**Table S3** Agricultural management practices in the paddy rice field experiments wherein ammonia volatilizations were observed. a

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Site | Crop | Case code | Date | Field operation, method and amount for addition of nitrogen/water, or tillage depth b |
| CS | Rice | P3, P4 | 2002/6/22 | Rice sowing;  P3: Fertilization (surface broadcasting: urea, 40.5 kg N ha–1 for the low-nitrogen treatment (LN))  P4: Fertilization (surface broadcasting: urea, 81 kg N ha–1 for the high-nitrogen treatment (HN)) |
|  | P5, P6 | 2002/7/20 | P5: Fertilization (surface broadcasting: urea, 54 kg N ha–1 for LN)  P6: Fertilization (surface broadcasting: urea, 108 kg N ha–1 for HN) |
|  | P7, P8 | 2002/8/20 | P7: Fertilization (surface broadcasting: urea, 40.5 kg N ha–1 for LN)  P8: Fertilization (surface broadcasting: urea, 81 kg N ha–1 for HN) |
|  |  | 2002/6/22–9.25 | Under the flooded condition, water table (WT): approximately *4* cm |
|  |  | 2002/9/25 | Rice harvest |
| Wheat |  | 2002/10/29 | Wheat sowing |
|  |  | 2002/12/3 c | Fertilization (surface broadcasting: urea, 81 kg N ha–1) for LN  Fertilization (surface broadcasting: urea, 135 kg N ha–1) for HN |
|  |  | 2003/2/21 c | Fertilization (surface broadcasting: urea, 54 kg N ha–1) for LN  Fertilization (surface broadcasting: urea, 90 kg N ha–1) for HN |
|  |  | 2003/6/5 | Wheat harvest |
| DY | Rice | P1, P9 | 1984/6/20 | P1: Fertilization (surface broadcasting: ammonium bicarbonate, 90 kg N ha–1), tillage (approximately 5 cm)  P9: Fertilization (surface broadcasting: urea, 90 kg N ha–1), tillage (approximately 5 cm) |
|  |  | 1984/6/20 | Rice sowing |
|  |  | 1984/6/20–9.25 | Under the flooded condition, WT: approximately 5 cm |
|  |  | 1984/9/25 | Rice harvest |
| Wheat |  | 1984/10/29 | Wheat sowing |
|  |  | 1985/3/24 c | Fertilization (surface broadcasting: urea, 90 kg N ha–1) |
|  |  | 1985/6/5 | Wheat harvest |
| FQP | Rice | P2, P10 | 1986/6/21 | Rice sowing;  P2: Fertilization (surface broadcasting: ammonium bicarbonate, 90 kg N ha–1), tillage (approximately 5 cm)  P10: Fertilization (surface broadcasting: urea, 90 kg N ha–1), tillage (approximately 5 cm) |
|  |  | 1986/6/21–9.5 | Under the flooded condition, WT: approximately 4 cm |
|  |  | 1986/9/5 | Rice harvest |
| Wheat |  | 1986/10/29 | Wheat sowing |
|  |  | 1987/3/24 c | Fertilization (surface broadcasting: urea, 90 kg N ha–1) |
|  |  | 1987/6/5 | Wheat harvest |
| SZ | Rice |  | 2010/5/10 | Rice sowing |
|  |  | 2010/5/10–7.20 | Under the flooded condition, WT: approximately *7.5* cm |
|  | P11, P12 | 2010/5/16 | P11 (Treat5–1): Fertilization (surface broadcasting: urea, 162.2 kg N ha–1)  P12 (Treat5–2): Fertilization (surface broadcasting: urea, 162.2 kg N ha–1) |
|  | P13, P14 | 2010/6/22 | P13 (Treat6–1): Fertilization (surface broadcasting: urea, 40.9 kg N ha–1)  P14 (Treat6–2): Fertilization (surface broadcasting: urea, 81.8 kg N ha–1) |
|  |  | 2010/7/20 | Rice harvest |
| Rice |  | 2010/7/25 | Rice sowing |
|  |  | 2010/7/25–10.20 | Under the flooded condition(water table approximately *7.5* cm) |
|  | P15, P16 | 2010/7/31 | P15 (Treat7–1): Fertilization (surface broadcasting: urea, 40.9 kg N ha–1)  P16 (Treat7–2): Fertilization (surface broadcasting: urea, 40.9 kg N ha–1) |
|  | P17, P18 | 2010/8/26 | P17 (Treat8–1): Fertilization (surface broadcasting: urea, 81.8 kg N ha–1)  P18 (Treat8–2): Fertilization (surface broadcasting: urea, 81.8 kg N ha–1) |
|  |  | 2010/10/20 | Rice harvest |
| YTA | Rice |  | 1992/4/10 c | Fertilization (surface broadcasting: urea, 90 kg N ha–1), rice sowing |
|  |  | 1992/4/10–7.10 | Under the flooded condition, WT: approximately 2 cm |
|  |  | 1992/7/10 | Rice harvest |
| Rice | P19 | 1992/7/29 | Rice sowing, fertilization (surface broadcasting: urea, 90 kg N ha–1), tillage (approximately 5 cm) |
|  |  | 1992/7/29–11.10 | Under the flooded condition, WT: approximately 2 cm |
|  |  | 1992/11/10 | Rice harvest |

a Given information was used, alone with other model inputs as the primary drivers, to operate CNMM-DNDC simulation of ammonia volatilizations following individual fertilizer amendment events in the paddy rice cases (P1–19). The definitions of the case codes are referred to Table 2. The sites are Changshu (CS), Danyang (DY), Fengqiu with paddy rice fields (FQP), Shenzhen (SZ), and Yingtan (YTA).

b The italic and underlined numbers are the depths of flooded water table which were arbitrarily set in this study by referring to those of the croplands adjacent to the experimental sites or model calibration since the information were not presented in the original literature.