99.01	11.68	0.96	2.00	23.19	3.89	216.58	55.79	38.48	27.95	94.36	216.58
1.83 <sup>†</sup>	79.31	103.54	12.21	0.96	2.00	23.19	3.89	225.11	55.64	38.38	29.23	101.86	225.11
2.00	86.68	113.16	13.34	0.96	2.00	23.19	3.89	243.23	55.11	38.03	31.95	118.14	243.23
2.25	97.51	127.30	15.01	0.96	2.00	23.19	3.89	269.87	53.93	37.26	35.94	142.75	269.87
2.50	108.35	141.45	16.68	0.96	2.00	23.19	3.89	296.52	52.24	36.19	39.93	168.16	296.52
2.75	119.18	155.59	18.35	0.96	2.00	23.19	3.89	323.17	50.05	34.81	43.93	194.39	323.17
3.00	130.02	169.74	20.02	0.96	2.00	23.19	3.89	349.82	47.36	33.12	47.92	221.41	349.82

<sup>†</sup>Nitrogen loading rate of Jeon-buk province in 2017.

**Supplementary Table 7.** Estimation of nitrogen balance in Jeon-nam province using normalized crop production function.

Nitrogen loading rate	Nitrogen input (kg ha <sup>-1</sup> )								Nitrogen output (kg ha <sup>-1</sup> )				
	Livestock fertilizer	Inorganic fertilizer	Organic fertilizer	Biological nitrogen fixation	Seed & plant	Atmospheric deposition	Irrigation water	Sum	Crop production	Crop byproduct	Atmospheric outflow	Water system outflow	Sum
0.00	0.00	0.00	0.00	1.25	1.90	23.19	5.12	31.47	38.39	25.63	0.00	-32.56	31.47
0.10	3.00	6.00	1.00	1.25	1.90	23.19	5.12	41.46	41.44	27.05	1.32	-28.35	41.46
0.25	7.50	15.00	2.49	1.25	1.90	23.19	5.12	56.45	44.74	28.56	3.31	-20.16	56.45
0.50	14.99	30.00	4.98	1.25	1.90	23.19	5.12	81.44	48.39	30.24	6.61	-3.80	81.44
0.75	22.49	45.00	7.47	1.25	1.90	23.19	5.12	106.43	50.75	31.35	9.92	14.42	106.43
1.00	29.99	59.99	9.97	1.25	1.90	23.19	5.12	131.42	52.28	32.08	13.22	33.83	131.42
1.25	37.49	74.99	12.46	1.25	1.90	23.19	5.12	156.40	53.19	32.51	16.53	54.17	156.40
1.50	44.98	89.99	14.95	1.25	1.90	23.19	5.12	181.39	53.57	32.66	19.84	75.33	181.39
1.75	52.48	104.99	17.44	1.25	1.90	23.19	5.12	206.38	53.47	32.54	23.14	97.23	206.38
1.79 <sup>†</sup>	53.68	107.39	17.84	1.25	1.90	23.19	5.12	210.38	53.42	32.49	23.67	100.80	210.38
2.00	59.98	119.99	19.93	1.25	1.90	23.19	5.12	231.36	52.92	32.15	26.45	119.86	231.36
2.25	67.47	134.99	22.42	1.25	1.90	23.19	5.12	256.35	51.92	31.49	29.75	143.18	256.35
2.50	74.97	149.99	24.92	1.25	1.90	23.19	5.12	281.34	50.50	30.58	33.06	167.20	281.34
2.75	82.47	164.98	27.41	1.25	1.90	23.19	5.12	306.33	48.64	29.42	36.37	191.91	306.33
3.00	89.97	179.98	29.90	1.25	1.90	23.19	5.12	331.31	46.36	27.99	39.67	217.29	331.31

<sup>†</sup>Nitrogen loading rate of Jeon-nam province in 2017.

**Supplementary Table 8.** Estimation of nitrogen balance in Gyeong-buk province using normalized crop production function.

