Characterization of biosecurity measures on swine farms located in the Valencian community region

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Introduction

Material & methods

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1. Introduction

Pig-farming sector in Spain:

- An annual income of over 4.7 million Euros.
- 33% Final Livestock output (PFG) and 12% Final Agricultural output (PFA)
- Important changes in production conditions and in management-practices (Láinez, M. *et al*., 1999)
- Smaller number of farms and changes in herd type (M.A.R.M, 2008)
  - Total number of pigs: ↓8%
  - Sow number: ↓ 8.7 %

1. Introduction

- Incorporation of new technologies is necessary to adapt to current times and needs.
- It is vital to know the real situation and all of its characteristics.
- The aim of this study: to obtain wide-ranging and detailed information about pig farms in the Valencian Community (VC).
  - Premises
  - Management-practices
  - **Biosecurity**
  - Productive technology
  - Technical results

2. Material and methods

- From the current total of 1.115 farms→ 264 farms (95% confidence level and 5% standard error)
- Farms were randomly selected.
- And were visited between July 2005 and June 2008.
- The owners or the responsible for the farms were interviewed.

2. Material and methods

The questionaire

- 18 pages
- 536 variables
- Information related to:
  - Management-practices
  - Equipment
  - Location
  - Hygiene precautions
  - **Biosecurity measures**


IVIA

ENCUESTA PORCINO

CARACTERÍSTICAS GENERALES DE LA EXPLOTACIÓN

Página 1

INSTALACIONES

2. Material and methods

- For this study only data related to biosecurity measures were taken into account
- 15 biosecurity parameters in the questionnaire

Most important measures:

- Perimetral fencing

2. Material and methods

Most important measures:

- Sanitary fords

- Bird-proof nets in windows

- Cleaning and disinfecting procedures

2. Material and methods

Other factors:

- Presence of domestic animals
- Vermin control
- Visits

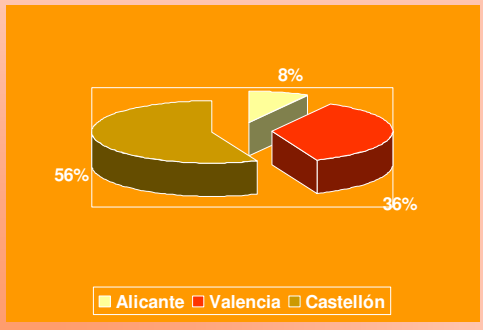
2. Material and methods

- A final database was obtained by applying coherence and error correction controls to the original data.
- The information was analyzed according to:
  - The kind of production system (owner-operated or integrated farms)
  - The herd type (sow units, nursery farms, farrow to finish herd and fattening farms)
  - The province (Castellón, Valencia and Alicante)
- The statistic analysis (SAS®2002):
  - Univariant analysis
  - Multiple-correspondence analysis (two step clustering procedure)

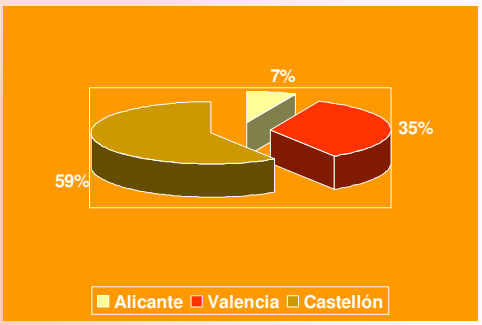
3. Results and conclusion

a) The study was representative

- The pig farms surveyed represented 24% of the total in the VC:
  - Alicante 8%
  - Valencia 36%
  - Castellón 56%



Distribution of farm visited in each province



Distribution of TOTAL number or farms in each province

3. Results and conclusion

b) The univariant analysis

- Procedures MEANS, FREQ and GLM
- Good level of biosecurity level:
  - 78% of farms had **good access**.
  - 80% farms **Perimetral fencing** (90% in good condition)
  - 38% used **Sanitary fords**. The rest of the farms used manual backpack sprayers.

