

# A novel protease improves apparent nitrogen retention from excreta and reduces ammonia emissions from litters in poultry houses

Aurélia A. Séon Simon<sup>(1)</sup>, Carrie Walk<sup>(\*,2)</sup>, Qian Zhang<sup>(3)</sup>, Jingcheng Zhang<sup>(3)</sup>, José O. Bertí Sorbara<sup>(2)</sup> and Murtala Umar Faruk<sup>(2)</sup>



Protease can be added to the broiler diet to enhance feed protein utilization, reduce the feed cost and environmental impact. Protease speeds up the breakdown of proteins. Supplementation of protease can improve protein and amino acids digestion by the broiler and therefore reduced nitrogen excretion then emission in the environment as ammonia.

## OBJECTIVE

To investigate the effect of a novel protease (ProAct 360™) on nitrogen (N) retention in excreta and ammonia (NH<sub>3</sub>) emissions from the litter.

## Materials & Methods

Treatments ± 50mg/kg feed protease  
Diet Corn/Soybean meal, Pellet ad libitum

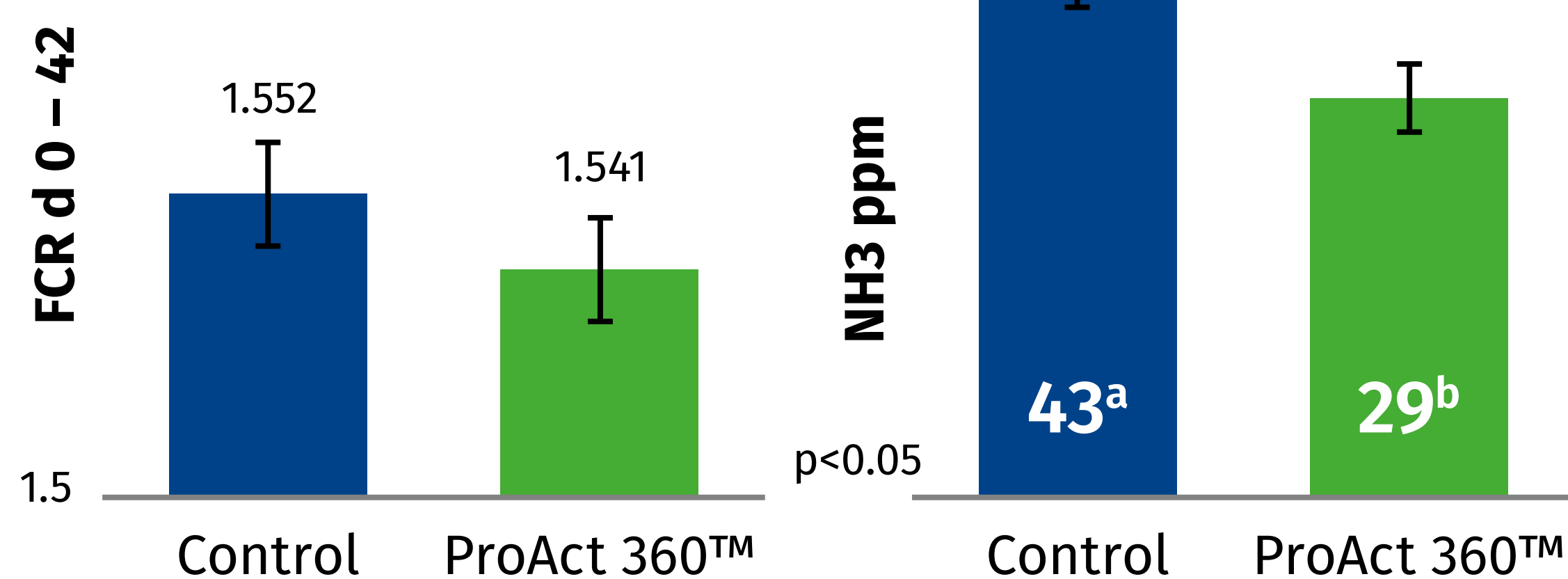
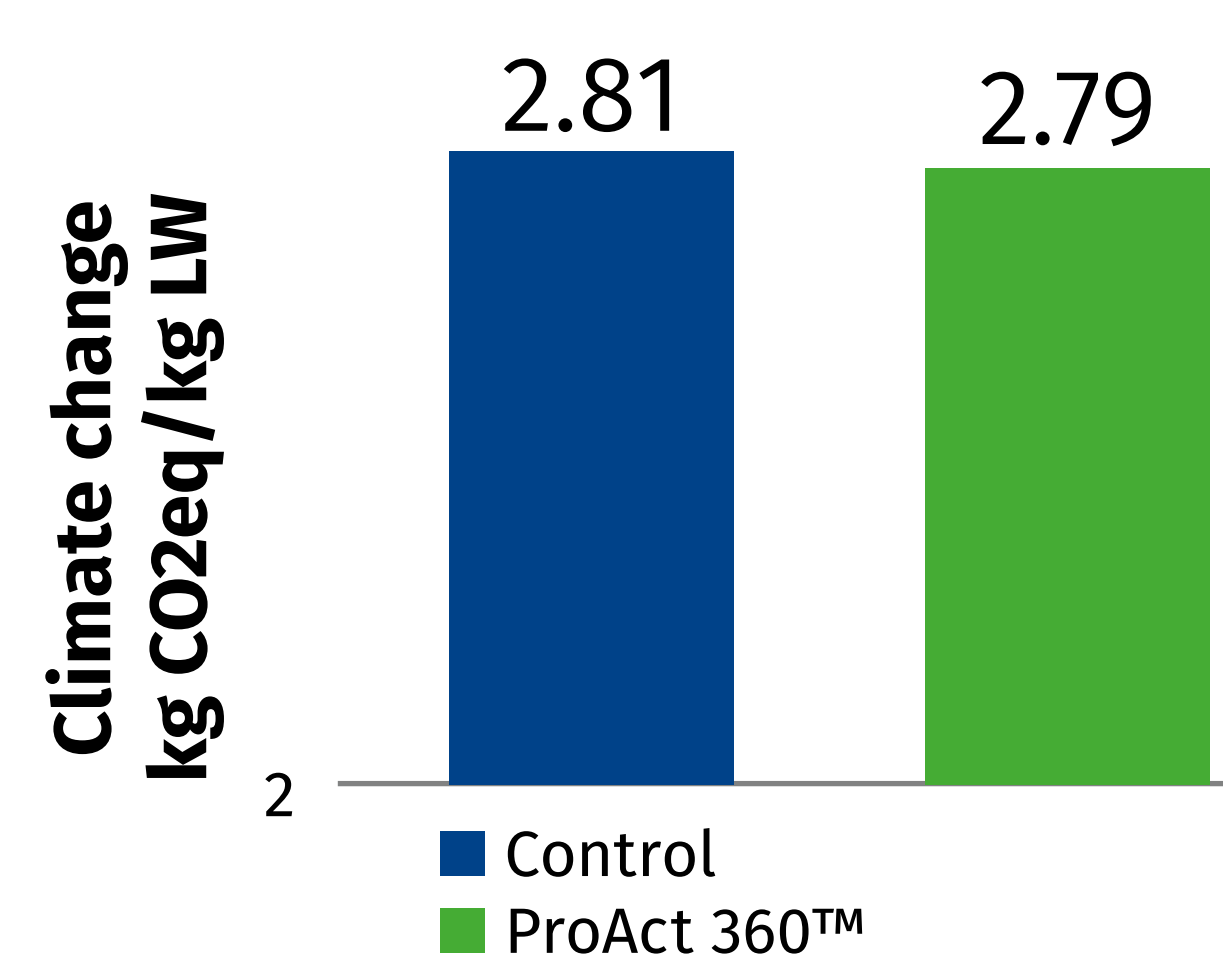
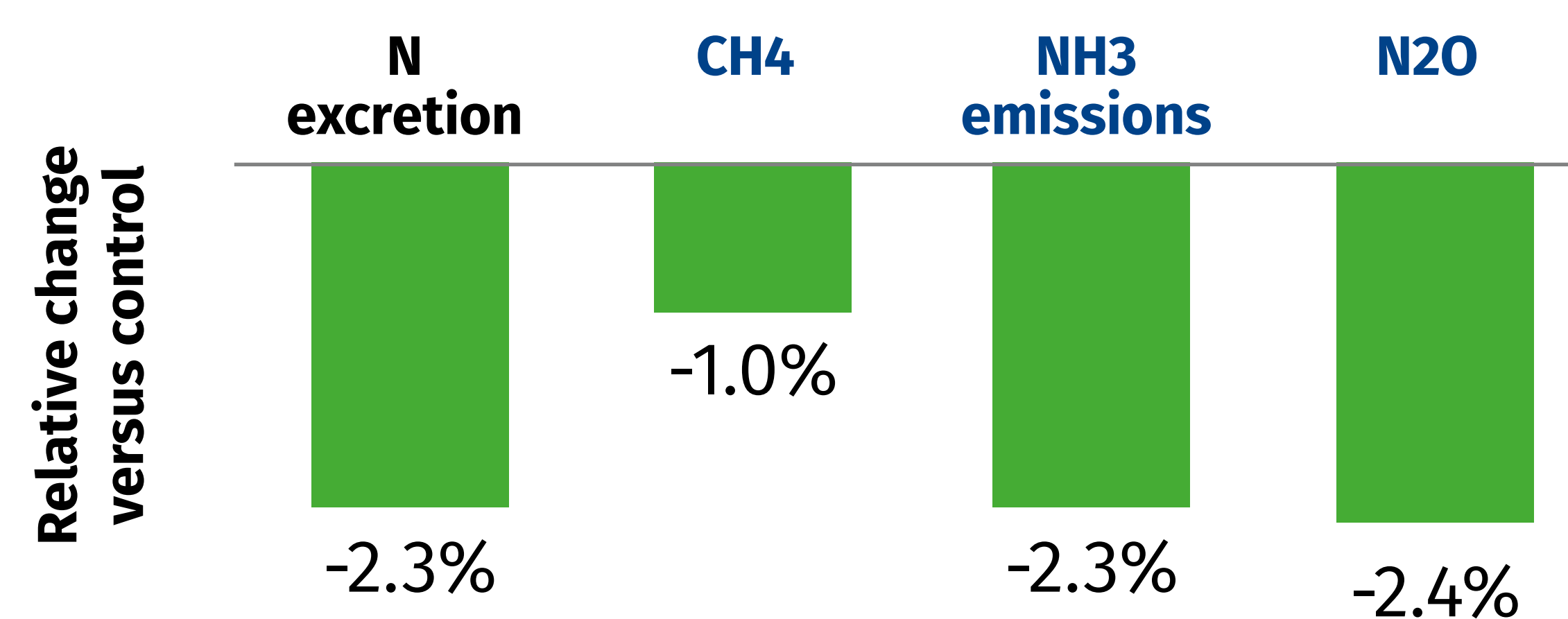
