



RESEARCH UPDATE

PIGFEED (Part 1)

Introducing new feeding programs & facilities for Irish finishing pigs

This project is a collaboration between Teagasc, AFBI & Universitat Autònoma of Barcelona to improve production efficiency in grow-finisher pigs. The project will study different aspects of feeding & management of finishing pigs to increase farm profitability & improve pig health & welfare.

Background

Increasing efficiency of Irish pig production at an international level is one of the main priorities of Teagasc Pig Department. Feed during the grow-finisher period accounts for over 60% of the total cost of production in pig farms. Thus, small improvements in this stage result in important increases in profit for farmers. This project gives answers to simple questions that many farmers may have about ideal dietary specs, how to organize their pens or what modifications are needed in their facilities to optimize production.

Objectives

- To determine the minimum dietary amino acid & energy to maximize profitability in Irish pig farms.
- To study the effects of density & group composition on performance & health & welfare.
- To develop fast methods to optimize diet formulation for grow-finisher pigs.

Study 1 - Effect of space allowance in finisher pens with a single wet dry feeder & supplementary drinker

The Moorepark Pig Research Facility is equipped with 4 rooms of 30 pens of 10 -14 pigs with wet-dry feeders. This is a common system in Ireland & internationally because it maximizes feed efficiency. The use of this system with different numbers of pigs per pen affects space allowance & feeder space per animal & may affect performance. The first question we wanted to answer was, what is the maximum number of pigs that can be allocated to this pen design without affecting pig growth, health & welfare?



For more information visit www.teagasc.ie/pigs



We compared groups of 10, 12 & 14 pigs in the same pen design (18 pens) resulting in 0.96, 0.84 & 0.72 m²/pig. Body lesions were counted at anterior, mid & posterior locations on both sides of the body at 20wks of age. Pigs allocated in groups of 10 were 3 kg heavier & had 0.1 better FCR at slaughter than those allocated in 12s or 14s. Pigs in groups of 14s also had more body lesions at finishing which suggests competition for the feeder.

Table 1. Performance of pigs from 10 to 20 weeks of age allocated in pens of 10, 12 or 14 pigs:

Trial 1	Space allowance, m ² /pig		
	0.96 (10 pigs)	0.84 (12 pigs)	0.72 (14 pigs)
Body Weight at 20 weeks, kg	103	101	100
Daily Gain, kg	1.09	1.06	1.03
Daily Feed Intake, kg	2.31	2.25	2.30
FCR	2.08	2.14	2.16
Body lesions at 20 weeks of age	3.8	4.3	7.5

Study 2 - Effect of space allowance & mixing on production performance in grow-finisher pigs

In the following trial we wanted to compare the effects of space allowance & mixing. For this we used 30 pens comparing groups of 10 (0.96 m²/pig) & 13 (0.78 m²/pig) pigs per pen combined with mixing by weight or keeping intact litters from the farrowing house. There was no difference in performance between pens of 10 or 13 pigs, however, mixing pigs by weight resulted in 5 kg less at slaughter & almost 0.1 increase in FCR.

Table 2. Performance of pigs from 11 to 21 weeks of age allocated in pens of 10 or 13 pigs:

Trial 2	Space Allowance			
	0.96 m ² /pig (10 pigs)		0.78 m ² /pig (13 pigs)	
	Mixed	Non-Mixed	Mixed	Non-Mixed
Body Weight at 21 wks, kg	102	107	102	108
Daily Gain, kg	0.98	1.03	0.96	1.05
Daily Feed Intake, kg	2.15	2.22	2.13	2.26
FCR	2.18	2.12	2.19	2.11



Study 3 - Effect of phase feeding & space allowance on production performance in grow-finisher pigs

In the following trial we wanted to compare the effect of space allowance & low lysine diets from 60kg on. This level of lysine is probably more appropriate for finisher pigs after 80 kg but we wanted to challenge the pigs. For this, we used 30 pens comparing groups of 10 (0.96 m²/pig) & 13 (0.78 m²/pig) pigs per pen combined with 2 dietary levels of Lys, 0.80 & 0.92 % SID Lys. There was no difference in performance between pens of 10 or 13 pigs, however, a reduction in Lys resulted in 3 kg less at slaughter & almost 0.15 increase in FCR.

Table 3. Performance of pigs from 15 (60kg) to 21 weeks of age allocated in pens of 10 or 13 pigs:

Trial 3	Space Allowance			
	0.96 m ² /pig (10 pigs)		0.78 m ² /pig (13 pigs)	
	0.80 SID Lys	0.92 SID Lys	0.80 SID Lys	0.92 SID Lys
Body Weight at 21 wks, kg	103	106	103	108
Daily Gain, kg	1.08	1.16	1.09	1.20
Daily Feed Intake, kg	2.75	2.75	2.76	2.84
FCR	2.56	2.39	2.54	2.37

Take home message

In pens equipped with one wet/dry individual feeder & supplementary drinker:

- Working close to space allowance limits can result in reduced growth & an increase in FCR & aggression.
- Mixing pigs by weight when moving them to finishing stage, as opposed to keeping intact litters, may result in decreases in growth similar to those caused by inappropriate lysine levels.

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PhD Candidate



Jordi Camp Montoro is the PhD student working on the PIGFEED project. He is supervised by Edgar Garcia Manzanilla from Teagasc, David Solà Oriol from Universitat Autònoma de Barcelona & Ramon Muns Vila from AFBI.

In 2018, he graduated in Veterinary Science from the Universitat Autònoma de Barcelona. He has done several internships in some of the biggest feed co-ops in Spain gaining knowledge on pig health & management & swine nutrition. His principal goal is to bring the scientific knowledge to practice in the pig field & his research interests are animal nutrition, health, welfare & production systems.