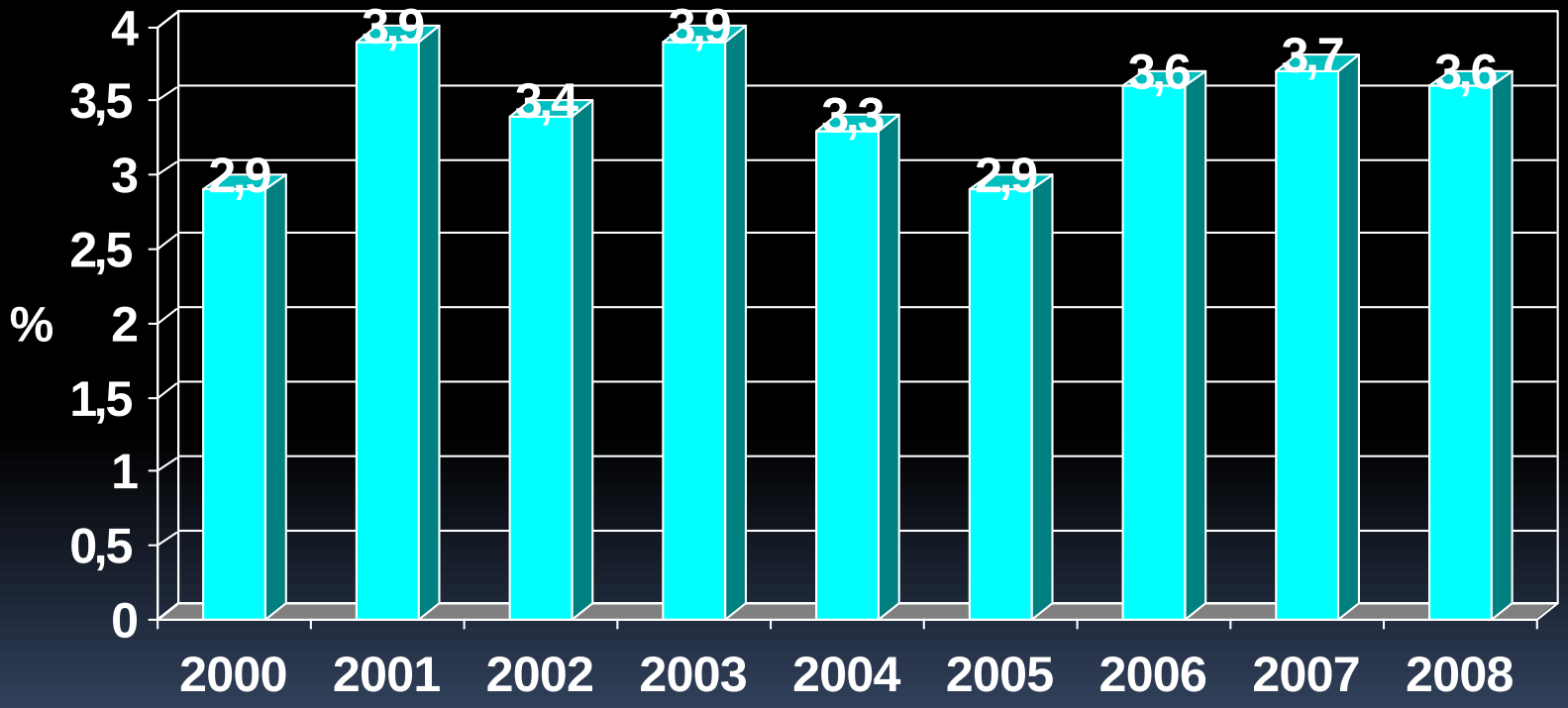
E. Marco; marco i collell

VIRAL DISEASES IN THE POST-WEANING PIG.

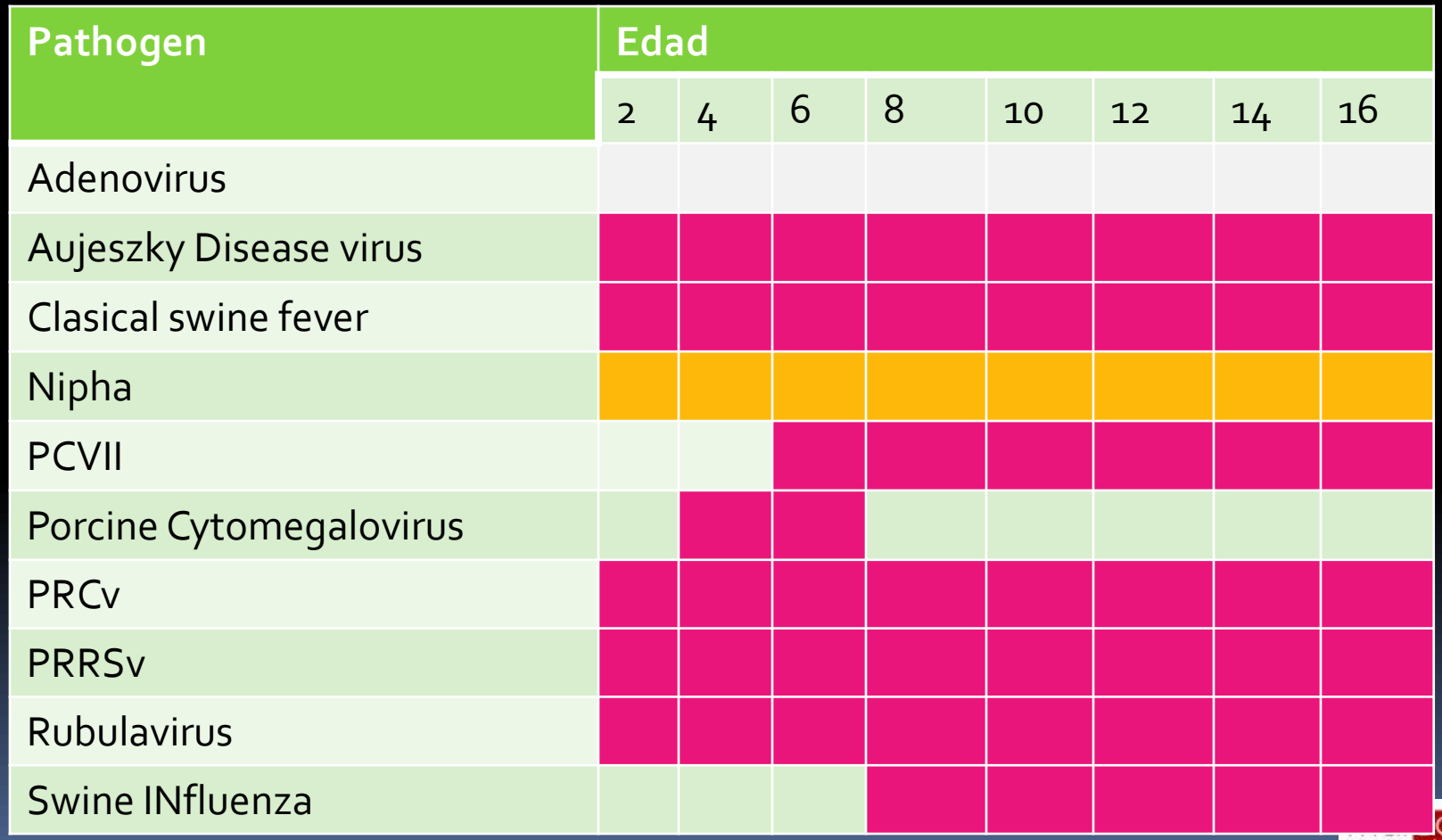
Summary

- Introduction
- Viral Agents
- Respiratory proceses
- Enteric proceses
- Control
- What's next ?

Post-weaning mortality



Respiratory Viral Agents on post-weaning phase



Carr, J. 2006. *Diagnosis of viral respiratory pathogens, PVS (2006) 58, 112-126*

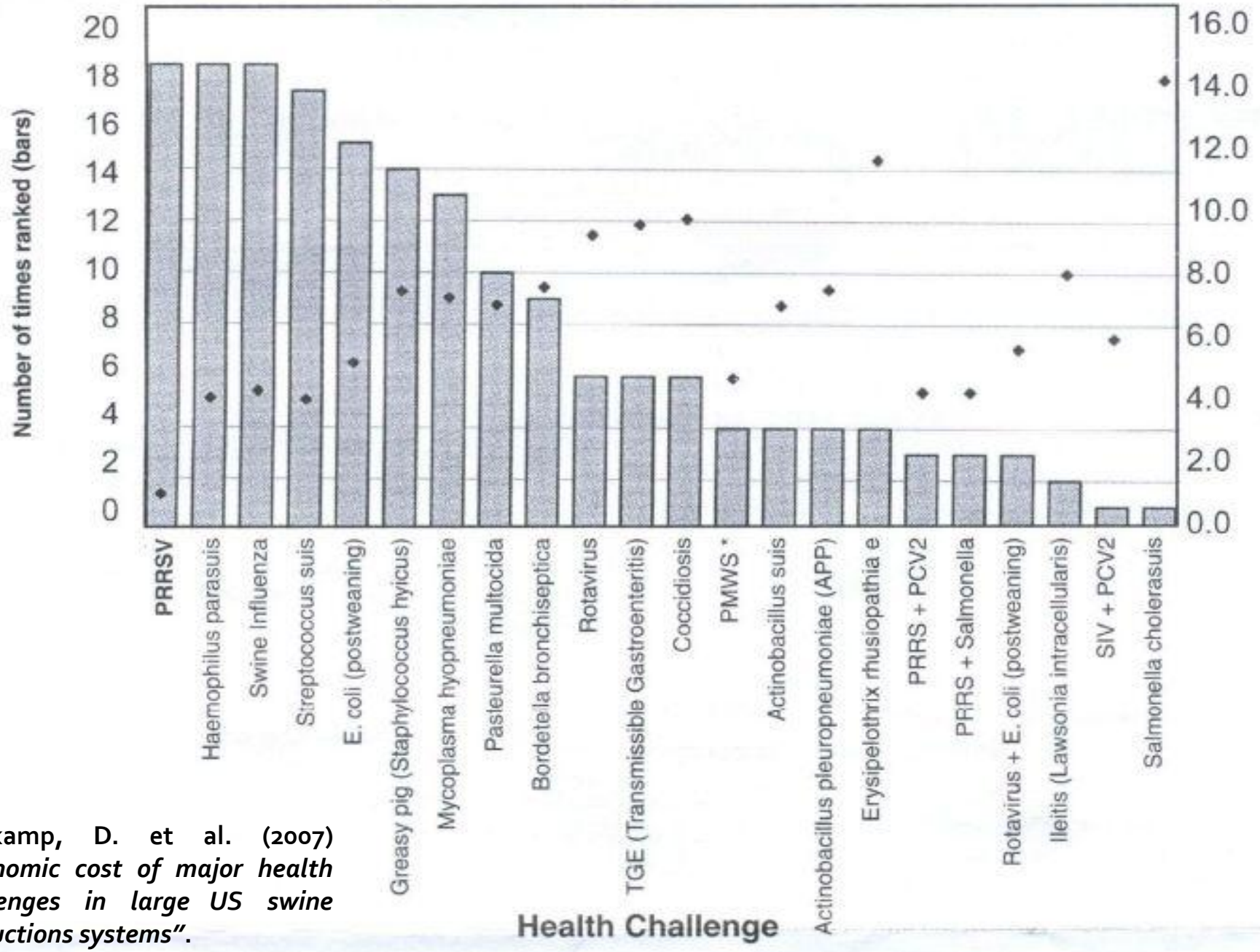
Enteric Viral Agents on post-weaning phase

Pathogen	Edad							
	2	4	6	8	10	12	14	16
Porcine Enteric Picornavirus								
Porcine Epidemic Diarrhoea virus								
TGE V								
Retrovirus								

Other Viral agents on post-weaning phase

- African Swine Fever (ASF)
- Foot and Mouth Disease virus
- SVD virus
- Reovirus
- ….

