

# Medium-chain fatty acids improve feed conversion ratio of both newly-weaned boars and gilts

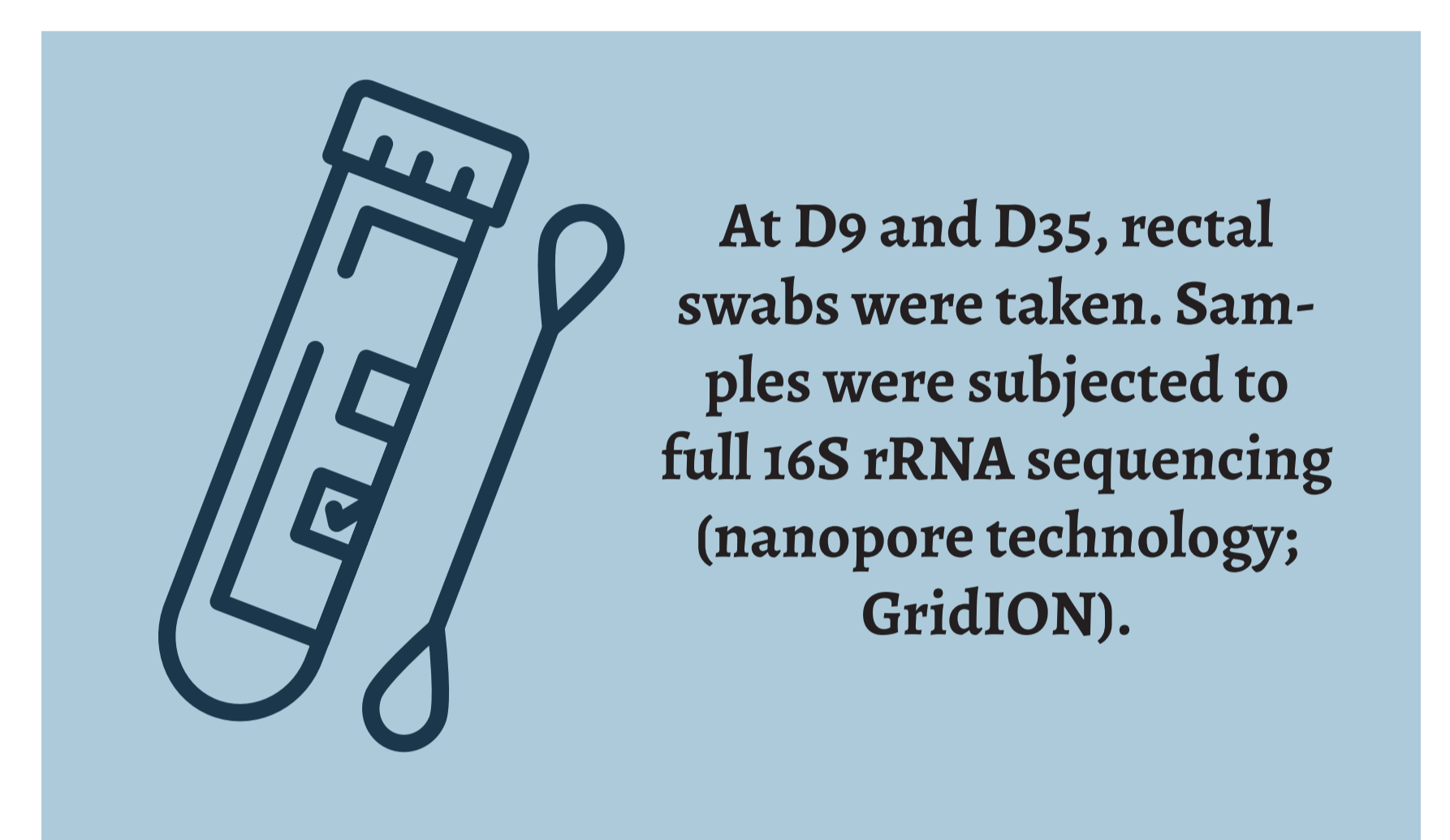
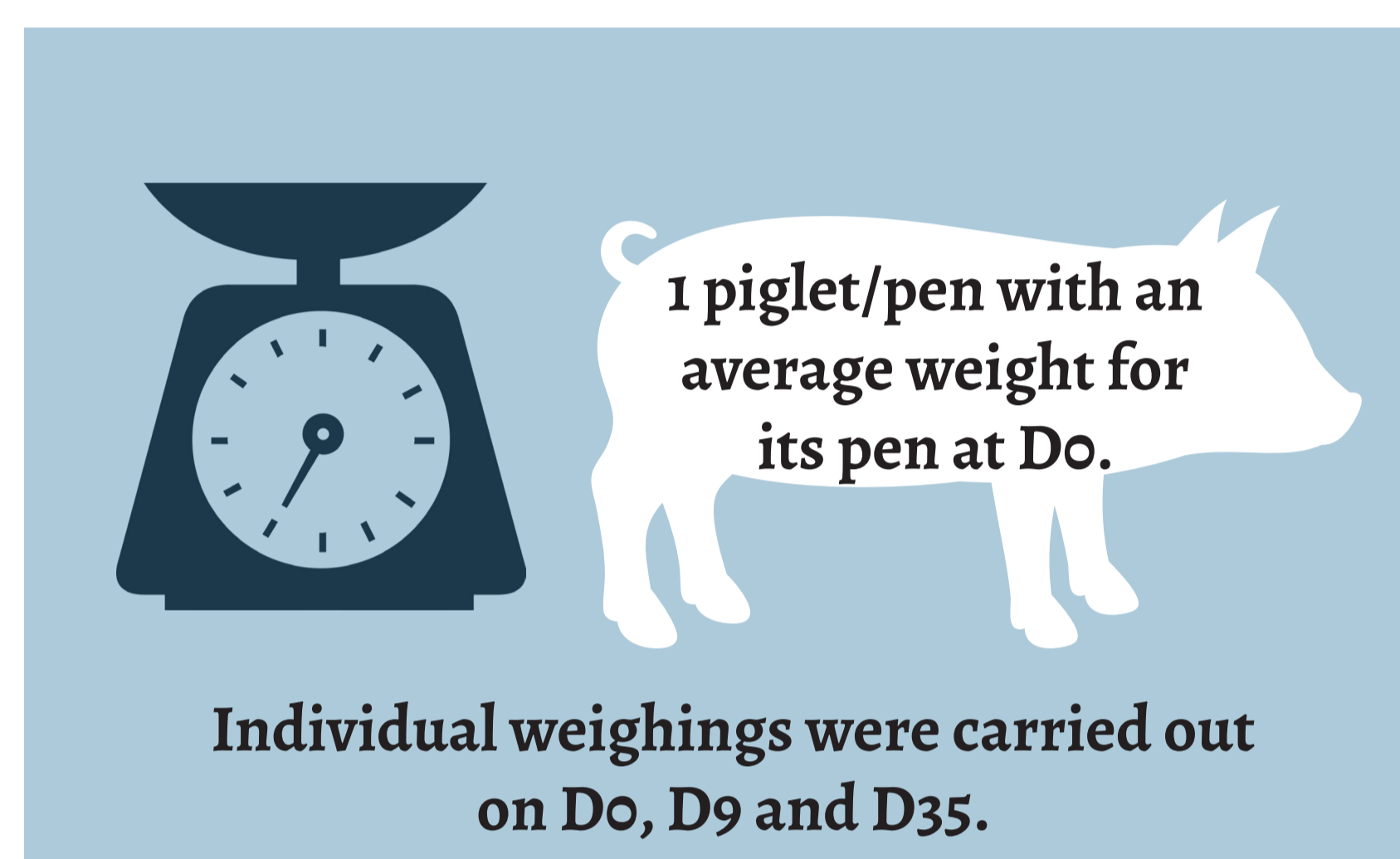
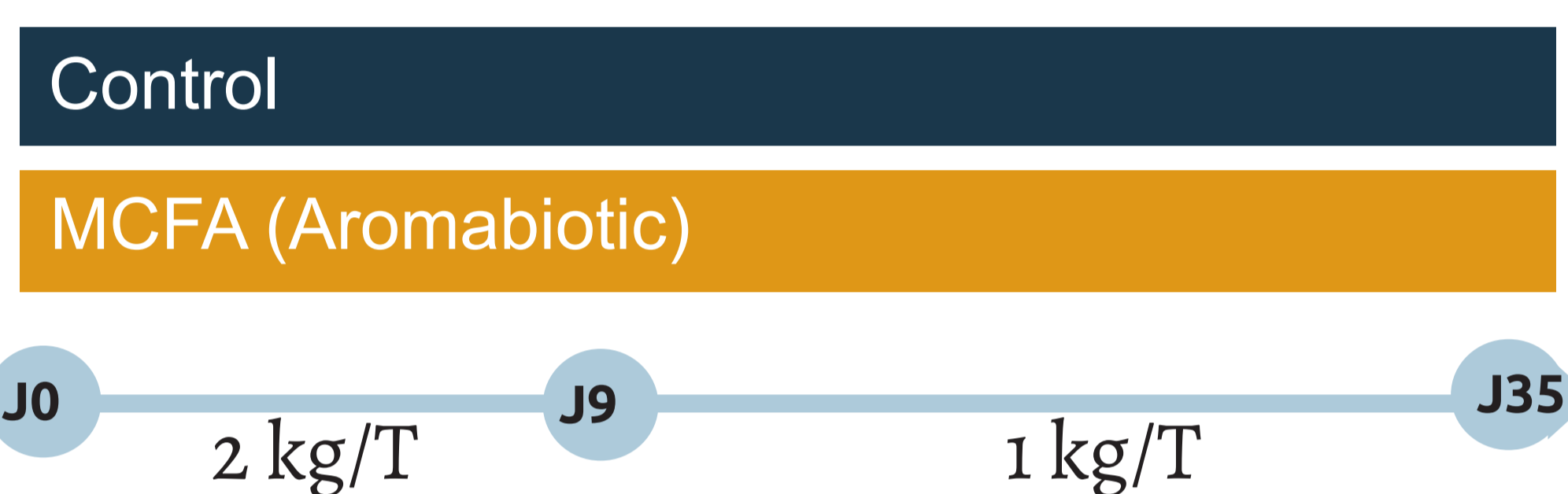
Maartje DE VOS (1), Romain D'INCA (1), Silke DE SMET (1), Adelaide PANATTONI (2), Amanda HETTIARACHCHI (2), Sebastiaan THEUNIS (2) | <sup>1</sup>Nutrition Sciences, Drogen, Belgium | <sup>2</sup>Pathosense, Lier, Belgium

