**Title: Ruminant urine patch N transformation: effects of urine aucubin rate in a laboratory trial**

**AUTHORS:** C.A. Gardinera, T.J. Clough\*a, K.C. Camerona, H.J. Dia, G.R. Edwardsa

*a\*Department of Soil and Physical Sciences, Faculty of Agriculture and Life Sciences, Lincoln University, P.O. Box 85084, Lincoln 7647, Christchurch, New Zealand*

\*Corresponding author email: Timothy.Clough@lincoln.ac.nz

**Supplementary Material**

*Pages: 4*

*Tables: 0*

*Figures: 6*

Figure Captions

Figure S1. Daily N2O flux from each of the five experimental treatments (A) and the average N2O flux over the 37 day experiment for each treatment (B). Data points represent means (A, n=4; B, n=98), with error bars (SEM). Stars indicate days when one or more aucubin treatments were significantly different than the Urine treatment (P<0.05).

Figure S2. The average N2O flux from Days 5-11 for each treatment (n=20). Error bars represent SEM and stars indicate aucubin treatments that were significantly different than the Urine treatment (P<0.05).

Figure S3. Soil NH4+ concentrations in the five treatments over the 37 day experimental period. Data points represent means (n=4) with error bars (SEM). Stars indicate days when one or more aucubin treatments were significantly (P<0.05) different than the Urine treatment.

Figure S4. Soil NO3- concentrations over the 37 day experimental period. Data points represent means (n=4) with error bars (SEM). Stars indicate days when one or more aucubin treatments were significantly different (P< 0.05) than the Urine treatment.

Figure S5. Soil CO2-C fluxes over the 37 day experimental period. Data points are means (n=4) with error bars (SEM). Stars indicate days when one or more aucubin treatments were significantly different (P<0.05) than the Urine treatment.

Figure S6. Soil surface pH over the 37 day laboratory experiment. Data points are means (n=4) with error bars (SEM). Stars indicate days when one or more aucubin treatments were significantly different (P<0.05) than the Urine treatment.