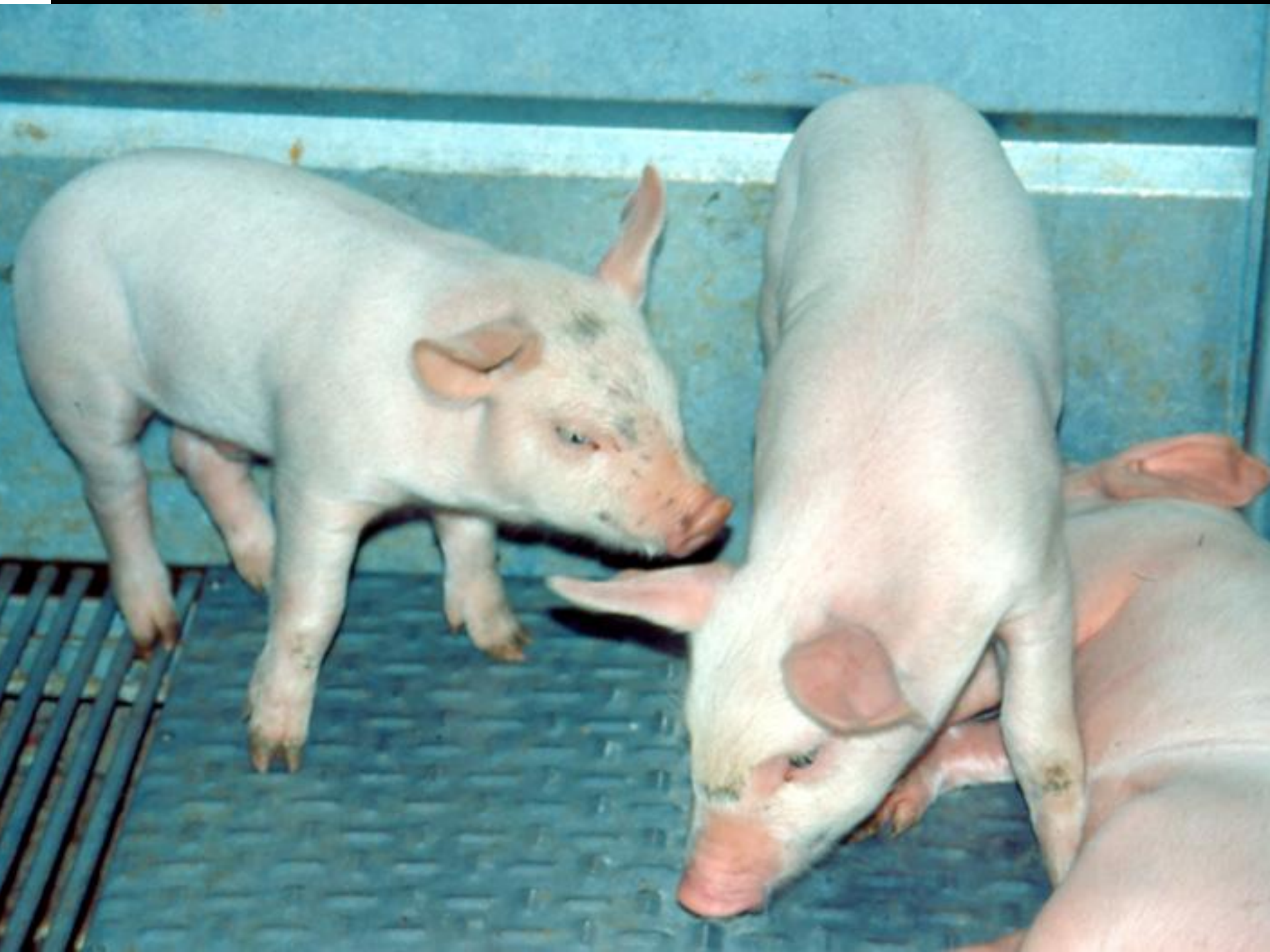
Figure 2: Rank of health challenges in the nursery herd



Holtkamp, D. et al. (2007) ***"Economic cost of major health challenges in large US swine productions systems"*.**

Aujeszky Disease

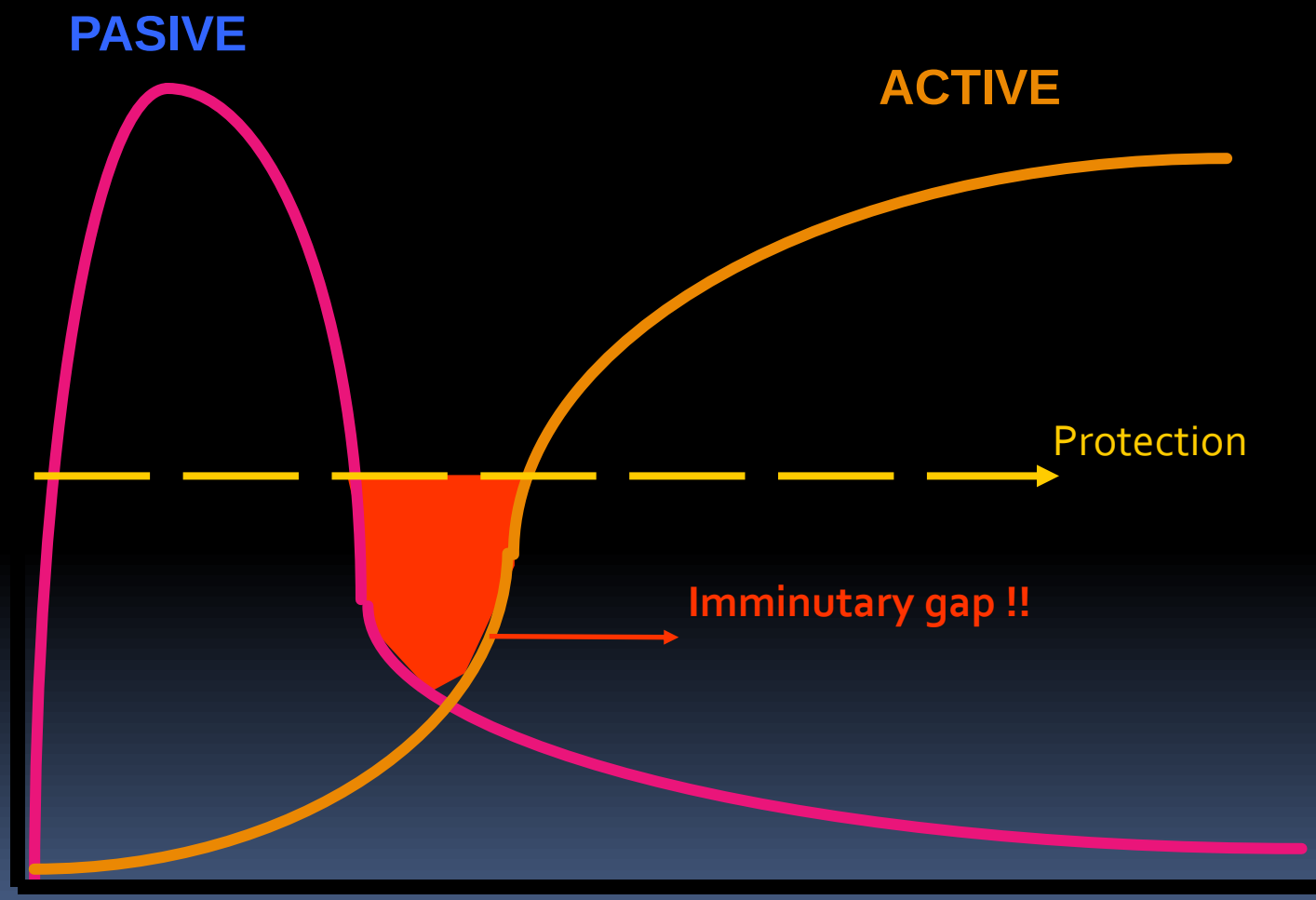
- Uncommon to recognize clinical signs
  - Vaccination it is well spread out.
- Nervous sings on young animals
- It is more probable to have virus Recirculation which can influence other diseases-
- Maternal Immunity will last for 9 to 14 weeks .