3. Results and conclusion

b) The univariant analysis

- 75% of farms had **bird-proof nets** in windows but only 80% of them were in a good state →70% of farms well protected against wild birds.
- 35% of farms had **dogs or cats** on the premises
- 90% had **vermin control programme**
- Water tanks, pipes and drinkers were cleaned and disinfected as part of a regular routine in 68% of farms.

3. Results and conclusion

b) The univariant analysis

- Cleansing and disinfecting procedure
  - 1º Cleansing (water applied at high pressure)
    - 1% disinfectant
    - 7% detergent
  - 2º Disinfection
    - High pressure
    - Manual backpack sprayers

• A third of farms (29%) whitewashed after cleaning and disinfecting

3. Results and conclusion

b) The univariant analysis

- **Significant differences**

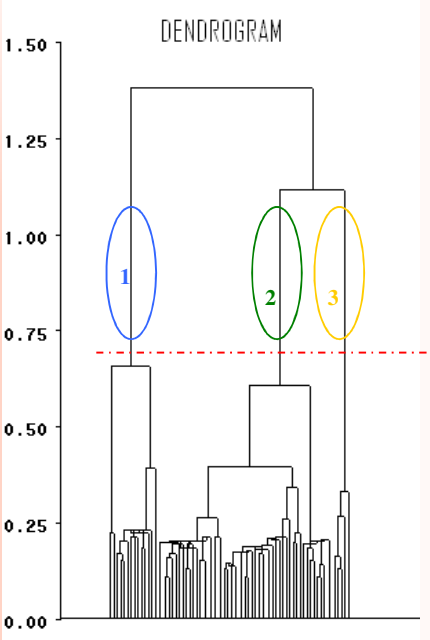
By herd type	-Bird-proof nets in windows	Fattening farms - 85%	
	- Vermin control programme	- 89%	
By province	- Fencing	Valencia - 94%	
	- Bird-proof nets in windows	- 93%	
	- Whitewashing	-35%	
By kind of production system	-Bird-proof nets in windows	Integrated farms - 82%	
	- Sanitary fords	- 45%	
	-Whitewashing	-28%	

3. Results and conclusion

c) Multivariant analysis *(Procedures Cluster, Fastclus and Candisc)*

- Regarding to the *Cluster procedure* results we established three well-differentiated groups.

- The next analysis (*Fastclus procedure*) was done with three clusters.

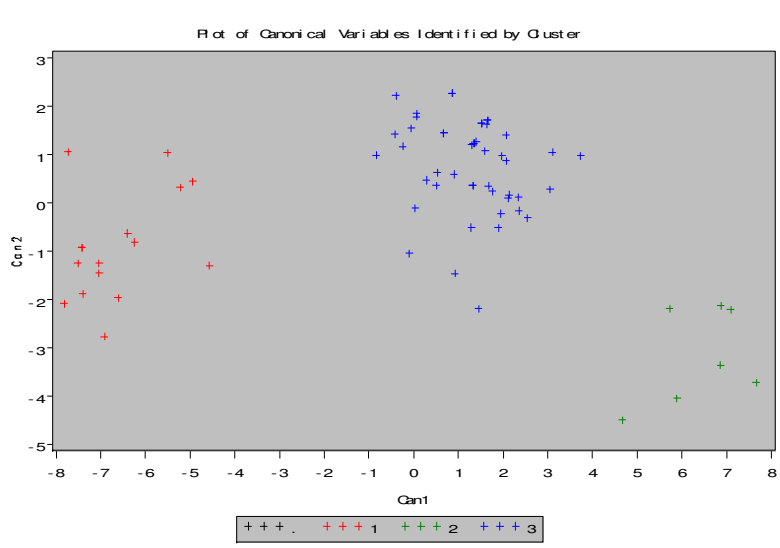


CLUSTER procedure

3. Results and conclusion

c) Multivariant analysis

FASTCLUS procedure



	FARMS
CLUSTER 1	61
CLUSTER 2	47
CLUSTER 3	176

Great differences between the three clusters according to biosecurity measures and the farms age.