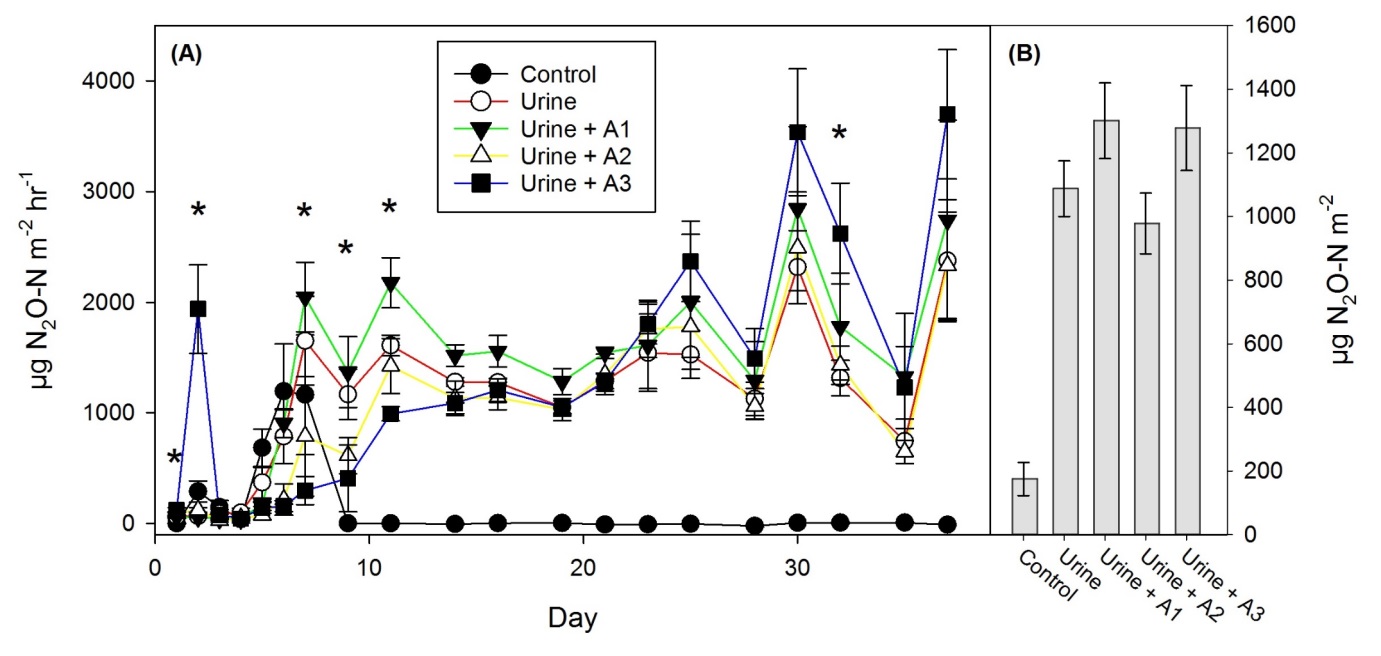


Figure S1. Daily N2O flux from each of the five experimental treatments (A) and the average N2O flux over the 37 day experiment for each treatment (B). Data points represent means (A, n=4; B, n=98), with error bars (SEM). Stars indicate days when one or more aucubin treatments were significantly different than the Urine treatment (P<0.05).

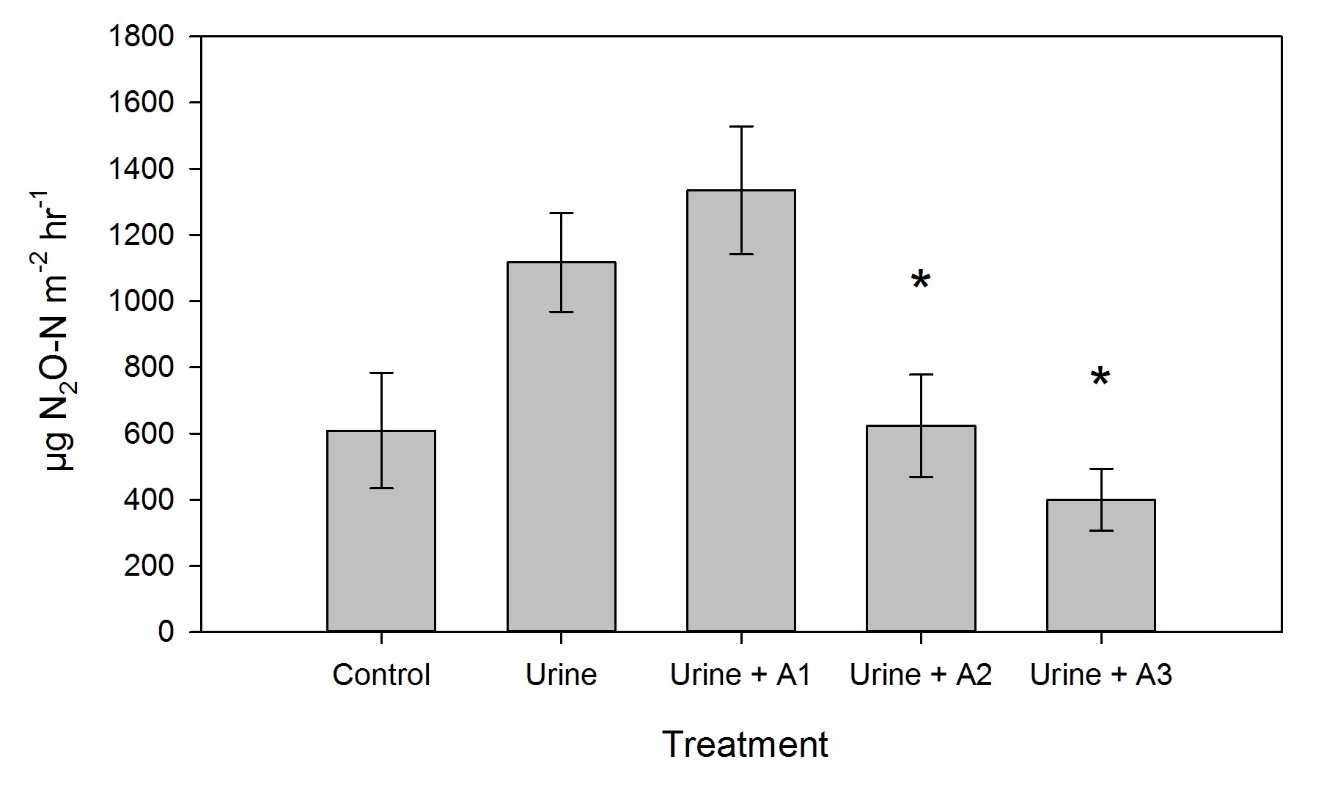


Figure S2. The average N2O flux from Days 5-11 for each treatment (n=20). Error bars represent SEM and stars indicate aucubin treatments that were significantly different than the Urine treatment (P<0.05).

