# Appendix D
# Data and Computation Tables

Appendix table D1

**Base representative systems and ammonia-N emissions for use in the CBW model, by animal type and manure system type**

| Representative system | | | |
|---|---|---|---|
| Animal type | Lagoon | Slurry | Dry/litter |
| Dairy | Flush barn, surface applied | Pond storage, surface applied | Dry, solids system, surface applied |
| Feedlot beef | Flush barn, surface applied | Pond storage, surface applied | Dry, solids system, surface applied |
| Swine | Daily flush, surface irrigate | Deep pit, surface applied | Minor technology (used values for dry feedlot beef system) |
| Poultry | Not considered | Not considered | Broiler house, surface-applied litter |

| Facility emissions coefficients (share of N available to the crop) | | | |
|---|---|---|---|
| Dairy | 4.242 | 0.637 | 0.309 |
| Feedlot beef | 4.242 | 0.637 | 0.309 |
| Swine | 4.725 | 0.621 | 0.309 |
| Poultry | n/a | n/a | 0.417 |

| Field emissions coefficients (share of N available to the crop) | | | |
|---|---|---|---|
| Dairy | 0.282 | 0.209 | 0.0205 |
| Feedlot beef | 0.282 | 0.209 | 0.0205 |
| Swine | 0.274 | 0.274 | 0.0205 |
| Poultry | n/a | n/a | 0.333 |

Appendix table D-2

**Manure ammonia-N production and losses for selected animal types and manure management systems for the CBW, baseline scenario**

| Animal type | Example manure system | Excreted nitrogen | Facility loss as ammonia-N | Field loss as ammonia-N | Nitrogen available for plant use |
|---|---|---|---|---|---|
| | | *Pounds per AU* | | | |
| Dairy | Dry/Litter | 99.2 | 20.25 | 13.43 | 65.5 |
| Feedlot beef | Slurry | 85.8 | 29.61 | 9.72 | 46.5 |
| Swine | Lagoon | 248.5 | 195.74 | 11.35 | 41.4 |
| Poultry | Dry/Litter | 421.8 | 100.5 | 80.26 | 241.0 |

Appendix table D-3
**Ammonia-N emission and manure nitrogen changes with evaluated manure system improvements for use in the CBW model, by animal type and manure system type**

| Animal type | Item | Lagoon | Slurry | Dry/litter |
|---|---|---|---|---|
| **Manure Management System Change: Alum to poultry litter** (coefficients expressed as a share of N available to the crop) | | | | |
| Poultry | Facility emissions | n/a | n/a | -0.679 |
| Poultry | Field emissions | n/a | n/a | 0.213 |
| Poultry | Applied manure nitrogen | n/a | n/a | 0.2125 |
| **Manure Management System Change: Biofilter Lagoon Cover** (coefficients expressed as a share of N available to the crop) | | | | |
| Dairy, feedlot beef, and swine | Facility emissions | -0.264 | n/a | n/a |
| Dairy, feedlot beef, and swine | Field emissions | 0.979 | n/a | n/a |
| Dairy, feedlot beef, and swine | Applied manure nitrogen | 0.979 | n/a | n/a |
| **Manure Management System Change: Impervious Lagoon Cover** (coefficients expressed as a share of N available to the crop) | | | | |
| Dairy, feedlot beef, and swine | Facility emissions | -0.627 | n/a | n/a |
| Dairy, feedlot beef, and swine | Field emissions | 2.326 | n/a | n/a |
| Dairy, feedlot beef, and swine | Applied manure nitrogen | 2.326 | n/a | n/a |
| **Manure Management System Change: Incorporate/Inject Manure** (coefficients expressed as a share of N available to the crop) | | | | |
| Dairy and feedlot beef | Facility emissions | 0.0 | 0.0 | 0.0 |
| Dairy and feedlot beef | Field emissions | -0.75 | -.80 | -0.18 |
| Dairy and feedlot beef | Applied manure nitrogen | 0.212 | 0.233 | 0.06 |
| Swine | Facility emissions | 0.0 | 0.0 | 0.0 |
| Swine | Field emissions | n/a | n/a | -0.18 |
| Swine | Applied manure nitrogen | n/a | n/a | 0.06 |

Appendix table D-4
**Manure ammonia-N production and losses for selected animal types and manure management systems for the CBW, Ammonia-N reduction scenarios**

| Animal type | Example manure system | Scenario | Excreted nitrogen | Facility loss as ammonia-N | Field loss as ammonia-N | Nitrogen available for plant use |
|---|---|---|---|---|---|---|
| | | | *Pounds per AU* | | | |
| Poultry | Dry/litter | Alum | 421.8 | 32.26 | 97.27 | 292.2 |
| Swine | Lagoon | Impervious cover | 248.5 | 73.01 | 37.74 | 152.2 |
| Dairy | Dry/litter | Incorporation | 99.2 | 20.25 | 11.02 | 68.0 |