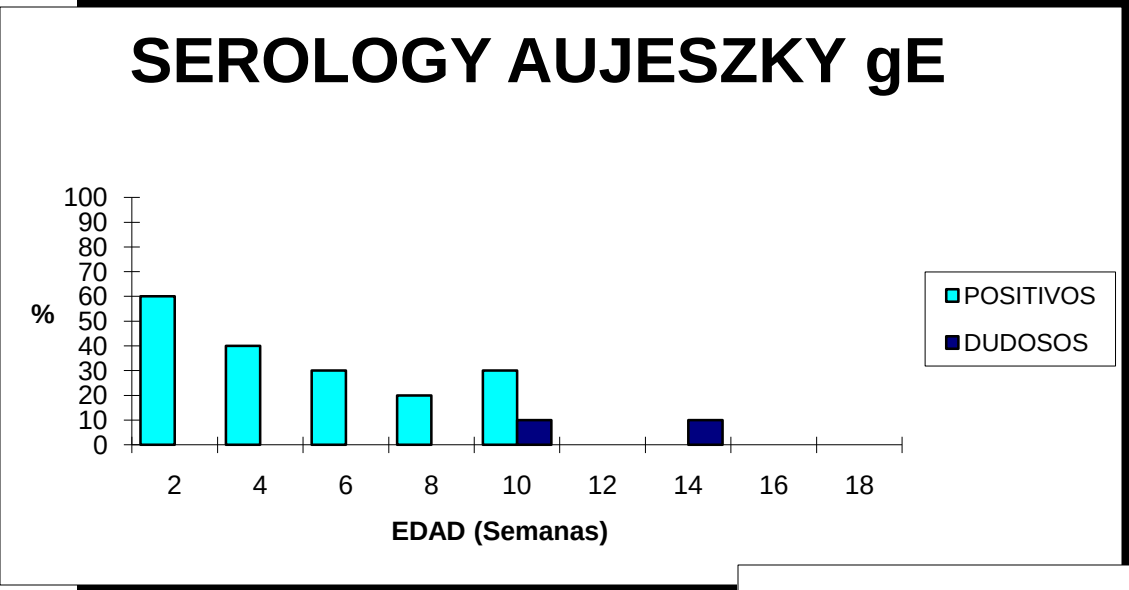

Respiratory signs are more frequent when age increase

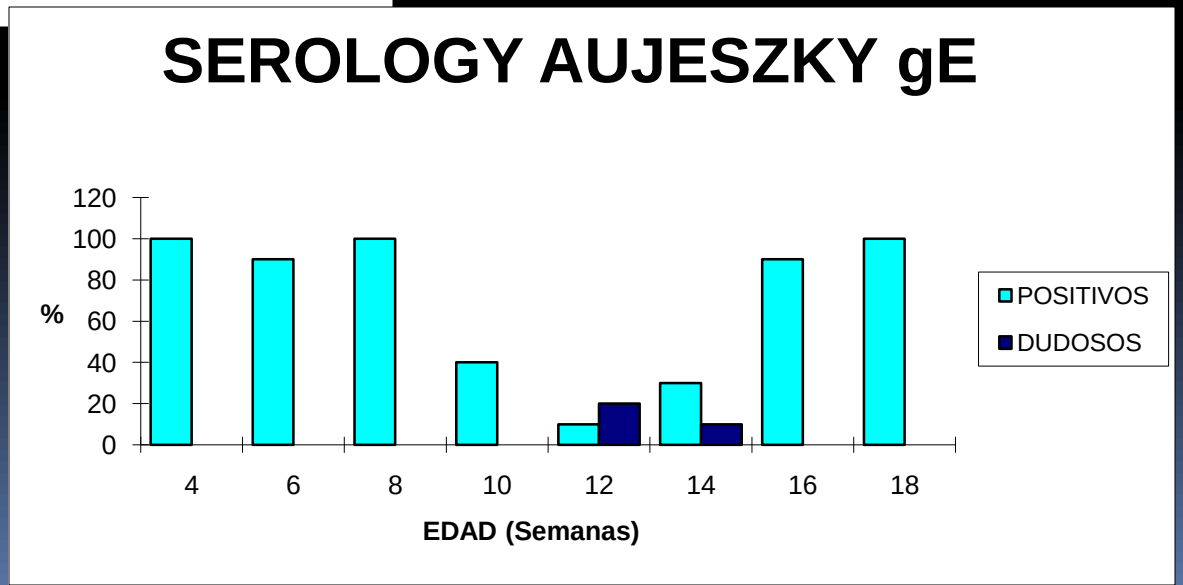
Water deprivation

Immunity Gap



AD seroporfile

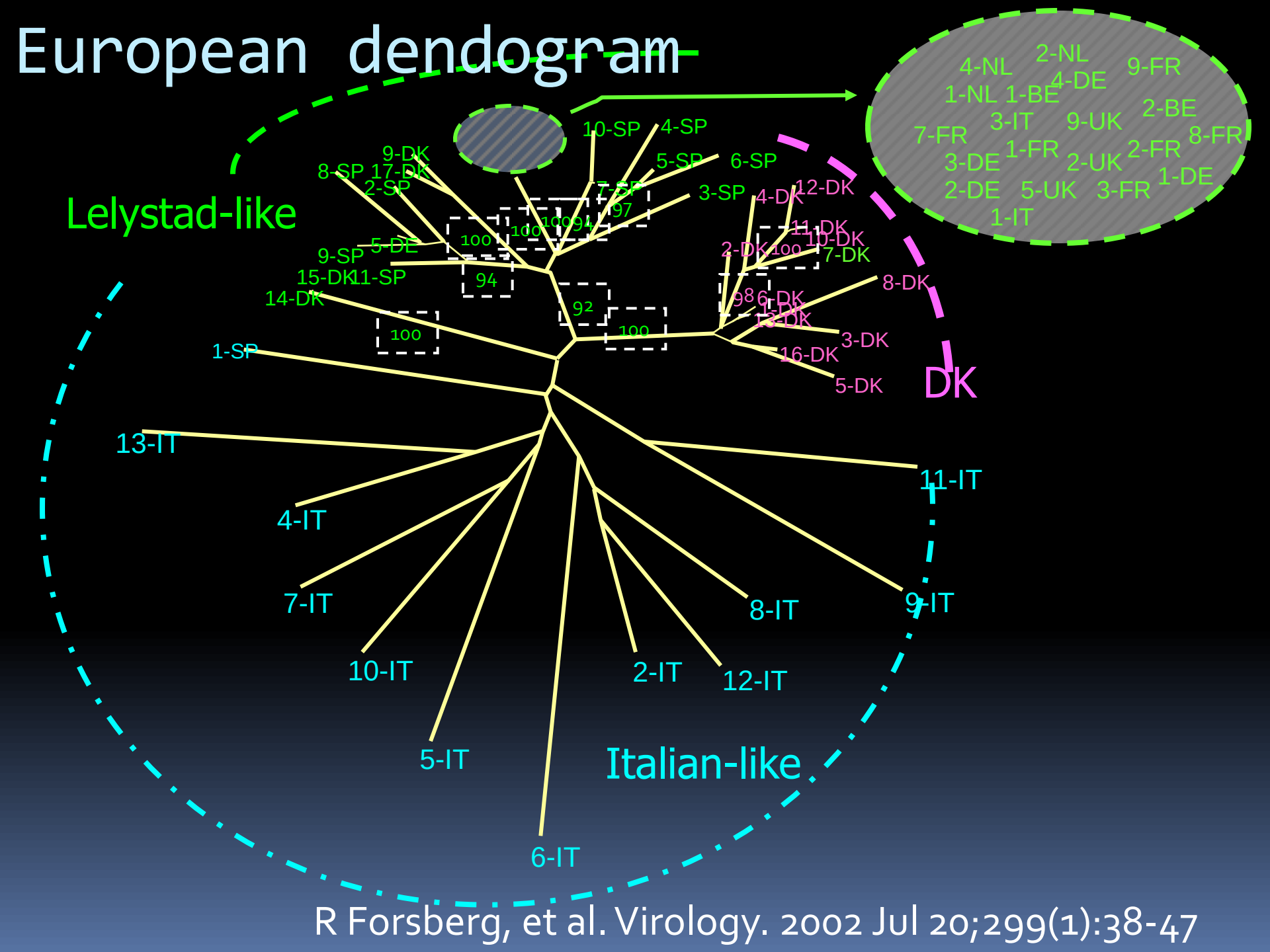




PRRS

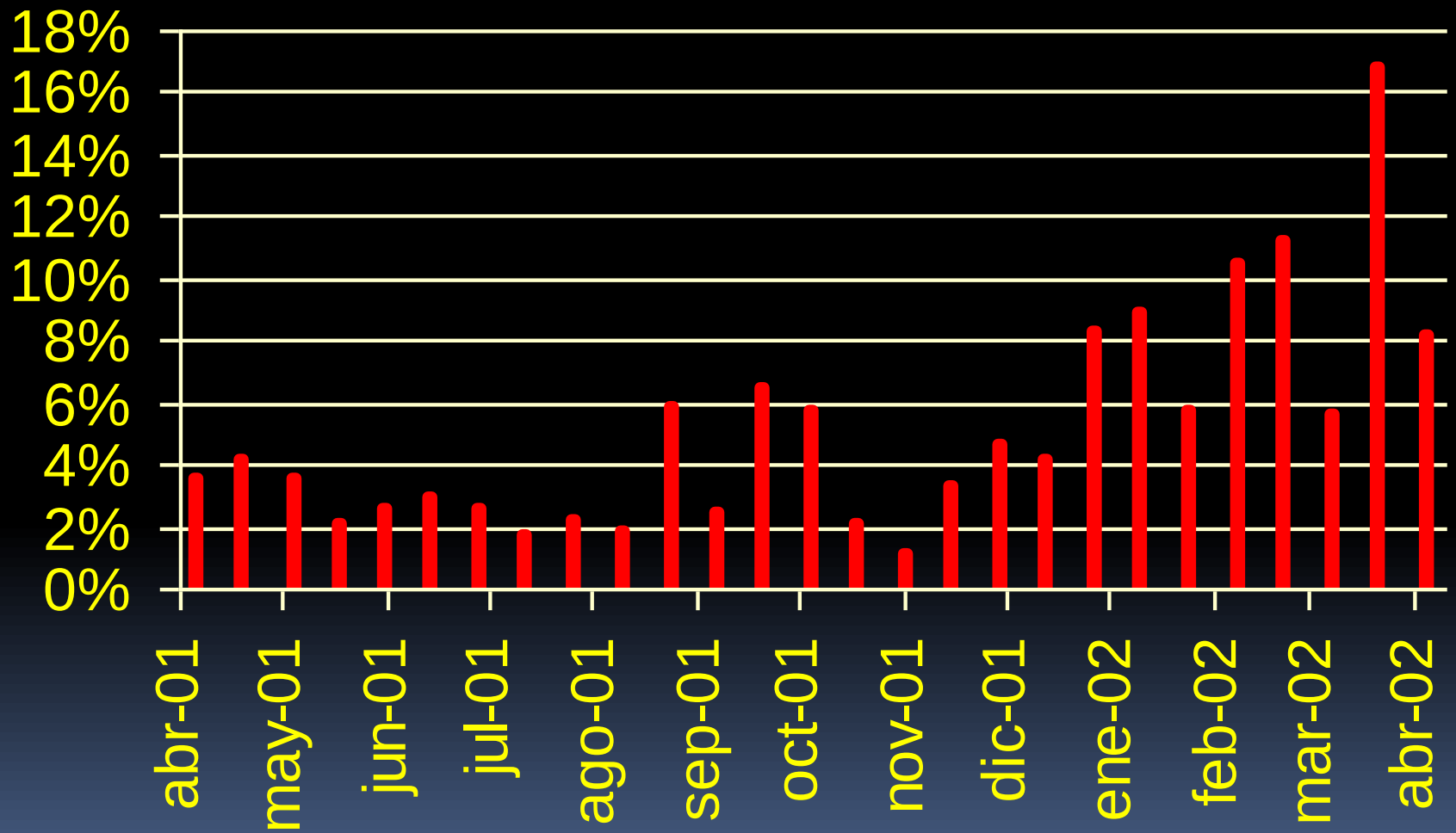
- Respiratory sings are the most frequent.
- High variability among diferent farms
- Probability of trans-placental infections
- Viremic pigs
- Tansmision with fomites highly probable.