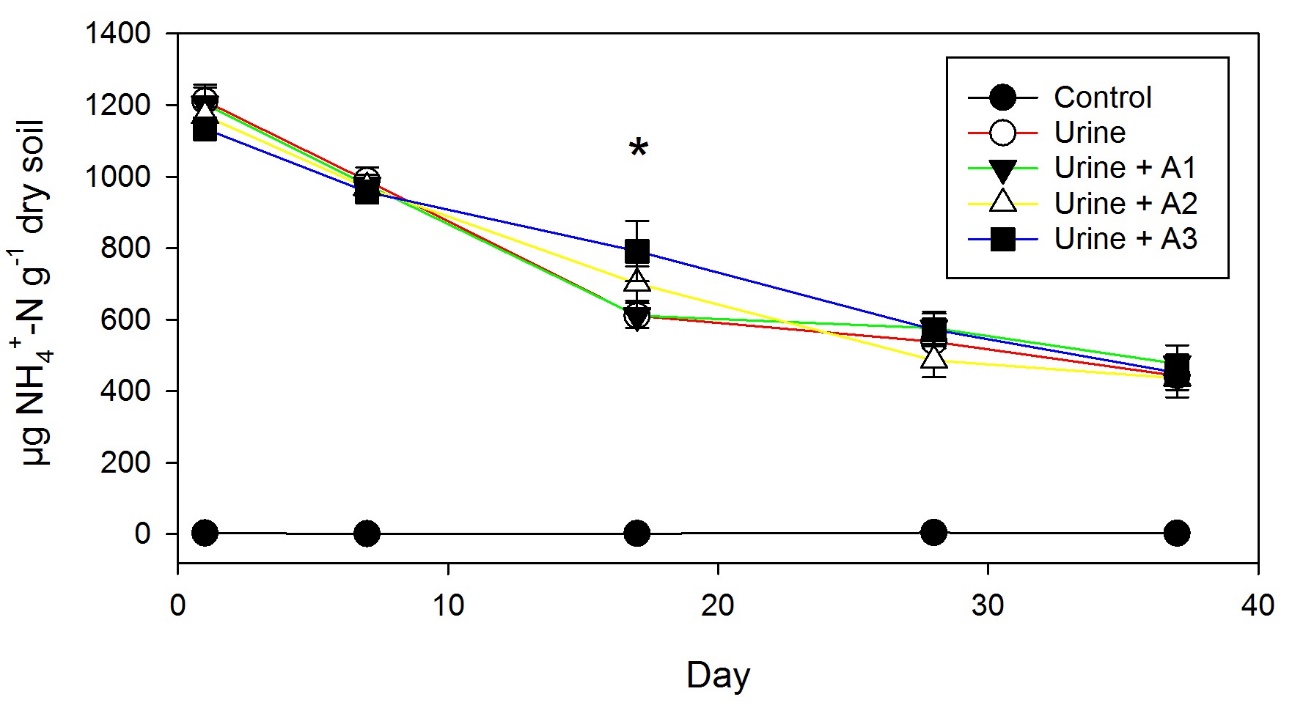


Figure S3. Soil NH4+ concentrations in the five treatments over the 37 day experimental period. Data points represent means (n=4) with error bars (SEM). Stars indicate days when one or more aucubin treatments were significantly (P<0.05) different than the Urine treatment.

