Supplemental materials

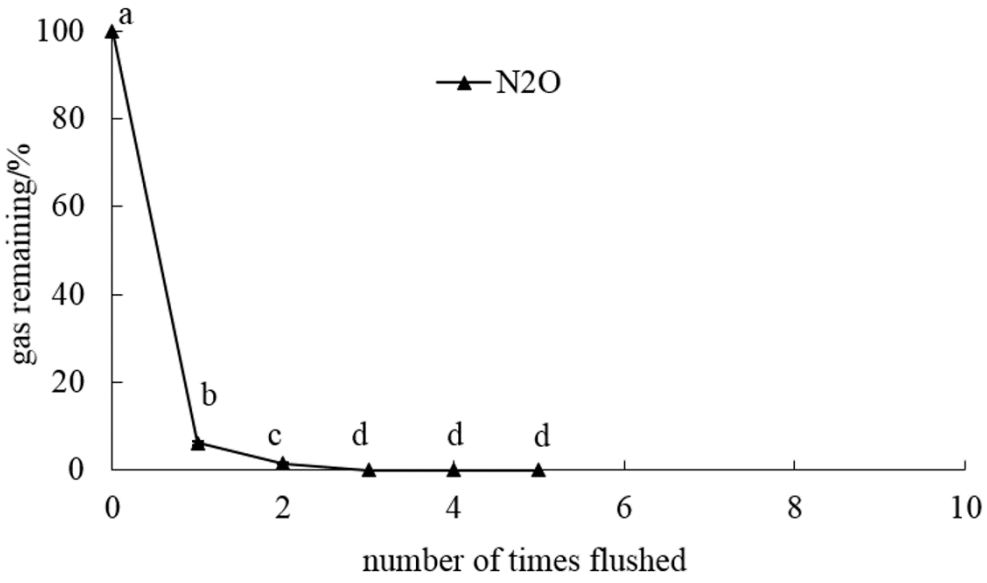
(a)

(b)

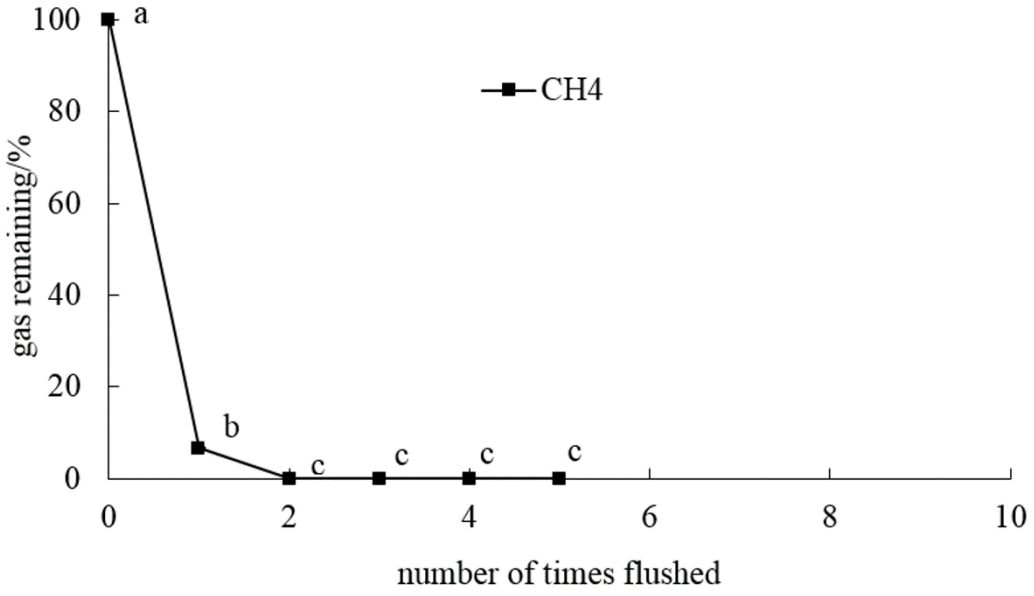
(c)