European dendogram

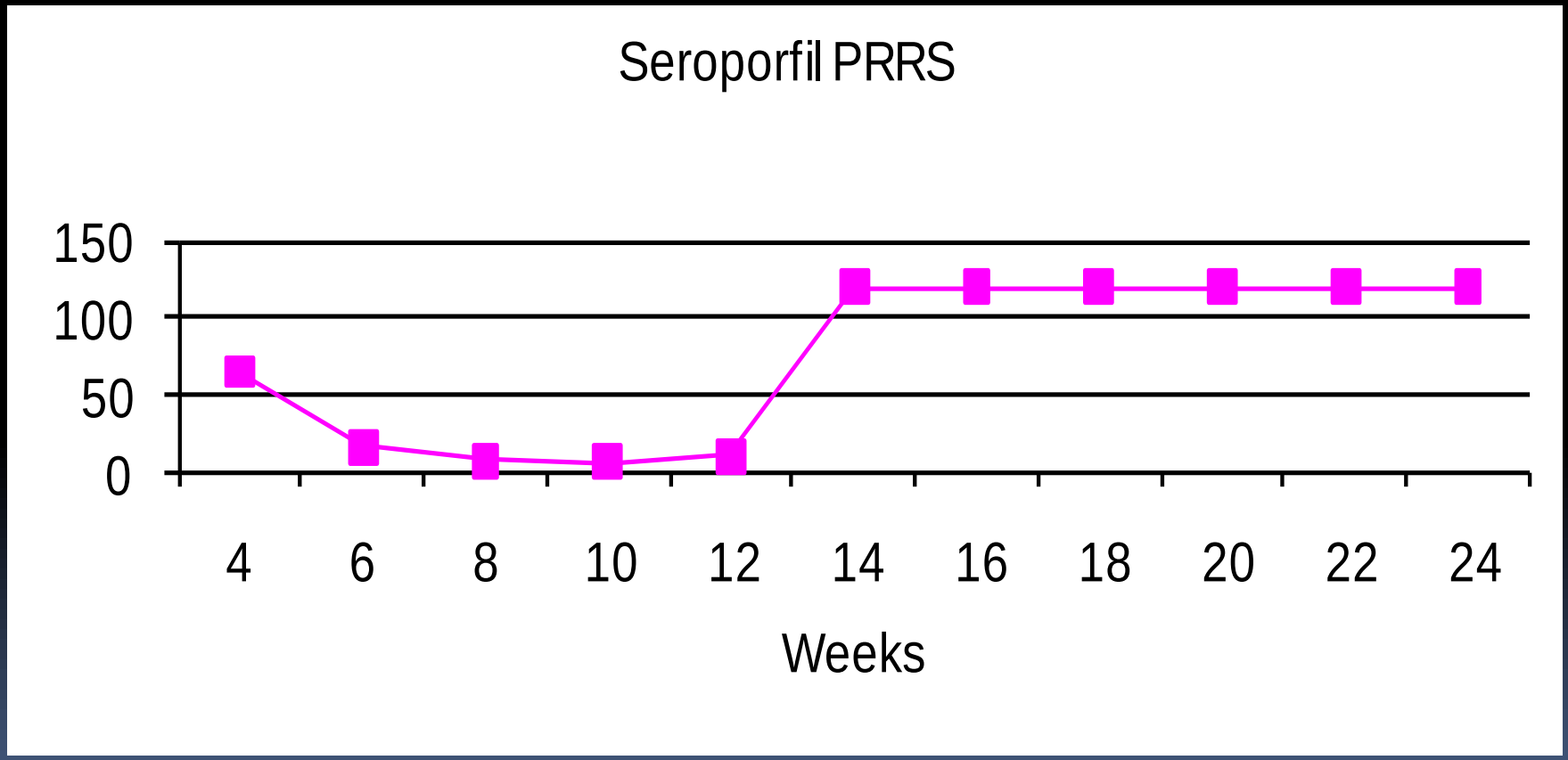


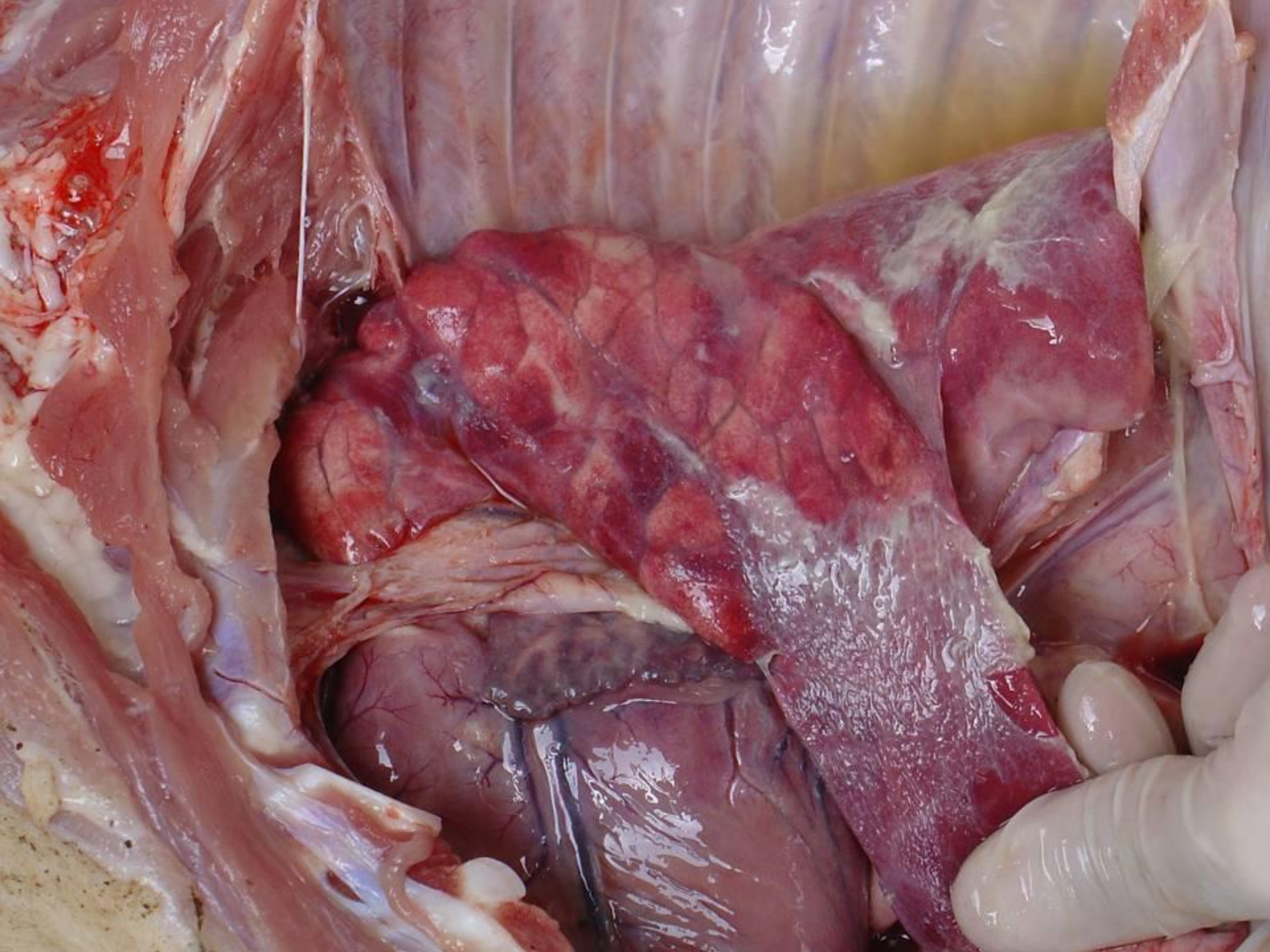
R Forsberg, et al. Virology. 2002 Jul 20;299(1):38-47