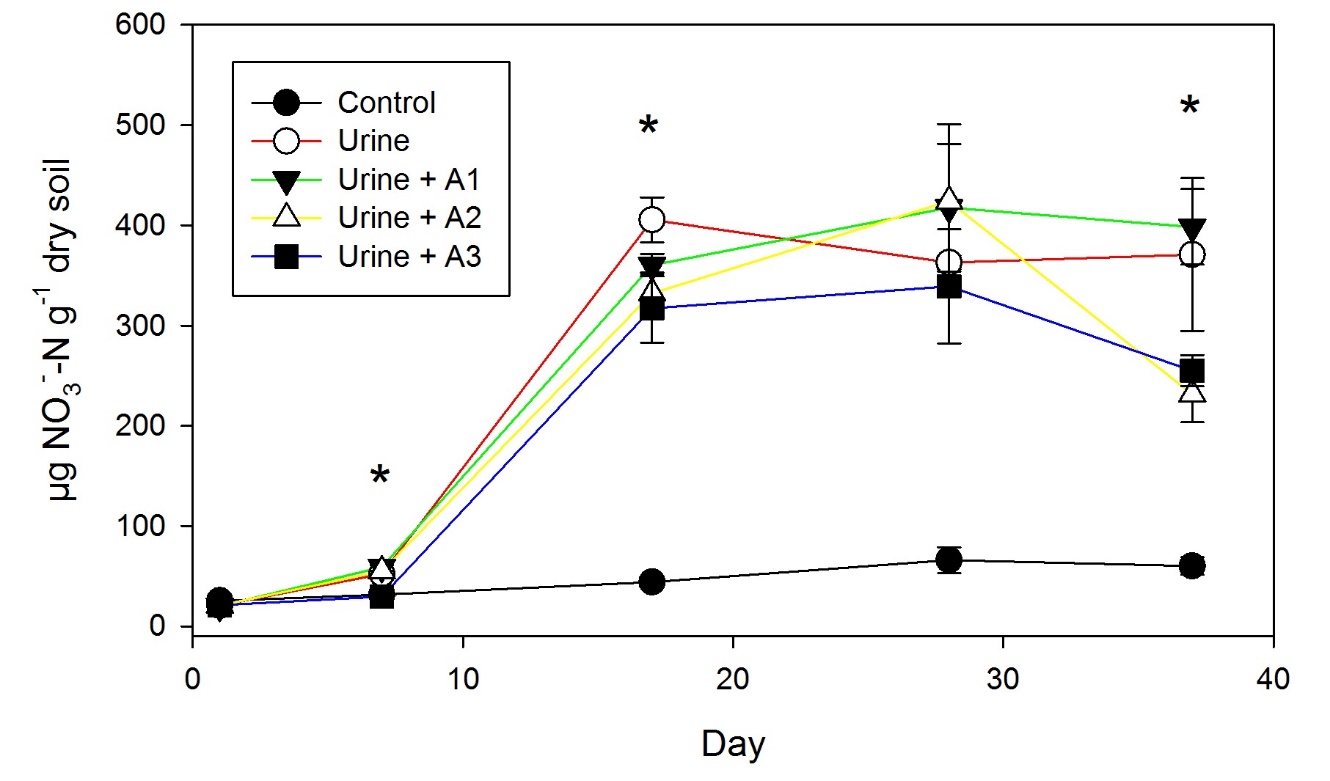


Figure S4. Soil NO3- concentrations over the 37 day experimental period. Data points represent means (n=4) with error bars (SEM). Stars indicate days when one or more aucubin treatments were significantly different (P< 0.05) than the Urine treatment.