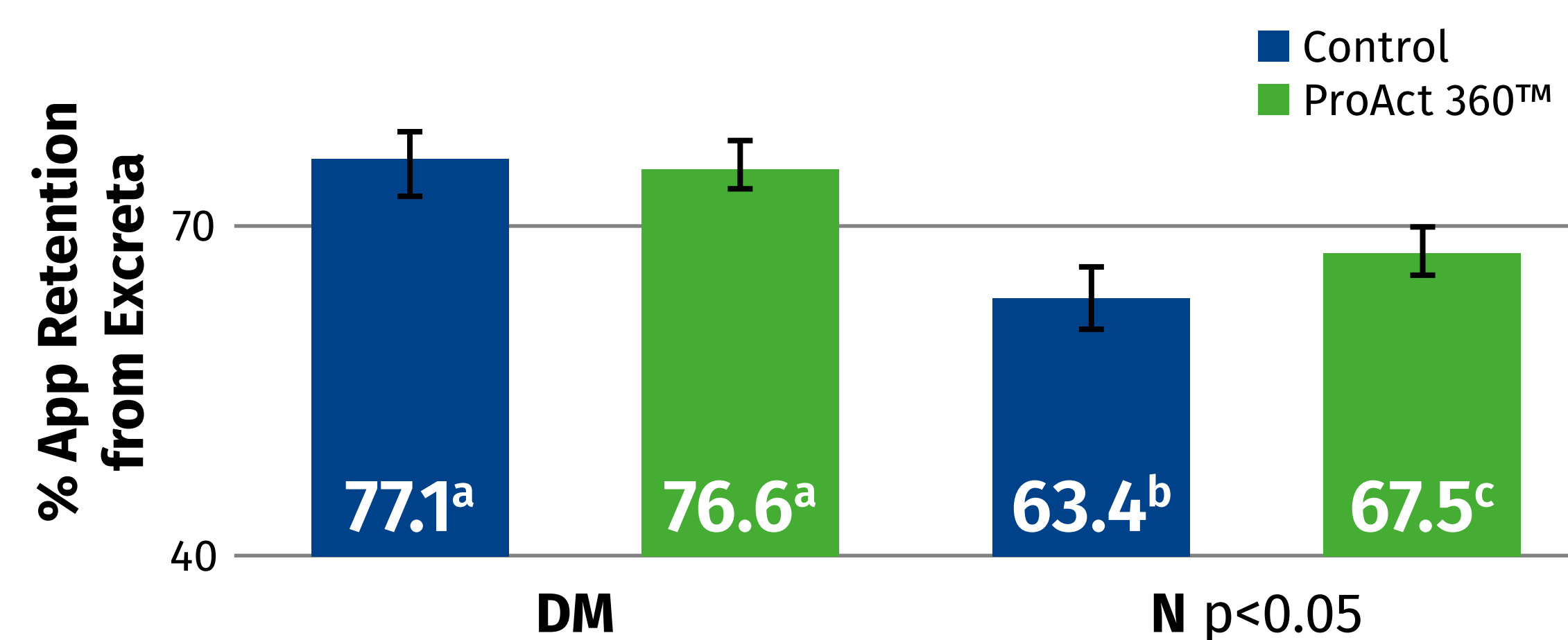
### Study 1

Animals 8 battery cages of 6 male Ross 308 1d old  
Duration Starter (St:d0-d14) Grower (Gr:d14-d28)  
Basal diet 22.5% then 21% of Crude Protein content  
Parameter Apparent N retention per pen in excreta

### Study 2

Animals 12 floor pens of 40 male Cobb 500 1d old  
Duration St (d0-14) Gr (d14-28) Finisher (d28-42)  
Basal diet 22.5%, 21.3%, then 19.4% CP in Finisher  
Litter 15kg wood shaving beddings / 5m<sup>2</sup> pen  
Parameter NH<sub>3</sub> measured at the surface of the litter  
Environmental benefit calculated using Sustell™

## Results



## Summary and conclusions

In both studies, 1 and 2: numerical improvement of FCR by 2% and 0.7% was observed in animals fed protease compared to control. Addition of a novel protease at 50 mg/kg feed fed to broilers chickens resulted in a significant reduction of ammonia emissions from the litters and therefore reduced nitrogen excretion from poultry houses and environmental impacts contributing to a more sustainable animal protein production.