(d)

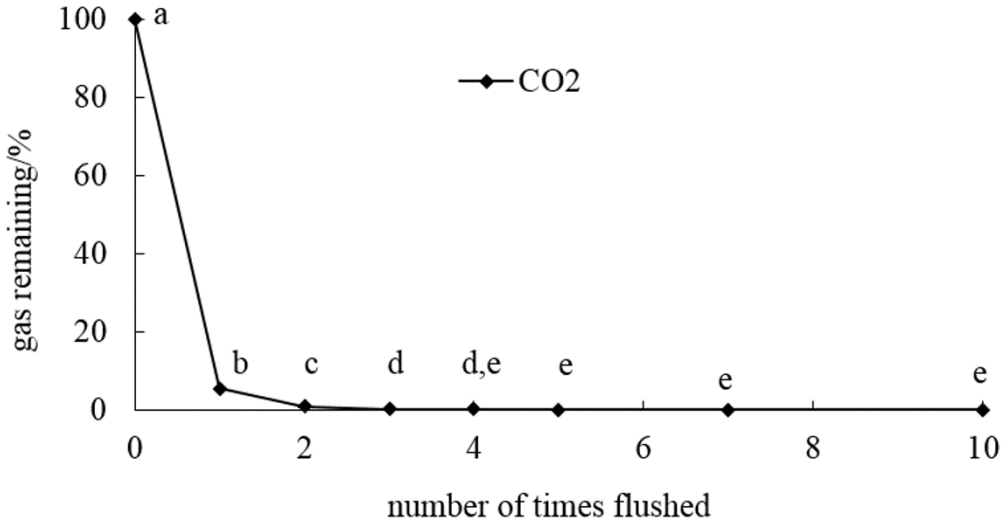
Fig. S1 (a) static flux chamber, underside lid and fixed base (anchor); (b) gas sample collection from static flux chamber; (c) manure application fall 2012; (d) deployed chambers spring 2013


100
80
60
40
20
0
gas remaining/%
N2O
a
b
c
d
d
d
0
2
4
6
8
10
number of times flushed

(a)