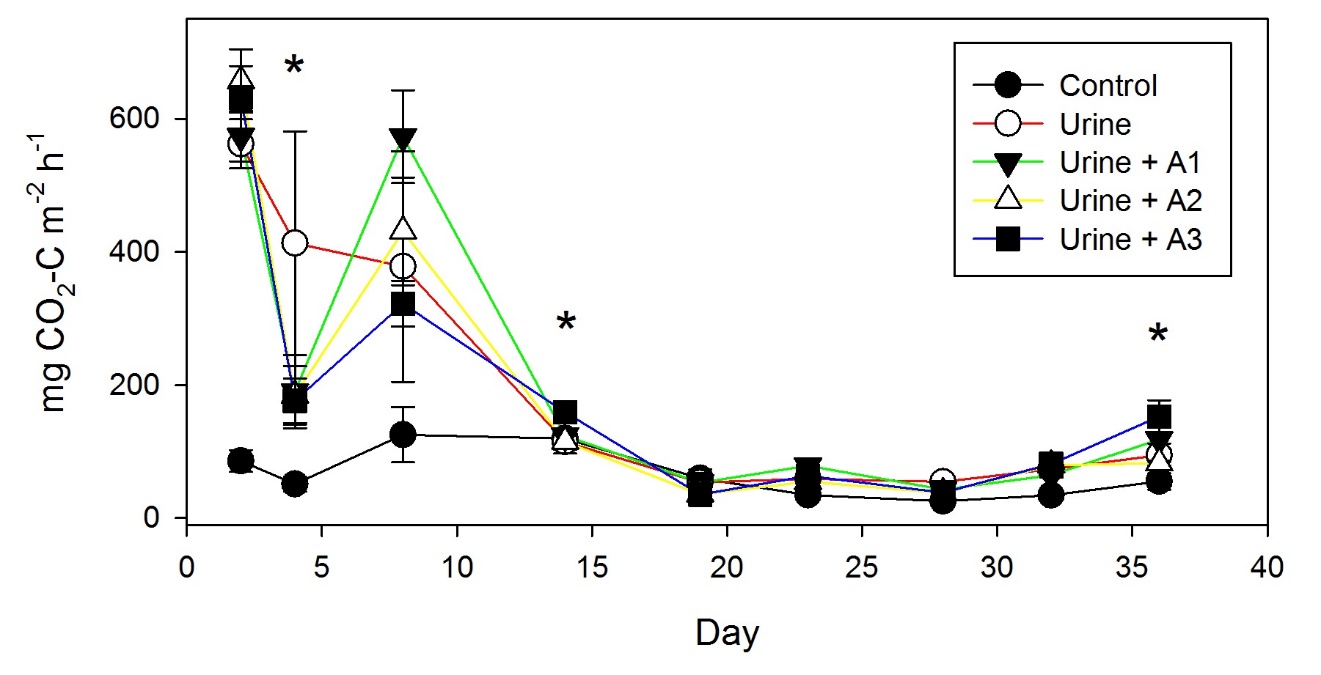


Figure S5. Soil CO2-C fluxes over the 37 day experimental period. Data points are means (n=4) with error bars (SEM). Stars indicate days when one or more aucubin treatments were significantly different (P<0.05) than the Urine treatment.

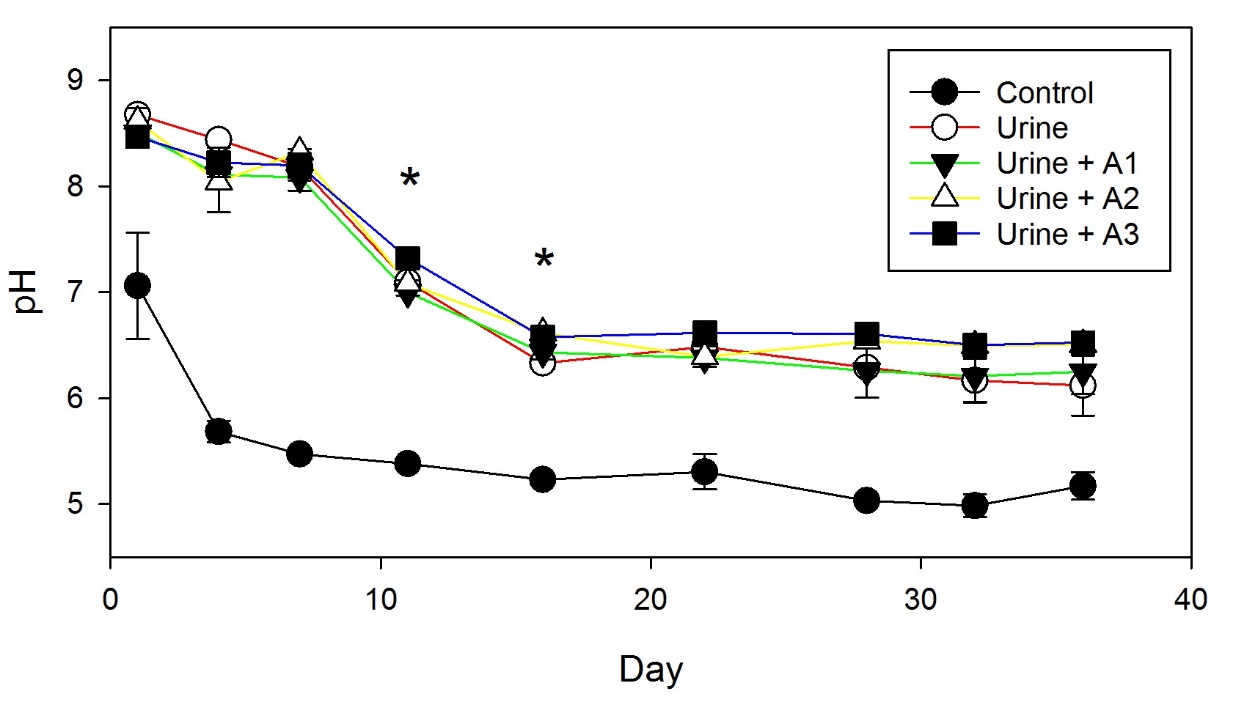


Figure S6. Soil surface pH over the 37 day laboratory experiment. Data points are means (n=4) with error bars (SEM). Stars indicate days when one or more aucubin treatments were significantly different (P<0.05) than the Urine treatment.