## Introduction

Medium-chain fatty acids (MCFAs) are saturated, unbranched monocarboxylic acids with 6 to 12 carbon atoms, recognized for their antibacterial activity. Under field conditions, MCFAs have positive effects on the performance and health of weaned piglets. The aim of this study was to investigate the effect of MCFAs incorporated in the feed of entire male and female pigs on zootechnical performance in a controlled research station environment. The effect of dietary MCFAs on fecal microbiota was also measured.

## Materials & methods

- 420 weaning piglets (TN70xTempo)
- 7 animals/pen x 15 pens/treatments x 2 sexes x 2 treatments



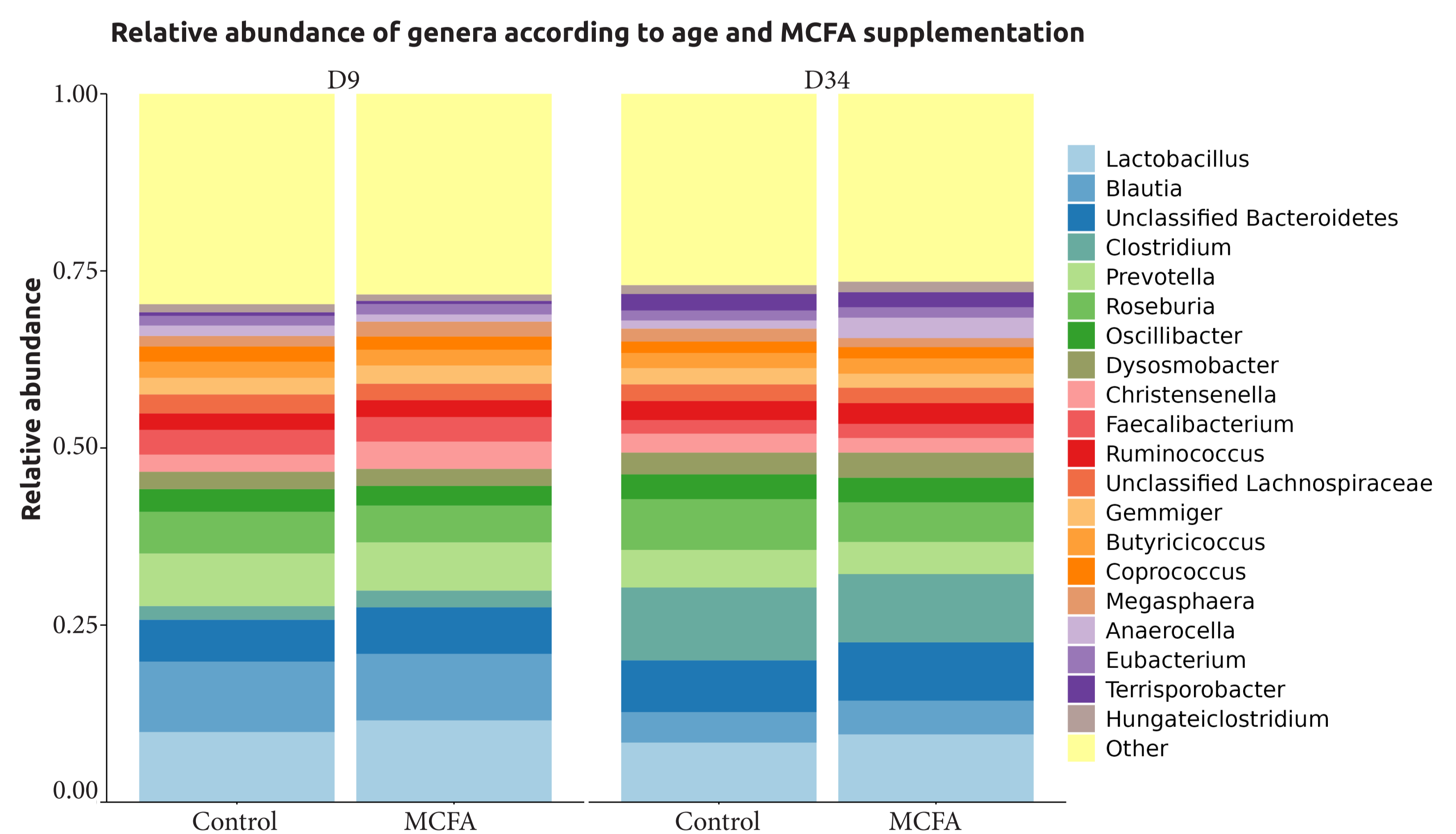
## Results

Piglets in the MCFA group showed the greatest improvement in FCR compared with the control group (-2.1%,  $P=0.04$ ). A gender effect was also observed. Females had a higher DFI than males (+9.0%,  $P=0.02$ ) and tended to have a higher ADG (+7.0%,  $P=0.06$ ). Health status during the study was good, with 2.4% and 1.9% of piglets individually treated with antibiotics, and low mortality of 1.6% and 0.8% in the control and MCFA groups, respectively.

		Control	MCFA
ADG D0-D35 (g/d)	Males	373 ± 48	395 ± 62
	Females	410 ± 61	413 ± 50
	P-values*	T=0.24 ; S=0.06 ; I = 0.48	
DFI D0-D35 (g/d)	Males	524 ± 62	542 ± 79
	Females	585 ± 86	578 ± 67
	P-values*	T=0.47 ; S=0.02 ; I = 0.49	