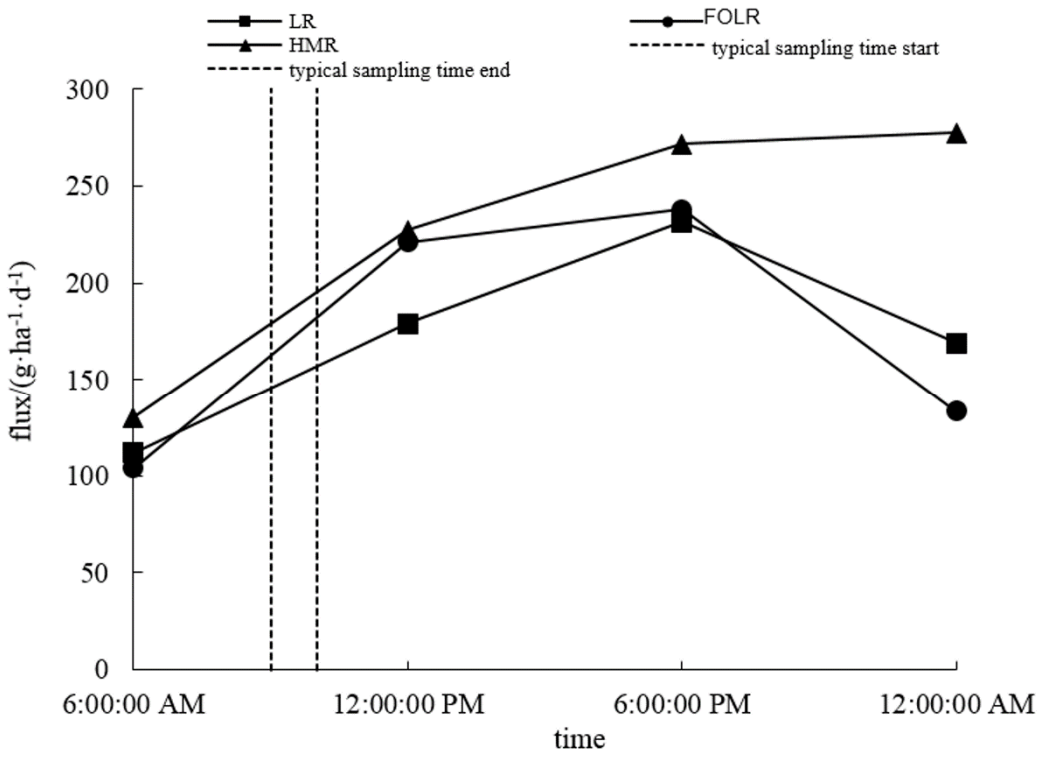

100
80
60
40
20
0
gas remaining/%
CH4
a
b
c
c
c
c
0
2
4
6
8
10
number of times flushed

(b)

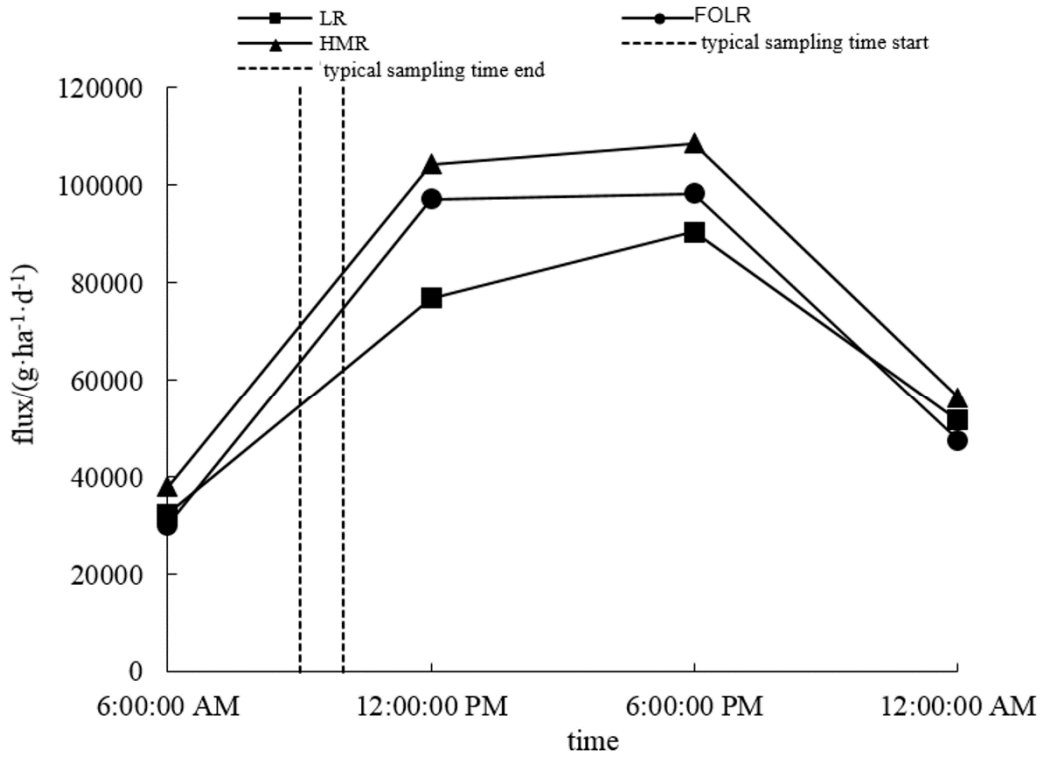


(c)