Nitrogen loading rate	Nitrogen input (kg ha <sup>-1</sup> )								Nitrogen output (kg ha <sup>-1</sup> )				
	Livestock fertilizer	Inorganic fertilizer	Organic fertilizer	Biological nitrogen fixation	Seed & plant	Atmospheric deposition	Irrigation water	Sum	Crop production	Crop byproduct	Atmospheric outflow	Water system outflow	Sum
0.00	0.00	0.00	0.00	1.11	1.33	23.19	2.04	27.68	34.35	38.43	0.00	-45.10	27.68
0.10	4.41	4.97	2.21	1.11	1.33	23.19	2.04	39.26	36.44	39.85	1.54	-38.57	39.26
0.25	11.03	12.41	5.52	1.11	1.33	23.19	2.04	56.64	38.70	41.39	3.84	-27.30	56.64
0.50	22.06	24.83	11.04	1.11	1.33	23.19	2.04	85.61	41.22	43.11	7.69	-6.40	85.61
0.75	33.09	37.24	16.56	1.11	1.33	23.19	2.04	114.58	42.85	44.23	11.53	15.97	114.58
1.00	44.13	49.66	22.08	1.11	1.33	23.19	2.04	143.54	43.89	44.97	15.38	39.31	143.54
1.25	55.16	62.07	27.60	1.11	1.33	23.19	2.04	172.51	44.48	45.41	19.22	63.40	172.51
1.50	66.19	74.49	33.12	1.11	1.33	23.19	2.04	201.47	44.68	45.59	23.06	88.14	201.47
1.68 <sup>†</sup>	74.18	83.48	37.12	1.11	1.33	23.19	2.04	222.46	44.61	45.57	25.85	106.43	222.46
1.75	77.22	86.90	38.64	1.11	1.33	23.19	2.04	230.44	44.53	45.53	26.91	113.47	230.44
2.00	88.25	99.31	44.16	1.11	1.33	23.19	2.04	259.40	44.05	45.25	30.75	139.35	259.40
2.25	99.28	111.73	49.68	1.11	1.33	23.19	2.04	288.37	43.26	44.75	34.60	165.76	288.37
2.50	110.32	124.14	55.20	1.11	1.33	23.19	2.04	317.34	42.15	44.05	38.44	192.70	317.34
2.75	121.35	136.56	60.72	1.11	1.33	23.19	2.04	346.30	40.73	43.13	42.28	220.15	346.30
3.00	132.38	148.97	66.24	1.11	1.33	23.19	2.04	375.27	39.01	42.02	46.13	248.12	375.27

<sup>†</sup>Nitrogen loading rate of Gyeong-buk province in 2017.



**Supplementary Table 9.** Estimation of nitrogen balance in Gyeong-nam province using normalized crop production function.

Nitrogen loading rate	Nitrogen input (kg ha <sup>-1</sup> )								Nitrogen output (kg ha <sup>-1</sup> )				
	Livestock fertilizer	Inorganic fertilizer	Organic fertilizer	Biological nitrogen fixation	Seed & plant	Atmospheric deposition	Irrigation water	Sum	Crop production	Crop byproduct	Atmospheric outflow	Water system outflow	Sum
0.00	0.00	0.00	0.00	0.83	1.61	23.19	3.61	29.25	36.74	40.04	0.00	-47.54	29.25
0.10	4.68	7.13	1.39	0.83	1.61	23.19	3.61	42.45	39.44	46.24	1.92	-45.16	42.45
0.25	11.69	17.83	3.48	0.83	1.61	23.19	3.61	62.25	42.23	51.37	4.80	-36.15	62.25
0.50	23.39	35.65	6.96	0.83	1.61	23.19	3.61	95.25	45.09	55.09	9.60	-14.53	95.25
0.75	35.08	53.48	10.45	0.83	1.61	23.19	3.61	128.25	46.94	56.67	14.40	10.24	128.25
1.00	46.77	71.30	13.93	0.83	1.61	23.19	3.61	161.25	48.16	57.50	19.20	36.39	161.25
1.25	58.47	89.13	17.41	0.83	1.61	23.19	3.61	194.26	48.89	57.95	24.01	63.42	194.26
1.42 <sup>†</sup>	66.42	101.25	19.78	0.83	1.61	23.19	3.61	216.70	49.13	58.08	27.27	82.21	216.70
1.50	70.16	106.95	20.89	0.83	1.61	23.19	3.61	227.26	49.19	58.11	28.81	91.15	227.26
1.75	81.86	124.78	24.38	0.83	1.61	23.19	3.61	260.26	49.09	58.02	33.61	119.54	260.26
2.00	93.55	142.61	27.86	0.83	1.61	23.19	3.61	293.26	48.60	57.69	38.41	148.56	293.26
2.25	105.24	160.43	31.34	0.83	1.61	23.19	3.61	326.26	47.73	57.14	43.21	178.18	326.26
2.50	116.94	178.26	34.82	0.83	1.61	23.19	3.61	359.26	46.49	56.35	48.01	208.41	359.26
2.75	128.63	196.08	38.31	0.83	1.61	23.19	3.61	392.27	44.88	55.34	52.81	239.23	392.27
3.00	140.32	213.91	41.79	0.83	1.61	23.19	3.61	425.27	42.90	54.10	57.61	270.65	425.27

