



# Precision feeding program shows a potential in reducing nutrient excretion in Brazilian pig production

Alessandra Nardina Tricia Rigo Monteiro, Jean-Yves Dourmad, Ludovic Brossard, Paulo C. Pozza

## ► To cite this version:

Alessandra Nardina Tricia Rigo Monteiro, Jean-Yves Dourmad, Ludovic Brossard, Paulo C. Pozza. Precision feeding program shows a potential in reducing nutrient excretion in Brazilian pig production. XXV Congresso Latino-americano de Produção Animal / XI Congresso Nordestino de Produção Animal, Nov 2016, Recife, Brazil. hal-01455950

**HAL Id: hal-01455950**

**<https://hal.science/hal-01455950>**

Submitted on 3 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



XXV Congreso da la Asociación Latinoamericana de Producción Animal  
XI Congresso Nordeste de Produção Animal  
*La seguridad alimentaria en América Latina*

**Precision feeding program shows a potential in reducing nutrient excretion in Brazilian pig production**

ALESSANDRA NARDINA TRICIA RIGO MONTEIRO<sup>1,2</sup>, JEAN-YVES DOURMAD<sup>3</sup>, LUDOVIC BROSSARD<sup>3</sup>, PAULO CESAR POZZA<sup>1</sup>

<sup>1</sup> UEM - Universidade Estadual de Maringá, <sup>2</sup> CAPES - Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, <sup>3</sup> INRA-PEGASE - Institut National de la Recherche Agronomique  
[a\\_monteiro@zootecnista.com.br](mailto:a_monteiro@zootecnista.com.br)

**Resumo**

Optimizing nutrient efficiency is essential to increase the sustainability of pig production systems. Many studies have shown that this efficiency could be improved by better adjusting nutrient supply to pig's requirements. The economic and environmental advantages of precision feeding were previously reported and the results are very promising although the technology for feed distribution has still to be improved. This study was developed to assess the impact on performance and nutrient balance resulting from the switching of conventional phase- to precision-feeding programs for growing-finishing pigs. Four treatments with different feeding programs were compared: two phases (2P), four phases (4P), multiphase (MP) and precision feeding (PR). The phases feeding programs were obtained with fixed blending proportions of feeds A (high nutrient density) and B (low nutrient density); against PR for which the blended proportions of feeds A and B were adjusted daily to meet the estimated nutritional requirements of each pig individually. Performance and excretion of pigs, from 30 to 115 kg BW on average, were simulated for each scenario using InraPorc population model (12,000 pigs/feeding program) and considering the individual variability. The results were subjected to variance analysis using SAS. Compared with the 2P program, the PR feeding reduced ( $P<0.01$ ) crude protein intake by 7% and improved ADG by 0.034 g/d. The increase in the number of feeding phases (from 2P to 4P and MP) reduced ( $P<0.01$ ) nitrogen and phosphorus intake and, consequently, nitrogen and phosphorus excretion, which however did not differ between 4P and MP feeding programs. Compared to the 2P treatment, the PR feeding program reduced the estimated nitrogen excretion by 17%, and the estimated phosphorus excretion by 4% ( $P<0.01$ ). Besides, feed cost was similar for 2P, 4P and MP programs, but was 7% lower with PR program. The simulation data showed that pigs fed daily tailored diets using precision feeding techniques appear an effective approach to reduce nutrient excretion without compromising pig performance.

**Palavras-chave:** nutrient requirements, precision feeding, simulating data