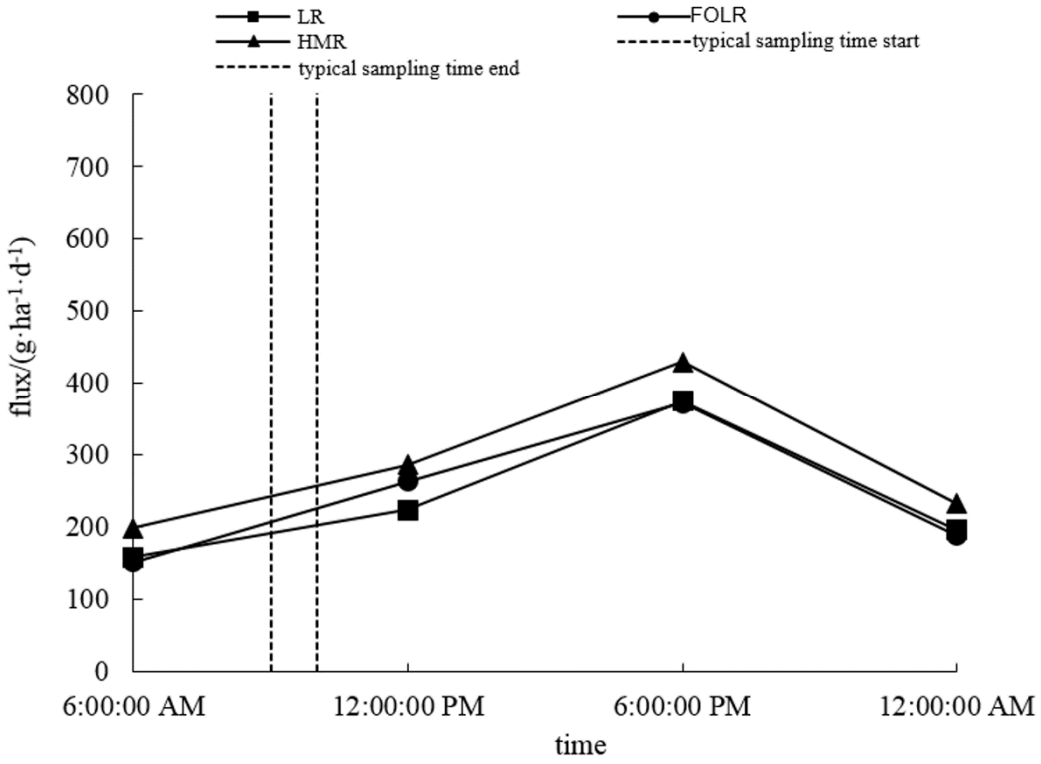
Fig. S2 Optimization of fill-purge-vacuum cycles needed for cleanup and preparation of GHG-free vacuum vials for on-site GHG sample collection. Lowercase markings show statistical significance: (a) N_2O, (b) CH_4, (c) CO_2