<sup>†</sup>Nitrogen loading rate of Gyeong-nam province in 2017.

**Supplementary Table 10.** Estimation of nitrogen balance in Jeju province using normalized crop production function.

Nitrogen loading rate	Nitrogen input (kg ha <sup>-1</sup> )								Nitrogen output (kg ha <sup>-1</sup> )				
	Livestock fertilizer	Inorganic fertilizer	Organic fertilizer	Biological nitrogen fixation	Seed & plant	Atmospheric deposition	Irrigation water	Sum	Crop production	Crop byproduct	Atmospheric outflow	Water system outflow	Sum
0.00	0.00	0.00	0.00	1.70	0.53	23.19	0.00	25.42	24.89	6.36	0.00	-5.83	25.42
0.10	3.73	12.71	2.69	1.70	0.53	23.19	0.00	44.54	31.78	6.84	2.73	3.19	44.54
0.25	9.32	31.77	6.72	1.70	0.53	23.19	0.00	73.23	36.61	7.37	6.84	22.41	73.23
0.50	18.64	63.54	13.44	1.70	0.53	23.19	0.00	121.05	39.89	7.96	13.67	59.53	121.05
0.75	27.96	95.31	20.17	1.70	0.53	23.19	0.00	168.86	41.41	8.33	20.51	98.61	168.86
1.00	37.29	127.08	26.89	1.70	0.53	23.19	0.00	216.67	42.30	8.59	27.34	138.44	216.67
1.25	46.61	158.85	33.61	1.70	0.53	23.19	0.00	264.49	42.86	8.76	34.18	178.68	264.49
1.26 <sup>†</sup>	46.98	160.12	33.88	1.70	0.53	23.19	0.00	266.40	42.99	8.79	34.45	180.17	266.40
1.50	55.93	190.62	40.33	1.70	0.53	23.19	0.00	312.30	43.23	8.87	41.02	219.18	312.30
1.75	65.25	222.39	47.06	1.70	0.53	23.19	0.00	360.11	43.45	8.95	47.85	259.86	360.11
2.00	74.57	254.16	53.78	1.70	0.53	23.19	0.00	407.93	43.57	8.99	54.69	300.68	407.93
2.25	83.89	285.93	60.50	1.70	0.53	23.19	0.00	455.74	43.61	9.00	61.53	341.61	455.74
2.50	93.21	317.70	67.22	1.70	0.53	23.19	0.00	503.55	43.57	8.98	68.36	382.64	503.55
2.75	102.54	349.47	73.94	1.70	0.53	23.19	0.00	551.37	43.46	8.94	75.20	423.77	551.37
3.00	111.86	381.24	80.67	1.70	0.53	23.19	0.00	599.18	43.29	8.88	82.03	464.97	599.18

<sup>†</sup>Nitrogen loading rate of Jeju province in 2017.