% mortalidad destete

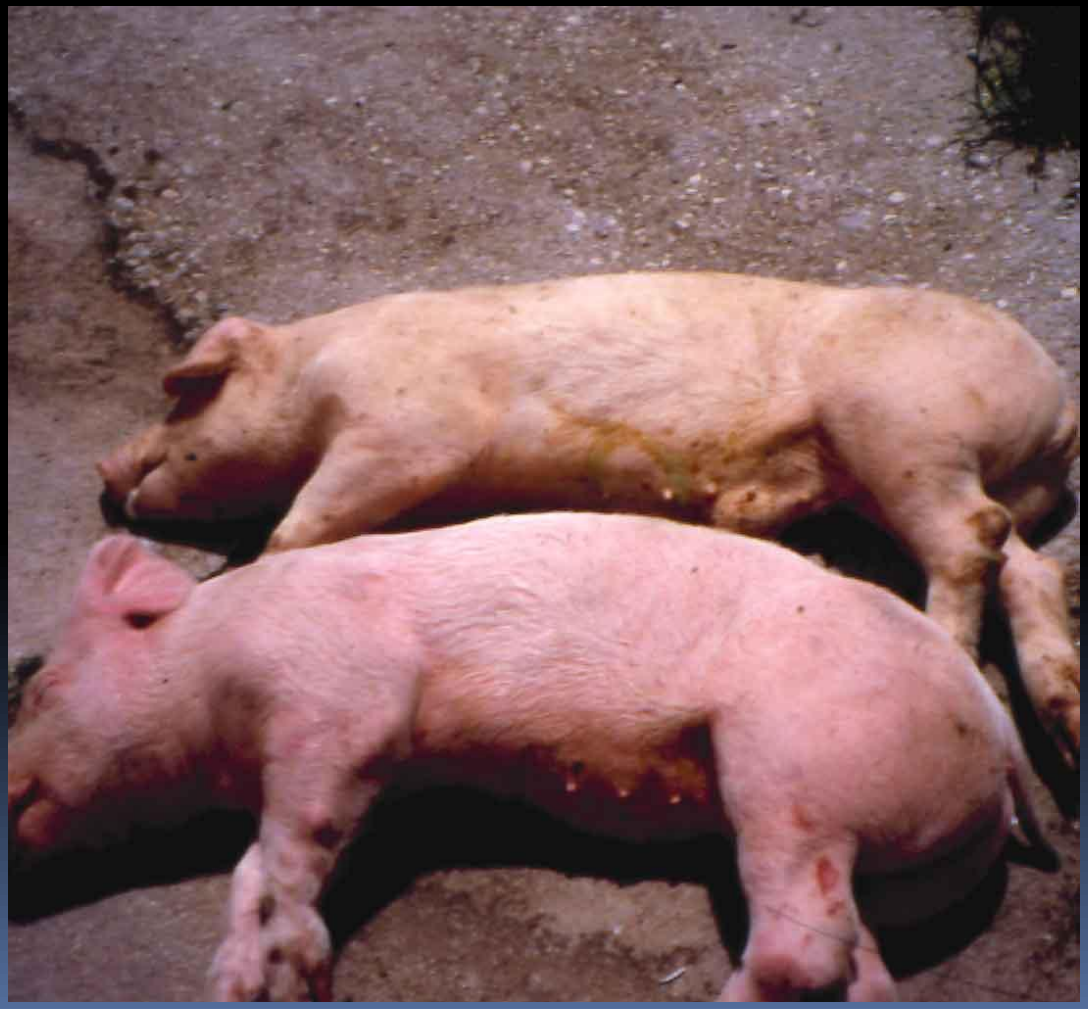


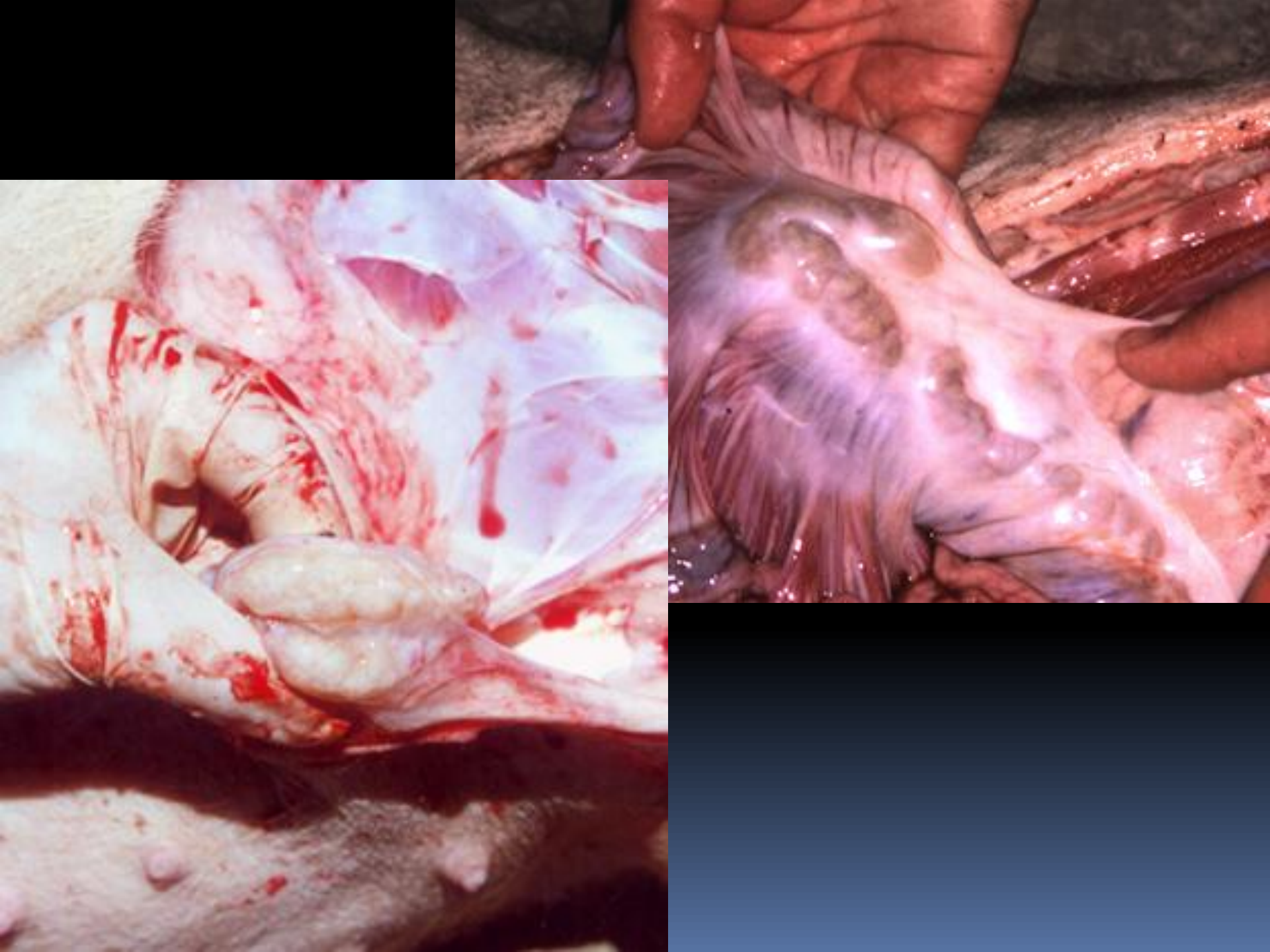
PRRSv

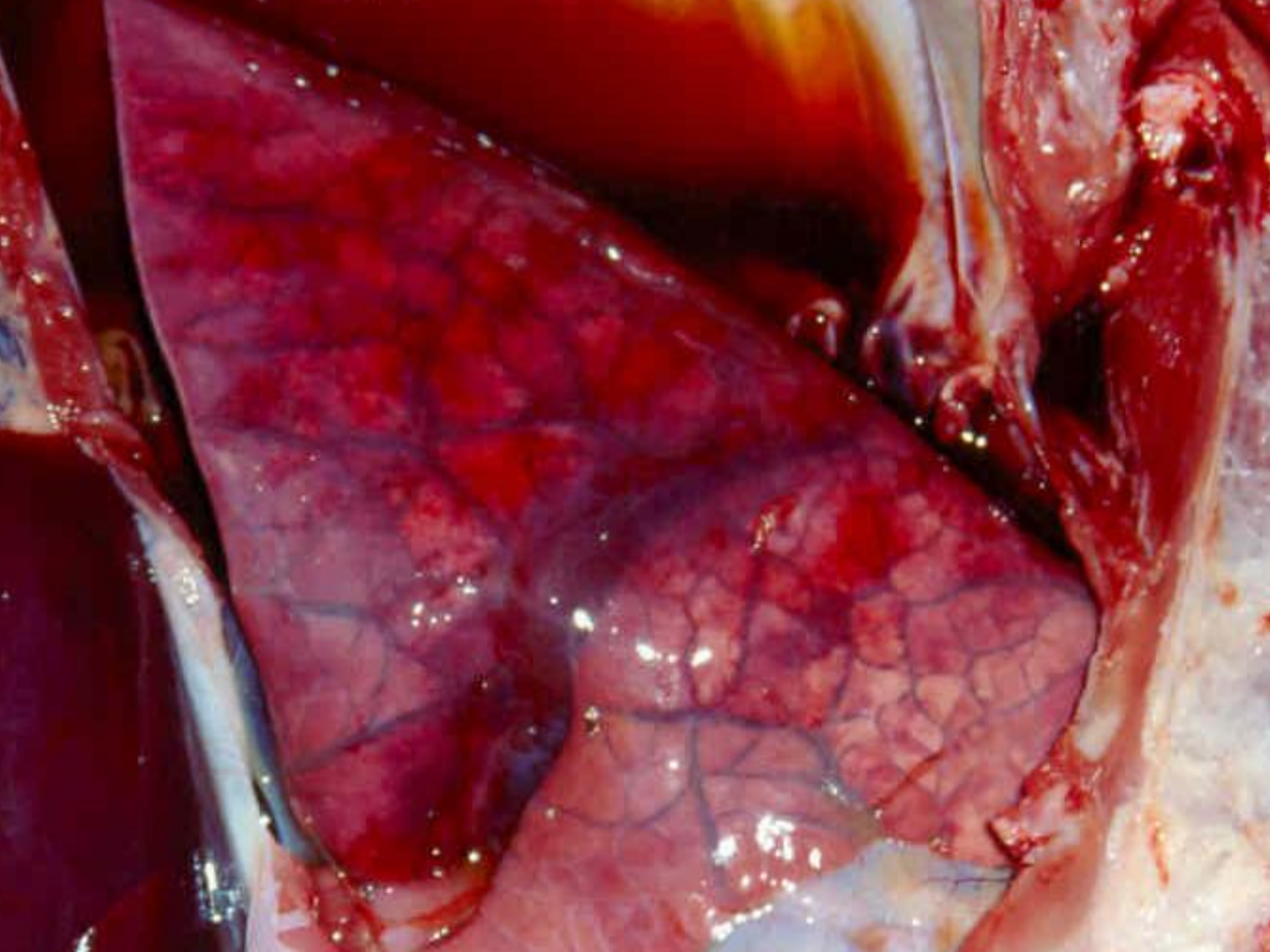




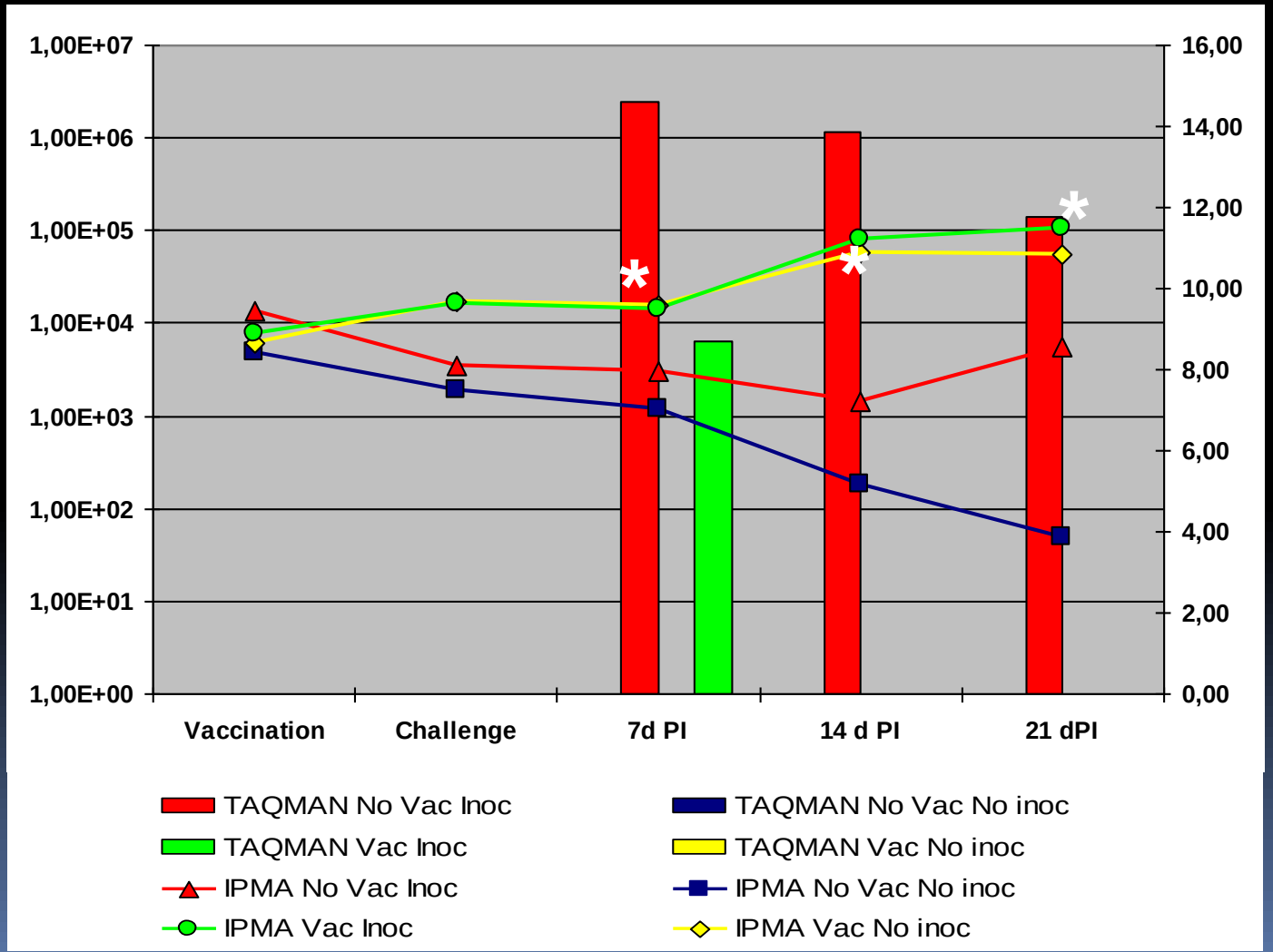
PMWS-PCV2 virus





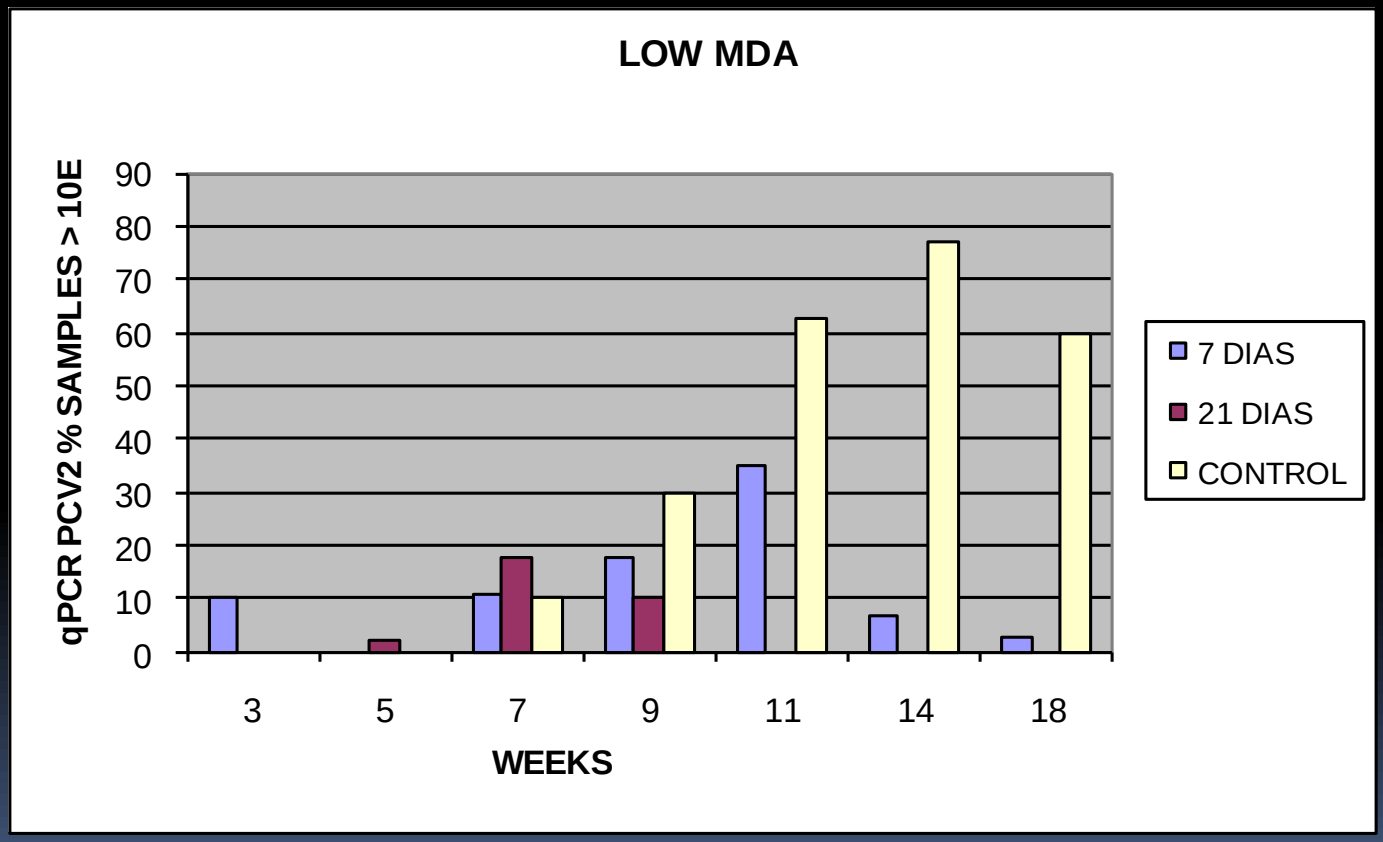


PCV2 seroporfile



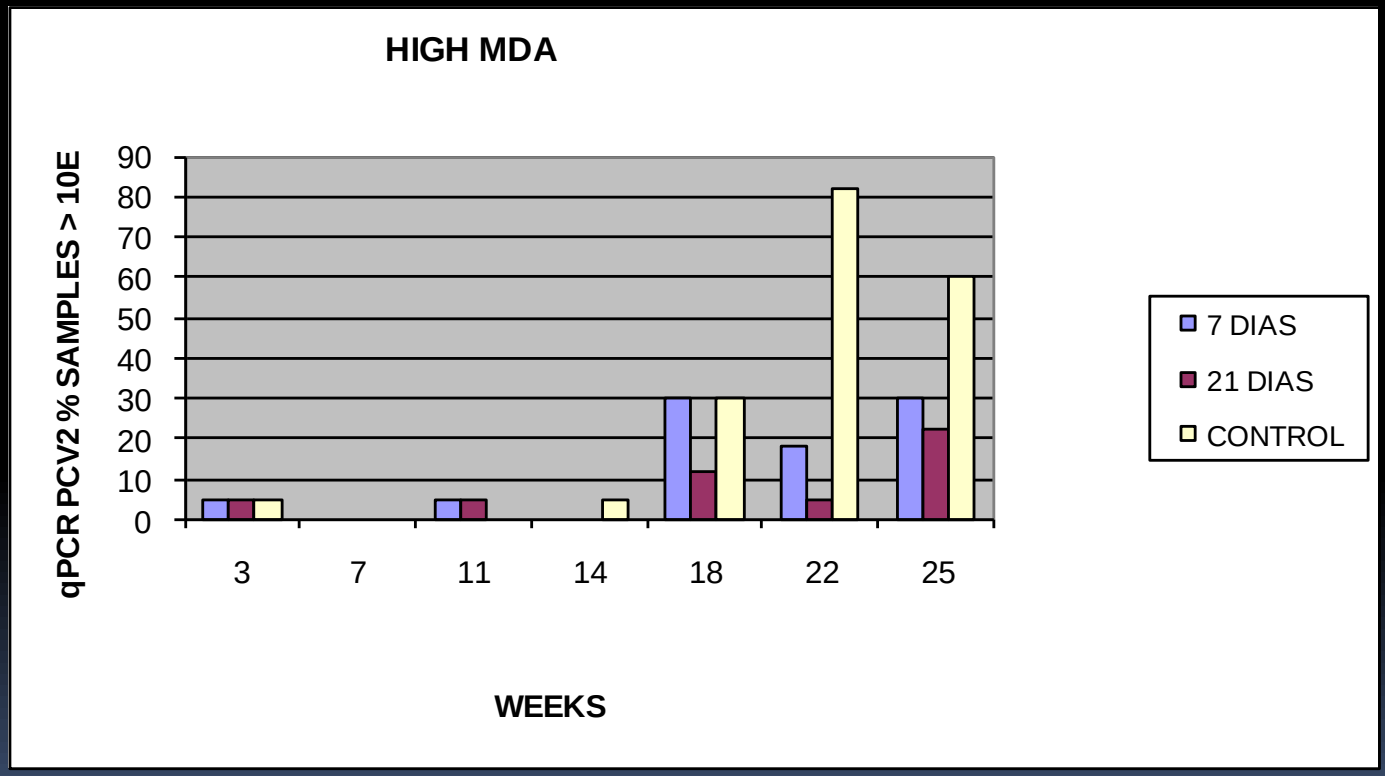
Fort, [illegible] 9

Vacunación frente PCV2



Palzer, A. *et al.*, 2009

PCV2 vaccination



Palzer, A. *et al.*, 2009

Swine Influenza

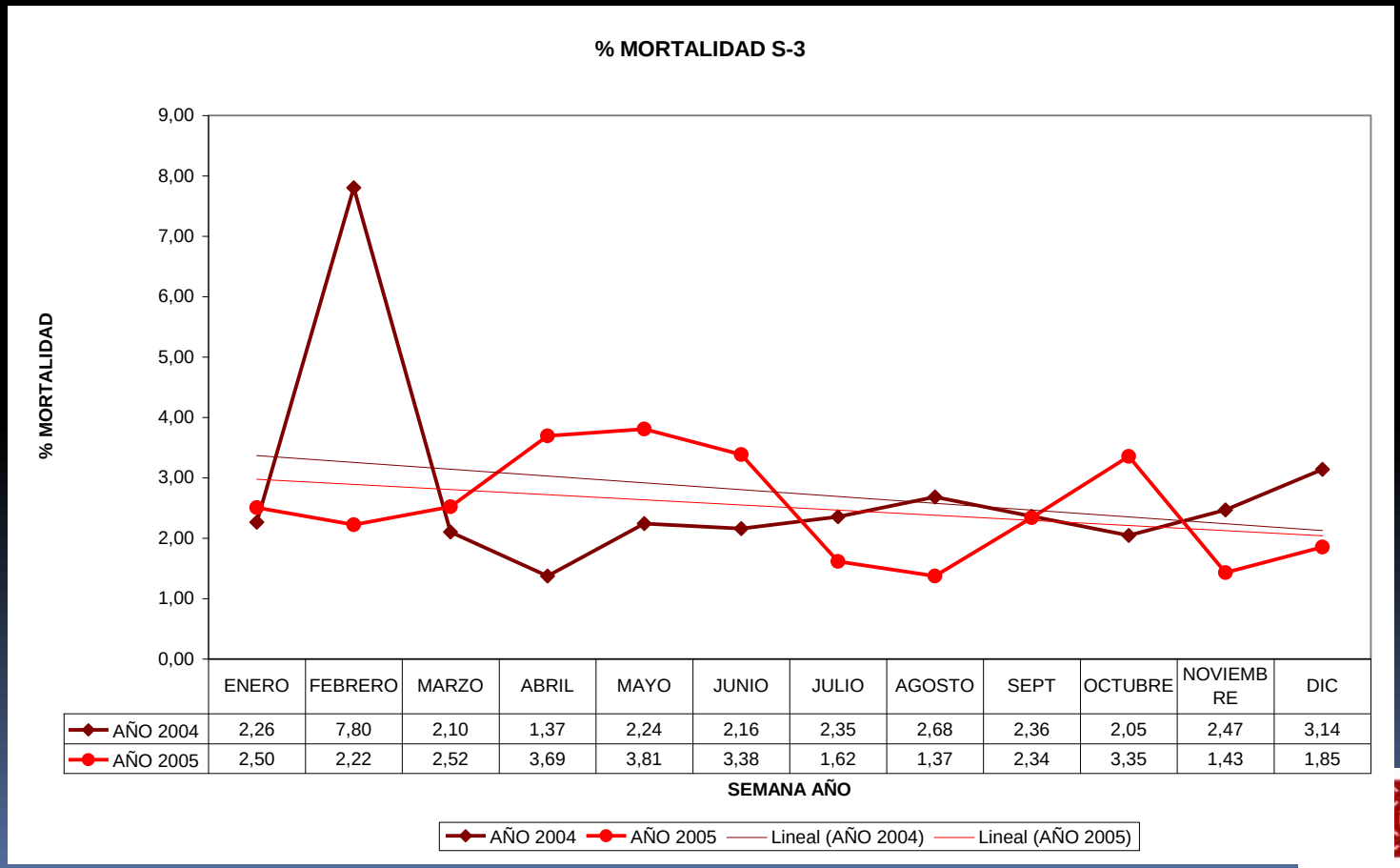
- H1N1 /Swine/Eng/195852/92
  - Sevear cough
  - Bronchitis
  - Bronchiolitis
  - Alveolitis
  - Interstitial pnumonia
- Isolation is difficult:
  - Fisrt 5 day post infection

Swine Influenza

- Clinical case
  - Site II
  - **PRRS and M. hyo free**
  - Sevear cough at week 3 to 5 post-weaning
  - 80-90% of morbidity
  - Mortality low 1-2%
  - After 2 weeks the barn recover
  - At 70 days 30 Kg. BW
  - H3 N2 isolated

Swine Influenza

- Clinical case



	ENERO	FEBRERO	MARZO	ABRIL	MAYO	JUNIO	JULIO	AGOSTO	SEPT	OCTUBRE	NOVIEMBRE	DIC
AÑO 2004	2,26	7,80	2,10	1,37	2,24	2,16	2,35	2,68	2,36	2,05	2,47	3,14
AÑO 2005	2,50	2,22	2,52	3,69	3,81	3,38	1,62	1,37	2,34	3,35	1,43	1,85

Interactions

- Iglesias *et al.* (1989)
  - ADV inhibit alveolar macrophages function.
- Galina *et al.* (1994)
  - PRRS predispose to S.suis infection