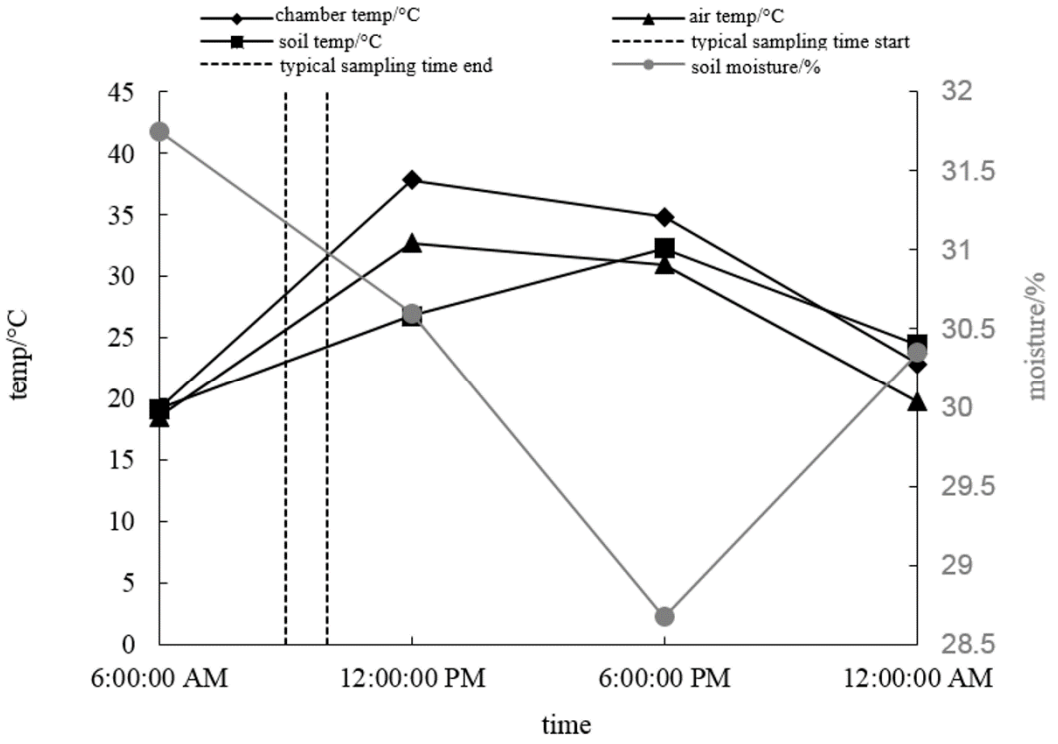
(a)


LR
FOLR
HMR
typical sampling time start
typical sampling time end
120000
100000
80000
60000
40000
20000
0
flux/(g·ha-1·d-1)
6:00:00 AM
12:00:00 PM
6:00:00 PM
12:00:00 AM
time

(b)


LR
FOLR
HMR
typical sampling time start
typical sampling time end
800
700
600
500
400
300
200
100
0
flux/(g·ha-1·d-1)
6:00:00 AM
12:00:00 PM
6:00:00 PM
12:00:00 AM
time

(c)



(d)

Fig. S3 Diurnal flux calculated from the three models for (a) methane, (b) carbon dioxide, (c) nitrous oxide and (d) temperatures and soil moisture