FCR D0-D35	Males	1.41 ± 0.04	1.38 ± 0.05
	Females	1.43 ± 0.03	1.40 ± 0.03
	P-values*	T=0.04 ; S=0.13 ; I = 0.79	

(\*) T = Treatment ; S = Sex ; I = Interaction

Firmicutes, Bacteroidetes and Proteobacteria were the dominant phyla in all experimental groups. At genus level, Lactobacilli, Blautia, Prevotella and unclassified Bacteroidetes were the most abundant in both treatments. No significant differences were observed for alpha or beta diversity at phyla, genus or species level between the groups. Lactobacilli, however, were major contributors to the response to MCFA administration.



## Discussion

Feed efficiency is one of the keys to productivity in pig production, and the role of the microbiota is central to this. The results of the present study confirm that the addition of MCFAs to the feed improves feed efficiency, even in farms with a good health status. The absence of sex-related differences indicates that both entire males and females can benefit from lower production costs thanks to MCFA supplementation. The absence of any major variation in faecal microbiota in the present study suggests that the positive effects of MCFAs on piglet zootechnical performance cannot be attributed solely to an impact on colon microbiota composition.

## More information

[www.agrimprove.com](http://www.agrimprove.com)

r.dinca@agrifirm.com

m.d.devos@agrifirm.com