- Van Reeth *et al.* (1996)
  - PRRS/ Influenza or PRRS/PRCV combinations can exacerbate enzootic pneumonia severity
- Thanaongnuwech *et al.* (1999)
  - PRRS predispose to S.suis infection.
- E. Tacker (1999)
  - M. Hyo can exacerbate severity and duration of PRRS induce pneumonia.
- P. Harms et al. (2000)
  - PRRS and PCV-2 combination will exacerbate clinical signs and mortality.

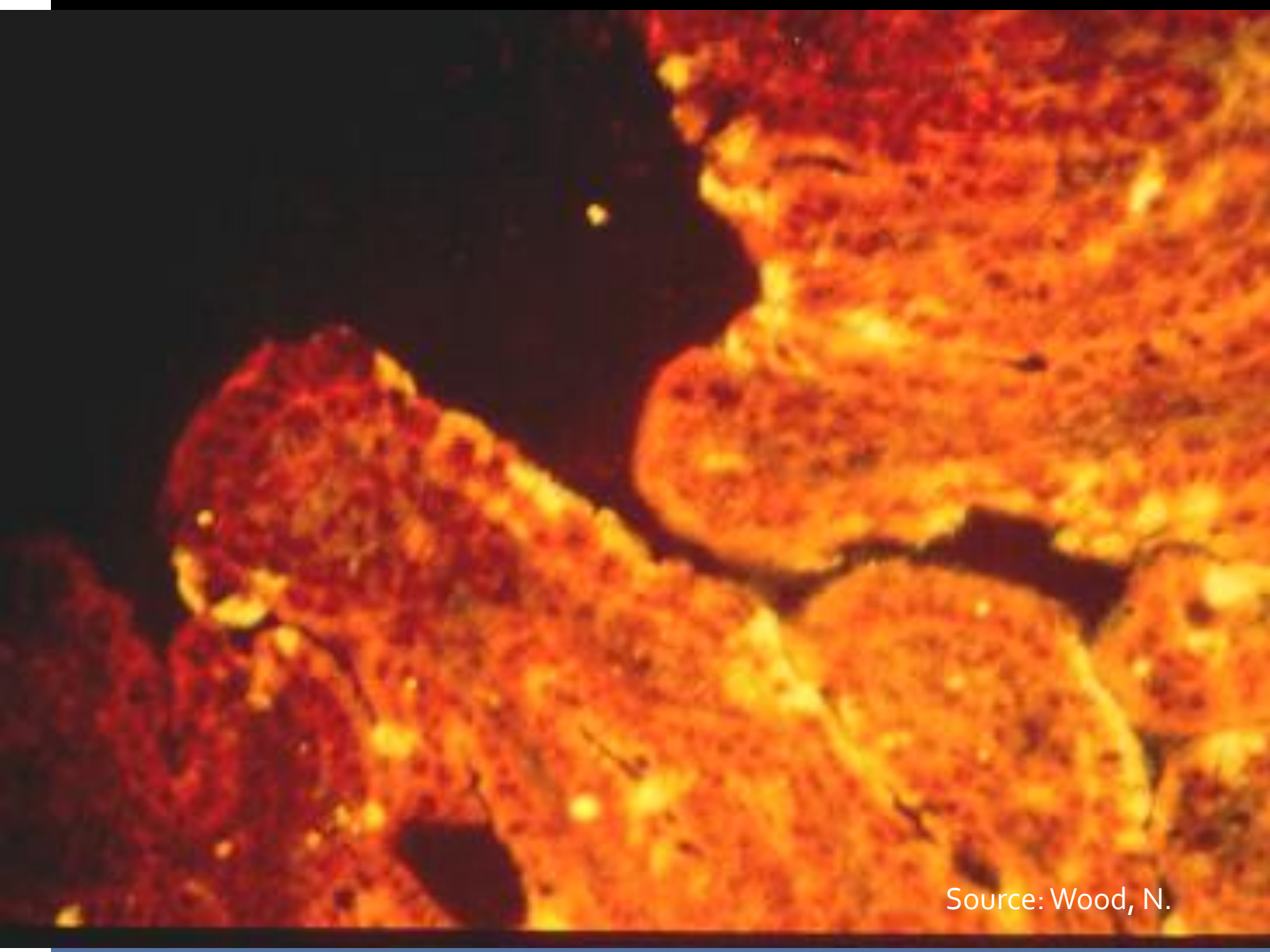
Viral enteric infections on post-weaning

- PEDv
  - Coronavirus
  - Acute form : Afect the hole herd
  - Endemic form: Tyupical of large herd
    - Diarrhoea 2-3 weeks after weaning
    - Affected animals recover in 7-10 days
    - Also diarrhoea in incoming gilts if healthj source is negative.

PED + Escherichia coli

PED + Escherichia coli

PED + Escherichia coli


Source: Wood, N.

PEDv control

- Hole herd shoud be immunized
  - Feed-back
  - Expose pregnant sows to contaminated feces

How to control them?

- Avoid Sub-populations
- Replacement is the critical point.
- All in –all out
- Batch management
- Vaccination

Control

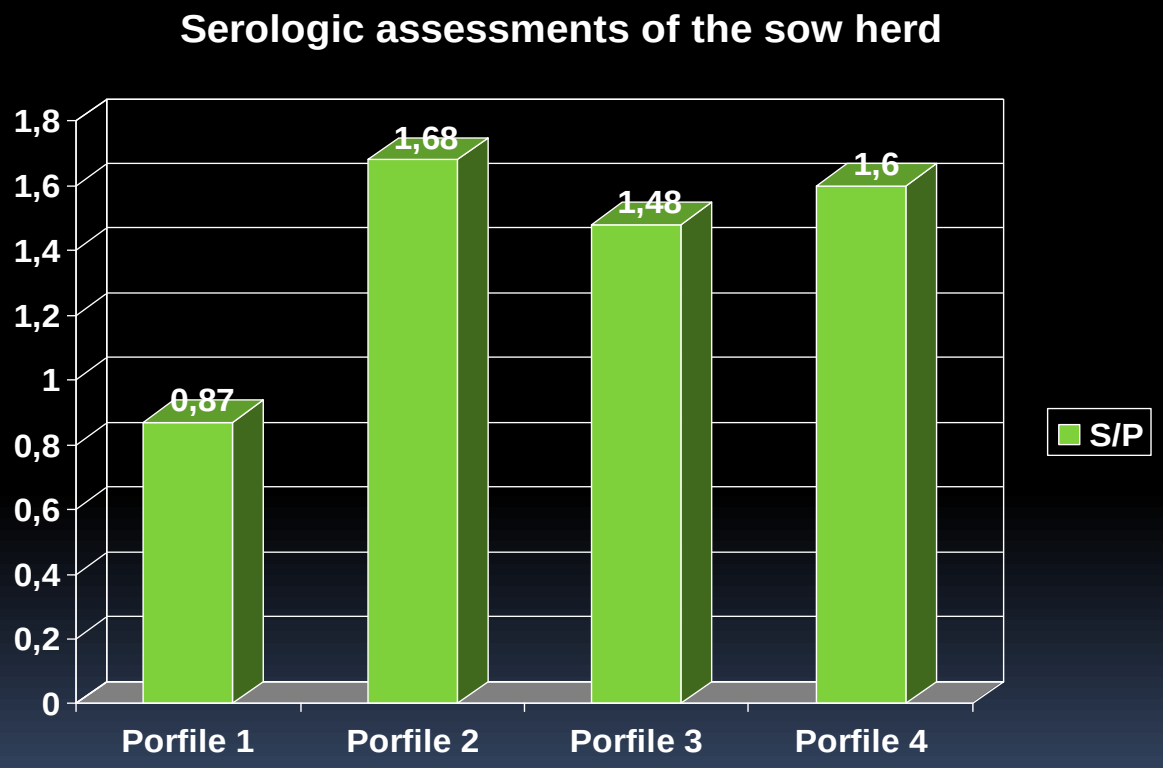
Subpopulation

Subpopulations in a 3 phases herd	
average % positives Ene-Jul 1999 (monthly sample)	
lactating piglets	11,4
Wean sows	20,0
Sows in pig	20,0
Gilts	42,9

How to control them?