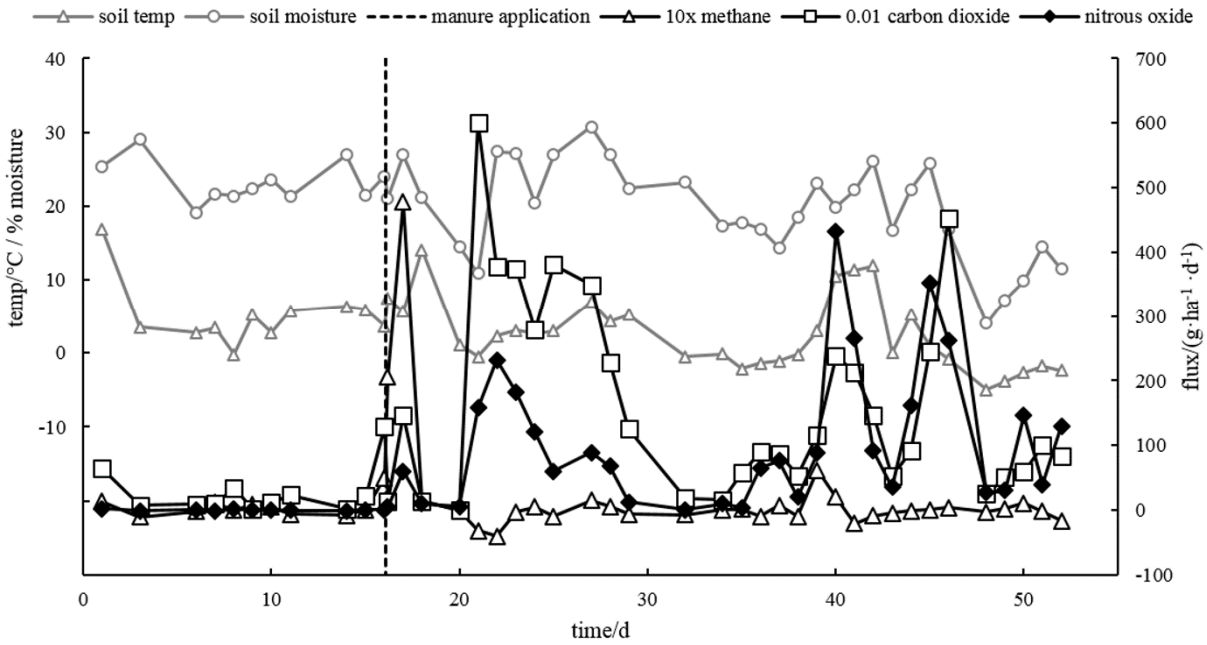


Fig. S4 Average fall daily flux calculated from the four models for methane, carbon dioxide and nitrous oxide and soil temperature and moisture

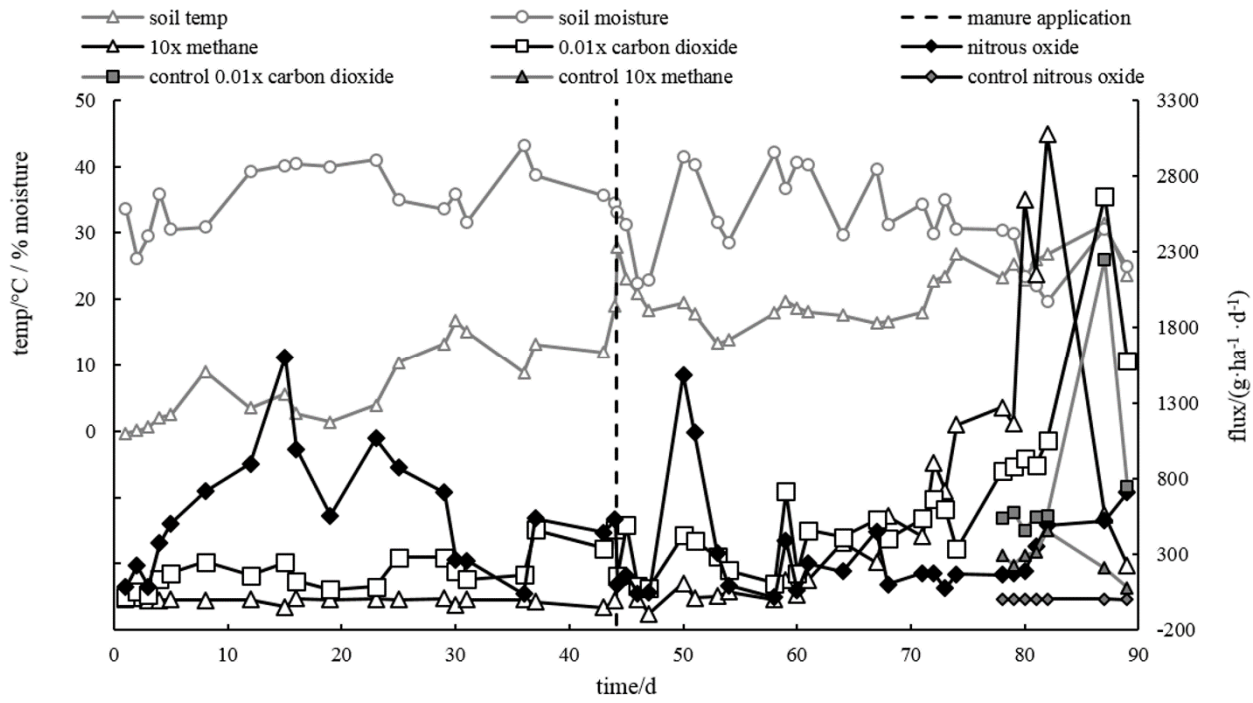


Fig. S5 Average spring daily flux calculated from the three models for methane, carbon dioxide and nitrous oxide and soil temperature and moisture