Corrigendum to “Grazing intensity affects the environmental impact of dairy systems” (J. Dairy Sci. 100:6804–6821)

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In the Results section, scenarios G4 and G5 were interchanged. The net energy intensity (NEI) values in Table 4 were incorrect (the values were for GHG emissions). The values of methane emissions from manure management for confined scenarios C1 and C2AD were incorrect, affecting the overall GHG emissions from these 2 scenarios. The corrected values for scenarios G4, G5, C1, and C2AD are presented in Table 4 and Figures 2, 3, and 4 below. The authors regret the errors.

Table 4. Greenhouse gas (GHG) emissions, net energy intensity (NEI), and land use during grazing (May–September) and confined (October–April) months for scenarios that combine grazing and confinement and during the entire year for confined scenarios

Process ¹	Grazing months					Confined months		
	G1	G2	G3	G4	G5	G1–G5	C1	C2AD ²
GHG emissions (kg of CO ₂ -eq/kg of FPCM)								
Enteric emissions	0.46	0.45	0.54	0.45	0.54	0.48	0.48	0.48
Manure management ³	0.10	0.11	0.13	0.11	0.13	0.06	0.23	0.05
Crops production	0.18	0.21	0.26	0.22	0.28	0.14	0.14	0.14
On-farm energy use	0.07	0.05	0.06	0.04	0.05	0.08	0.08	0.08
Off-farm emissions from resource use	0.06	0.05	0.06	0.05	0.06	0.06	0.06	0.06
Total	0.88	0.87	1.04	0.88	1.05	0.83	0.99	0.81
NEI (MJ/kg of FPCM)								
Milking and barn operations ⁴	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Manure management ^{3,4}	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Feed crops on farm	0.56	0.35	0.40	0.32	0.36	0.74	0.74	0.74
Feed crops off farm	0.98	0.82	0.91	0.82	0.90	0.81	0.80	0.80
Energy from biogas ⁵	0.00	0.00	0.00	0.00	0.00	0.00	0.00	–0.62
Total	1.60	1.23	1.37	1.19	1.32	1.62	1.60	0.98
Land use (m ² /kg of FPCM)	1.25	1.15	1.31	1.15	1.31	1.25	1.25	1.25

¹CO₂-eq = CO₂ equivalents; FPCM = fat- and protein-corrected milk.

²Scenario C2AD includes anaerobic digestion (AD).

³Manure management includes only collection and storage of manure because land application is assigned to the production of crops on farm.

⁴Energy for milking and barn operations and manure handling (collection and agitation) is in the form of electricity.

⁵The energy used to heat the digester is discounted from the produced biogas.

REFERENCES

Aguirre-Villegas, H. A., T. H. Passos-Fonseca, D. J. Reinemann, and R. Larson. 2017. Grazing intensity affects the environmental impact of dairy systems. J. Dairy Sci. 100:6804–6821. <https://doi.org/10.3168/jds.2016-12325>.

Figure 2. System life cycle greenhouse gas (GHG) emissions before allocation for scenarios that combine grazing and confinement and scenarios with yearly confinement during the 5 grazing months (May–September). A total of 7 scenarios representative of Wisconsin dairy farms were modeled based on information collected through surveys sent to Wisconsin dairy farms: 2 confinement scenarios (C1 and C2AD) with no access to pasture year round and 5 scenarios combining confinement and grazing at varying percentages of annual DMI from pasture (G1, G2, G3, G4, and G5, where G1 had the lowest DMI from pasture and G5 had the highest). CO₂-eq = CO₂ equivalents; AD = anaerobic digestion; FPCM = fat- and protein-corrected milk.

Figure 3. Life cycle (a) greenhouse gas (GHG) emissions and (b) net energy intensity (NEI) after allocation, system expansion, and weighting grazing and confined months in 1 yr. A total of 7 scenarios representative of Wisconsin dairy farms were modeled based on information collected through surveys sent to Wisconsin dairy farms: 2 confinement scenarios (C1 and C2AD) with no access to pasture year round and 5 scenarios combining confinement and grazing at varying percentages of annual DMI from pasture (G1, G2, G3, G4, and G5, where G1 had the lowest DMI from pasture and G5 had the highest). CO₂-eq = CO₂ equivalents; AD = anaerobic digestion; FPCM = fat- and protein-corrected milk.

Figure 4. Relating (a) greenhouse gas (GHG) emissions, (b) net energy intensity (NEI), and (c) land use with DMI from pasture for all scenarios with the exception of the scenario with anaerobic digestion (scenario C2AD). A total of 7 scenarios representative of Wisconsin were modeled based on information collected through surveys sent to Wisconsin dairy farms: 2 confinement scenarios (C1 and C2AD) with no access to pasture year round and 5 scenarios combining confinement and grazing at varying percentages of annual DMI from pasture (G1, G2, G3, G4, and G5, where G1 had the lowest DMI from pasture and G5 had the highest). CO₂-eq = CO₂ equivalents; FPCM = fat and protein-corrected milk.