- Avoid Sub-populations
- Replacement is the critical point.
- All in –all out
- Batch management
- Vaccination

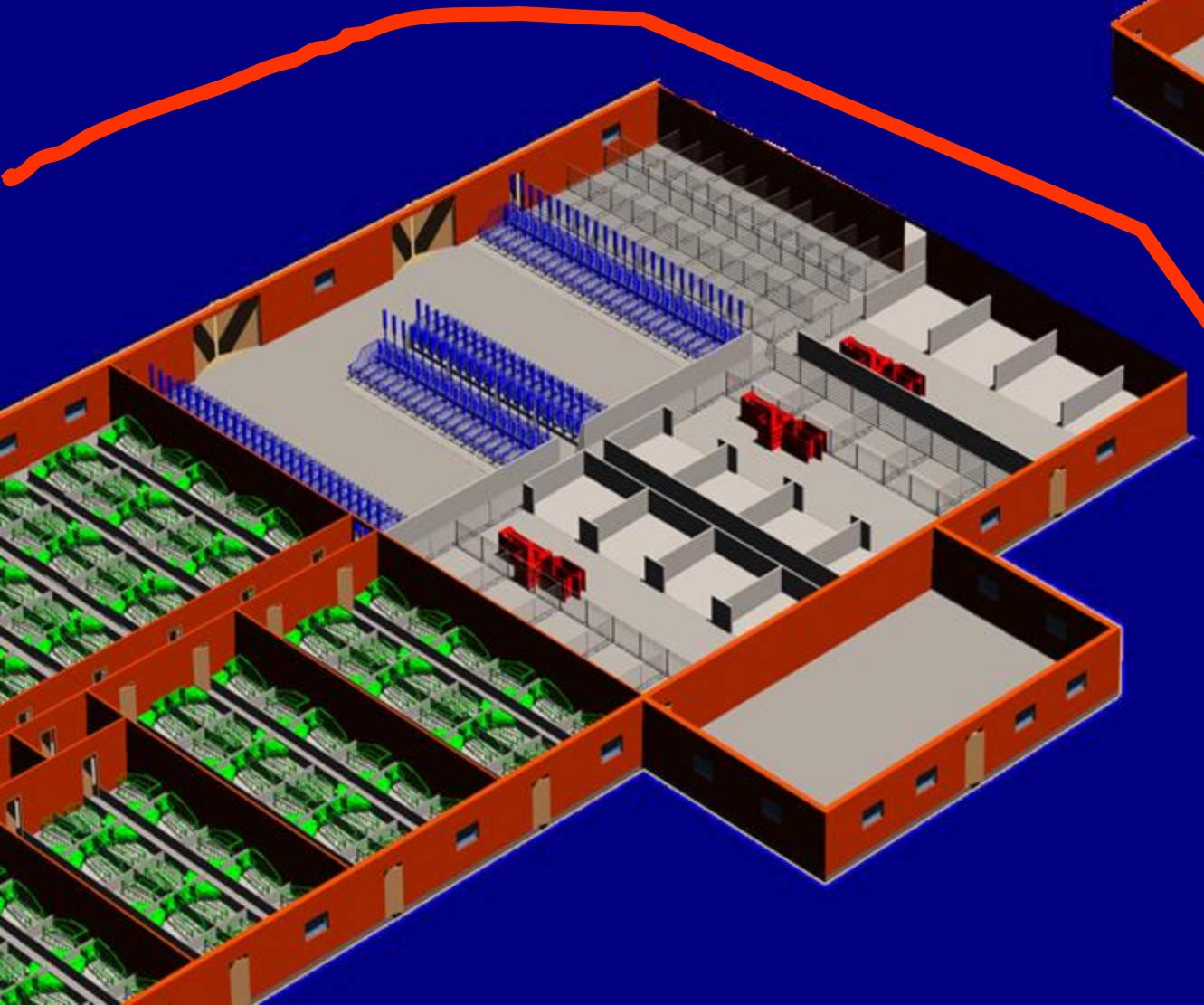
Keep herd structure stable

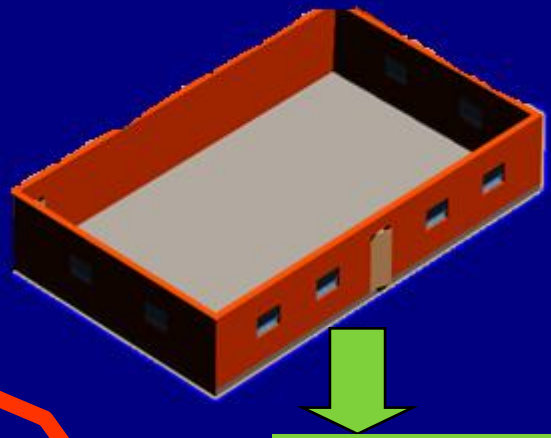


* Porfile 1: before increase in replacement rate from 45% to 75%

Assesing the M. hyopneumoniae infection pattern in a sow herd following an increase in the replacement rate. Fano, E.A.; Pijoan C.; Dee, S.A. APVS 2006. Abstract Nº: 0.19-06

Isolation or Quarantine (6 weeks)



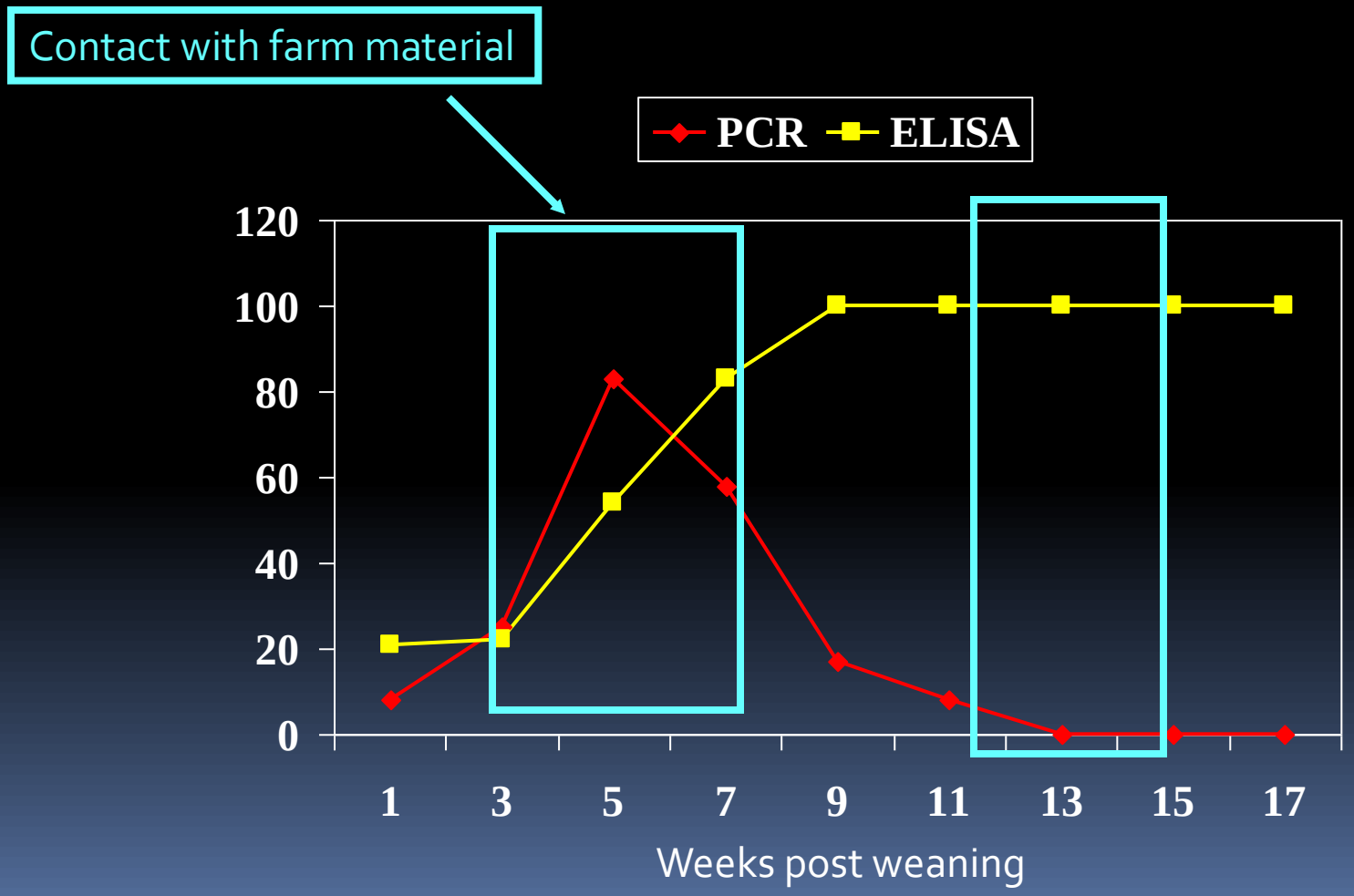


Serological test

Acclimatization: assure contact with local flora

- Vaccination
  - PPV, MR. RA, AD
- Feed-back
  - PPV, E.coli, GET, DEP, Rota
- Contact with animals
  - M.hyo, P. Mult., H.. Parasuis, PRRS, App

Subpopulations

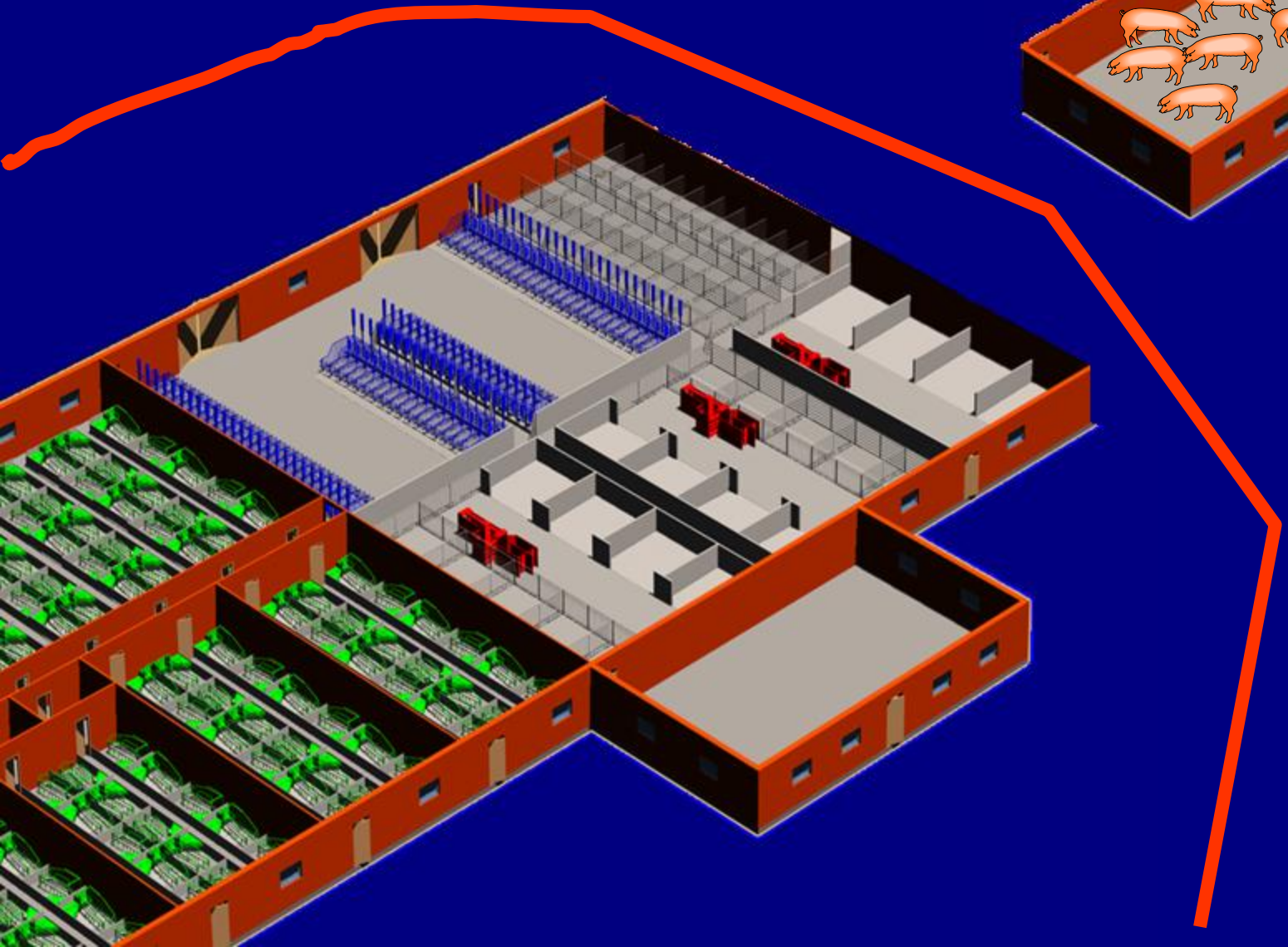


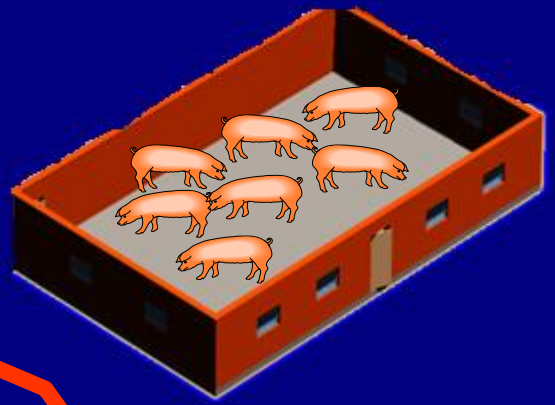
Acclimatization: assure contact with local flora