3. Results and conclusion

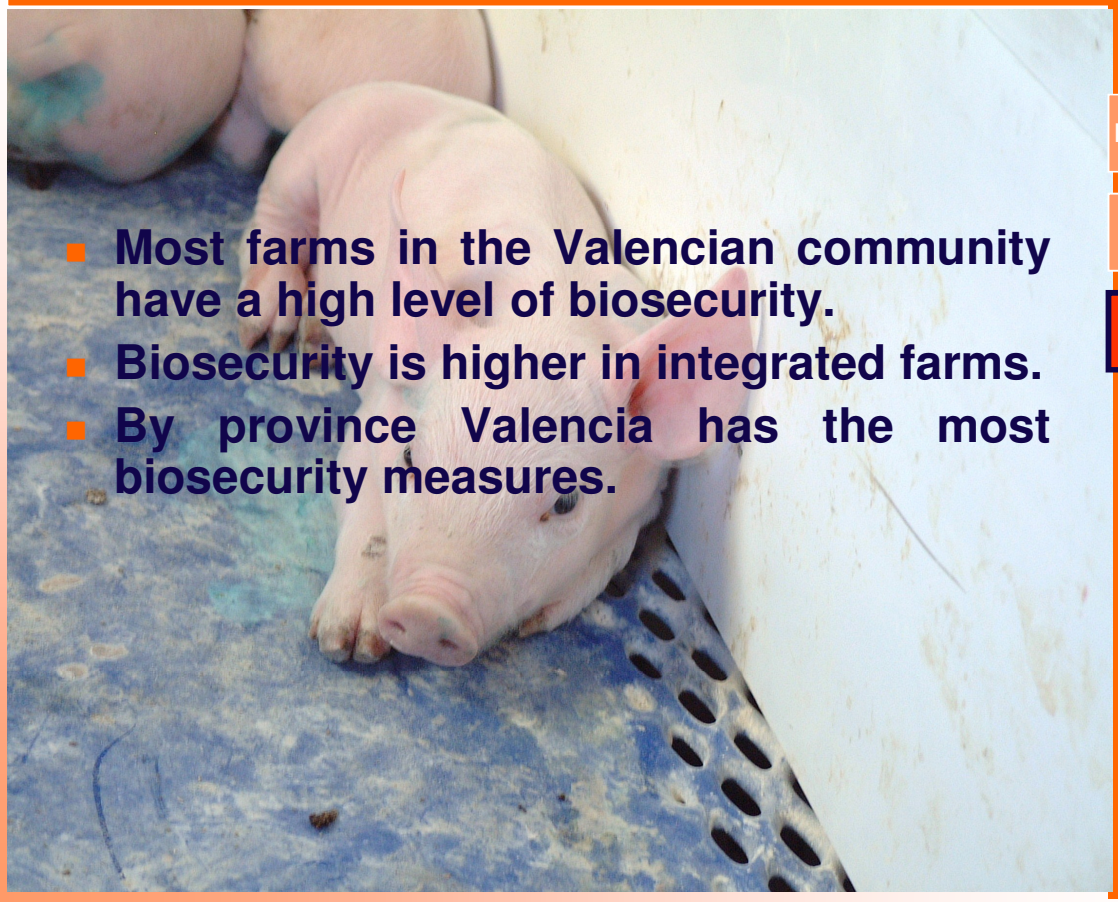
c) Multivariant analysis

- First cluster was made up of the oldest farms.
- The second was made up of the newest.
- The third, farms with intermediate age.

	AVERAGE AGE
CLUSTER 1	40,41
CLUSTER 2	9,00
CLUSTER 3	26,68

	Perimetral fencing	Sanitary ford	Bird-proof nets	Vermin control
CLUSTER 1	74%	31%	66%	91%
CLUSTER 2	91%	47%	81%	96%
CLUSTER 3	83%	38%	80%	84%

Cluster 2 had the highest level of biosecurity, Cluster 1 had the lowest level and Cluster 3 had a medium level.



- Most farms in the Valencian community have a high level of biosecurity.
- Biosecurity is higher in integrated farms.
- By province Valencia has the most biosecurity measures.