- To Achieve infection it's not always easy
- Acclimatization to PRRSv injecting replacement serum from viremic pigs. (L. Batista, 2004)

Acclimatization

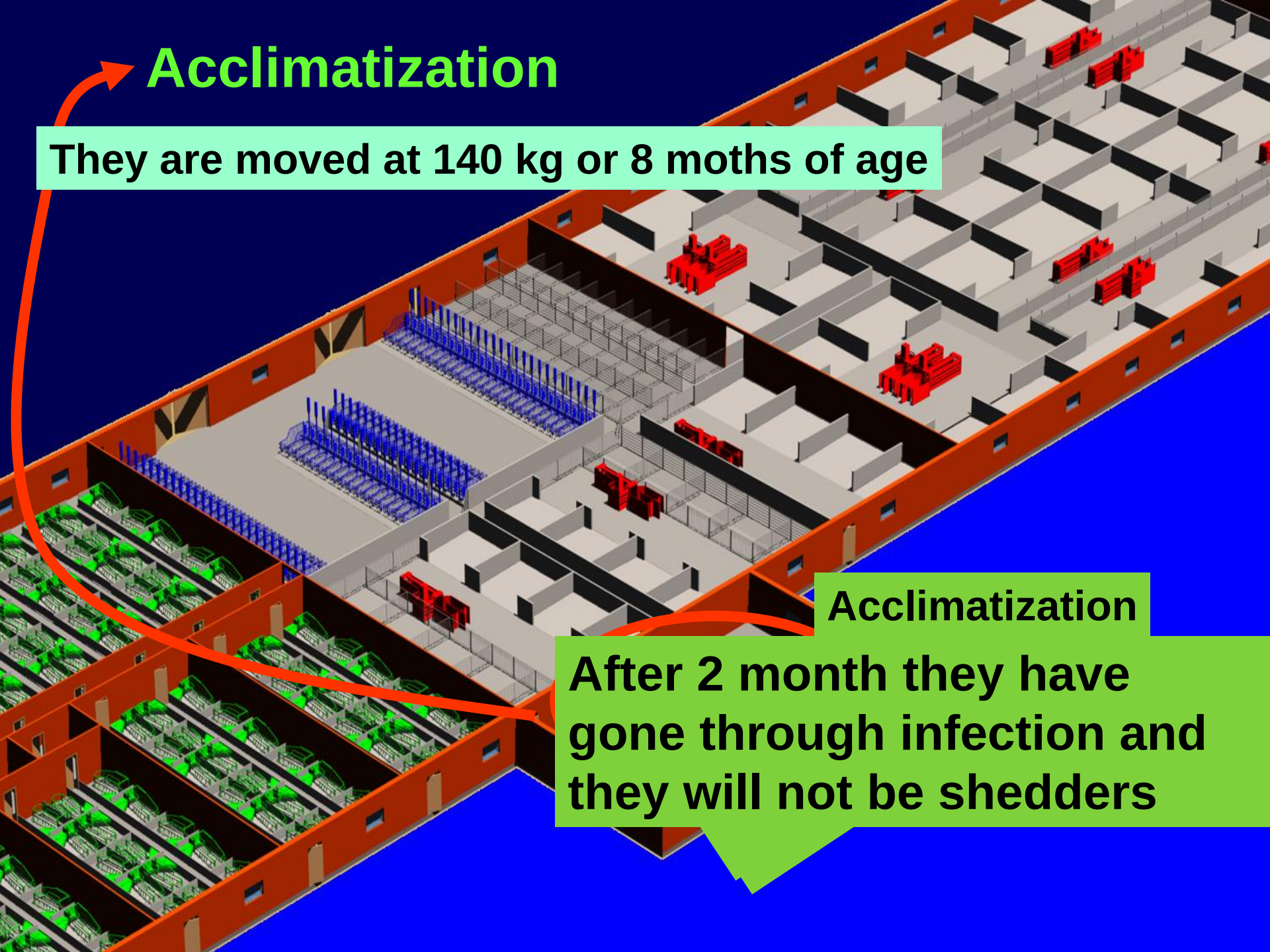
(ideal situation)





Acclimatization

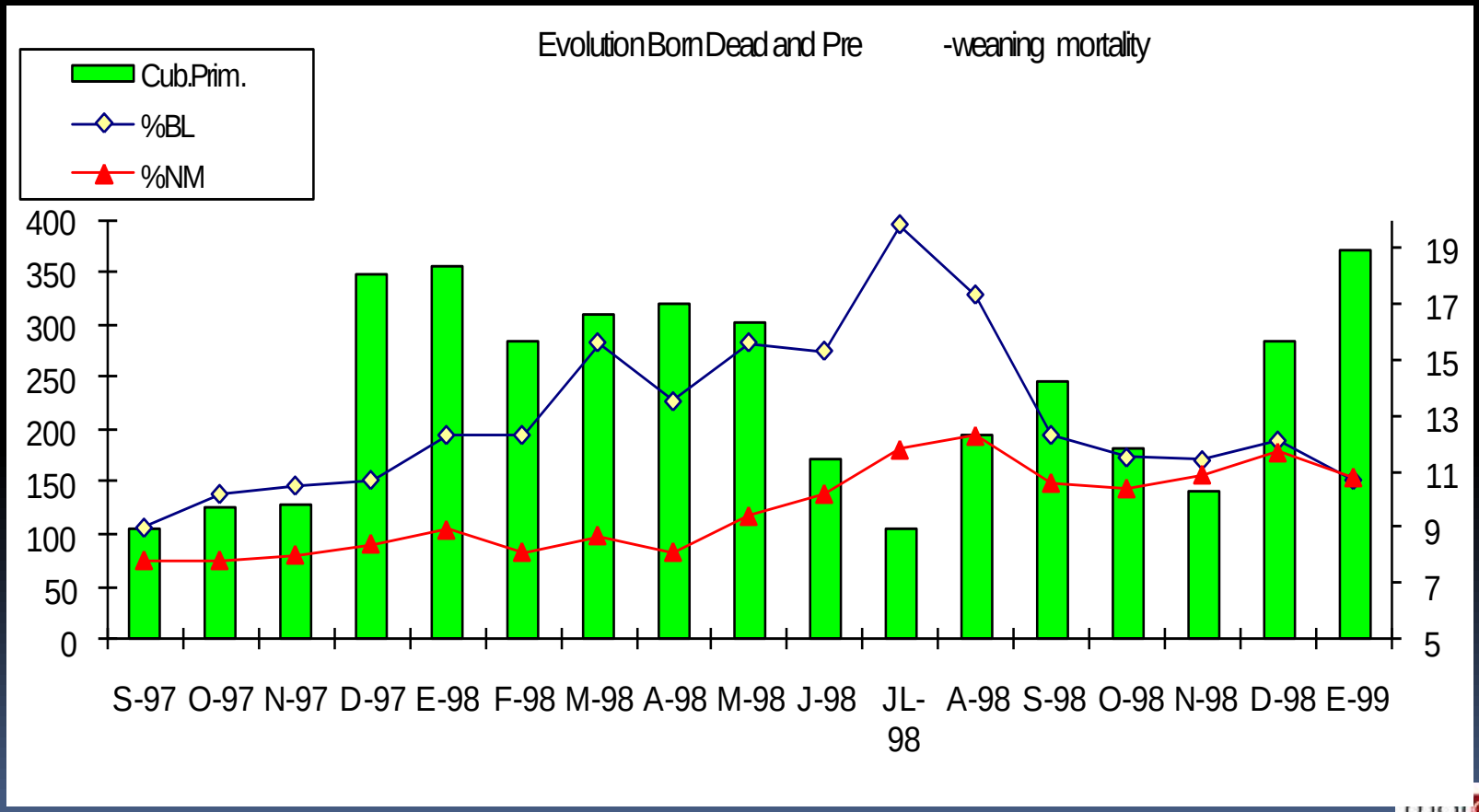
They are moved at 140 kg or 8 moths of age



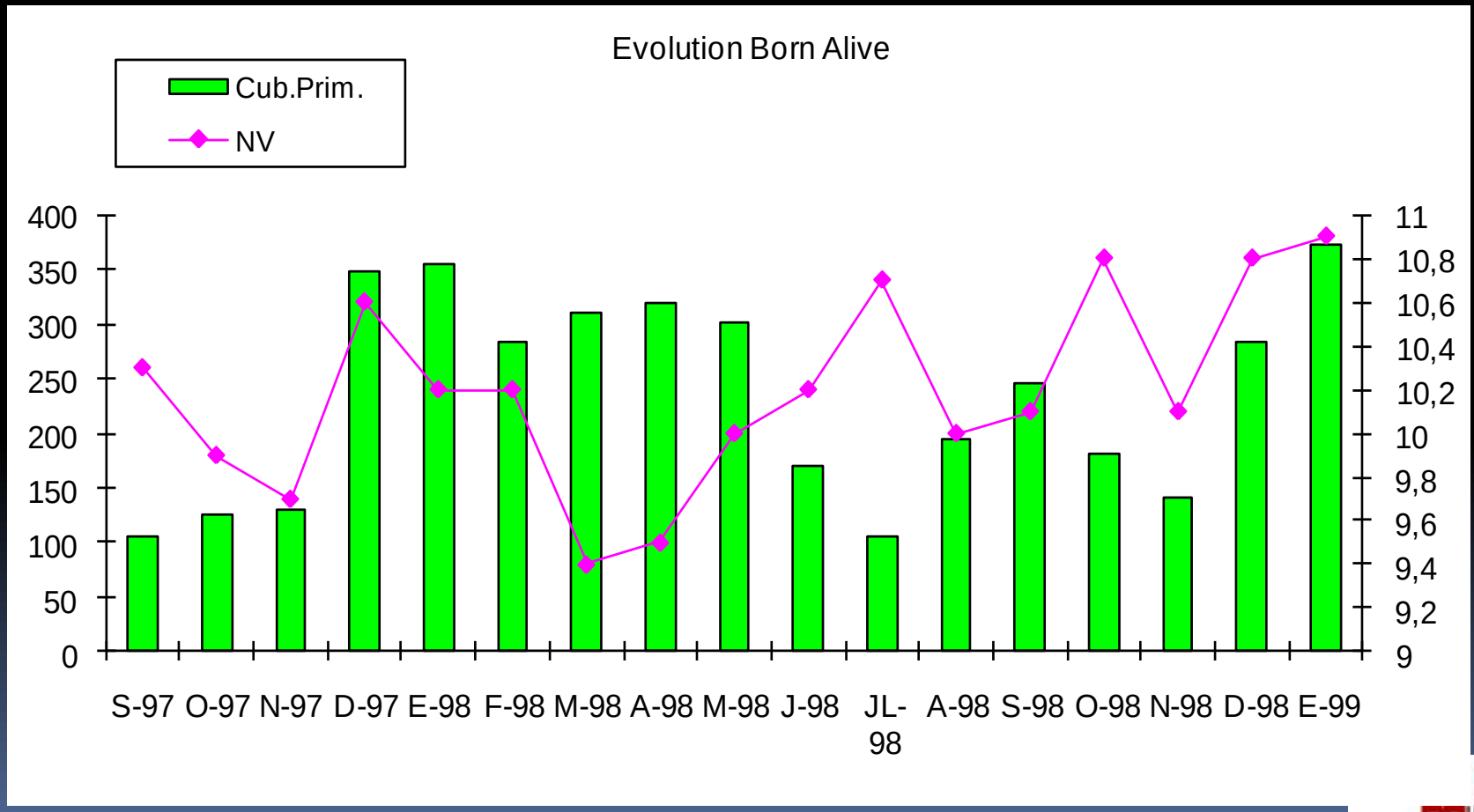
Acclimatization

After 2 month they have gone through infection and they will not be shedders

Acclimatization: Avoid herd destabilization



Acclimatization: Avoid herd destabilization



Acclimatization: Avoid herd destabilization

PRRS positives herds:

Minimum acclimatization period:**8-9 weeks**

- 1 week acclimatization to new location (stress)
- 2 weeks contact with animals (direct/indirect)
- 6 weeks isolation to avoid shedding once into the main herd.

Acclimatization: Avoid herd destabilization

PRRS positives herds (low health status):

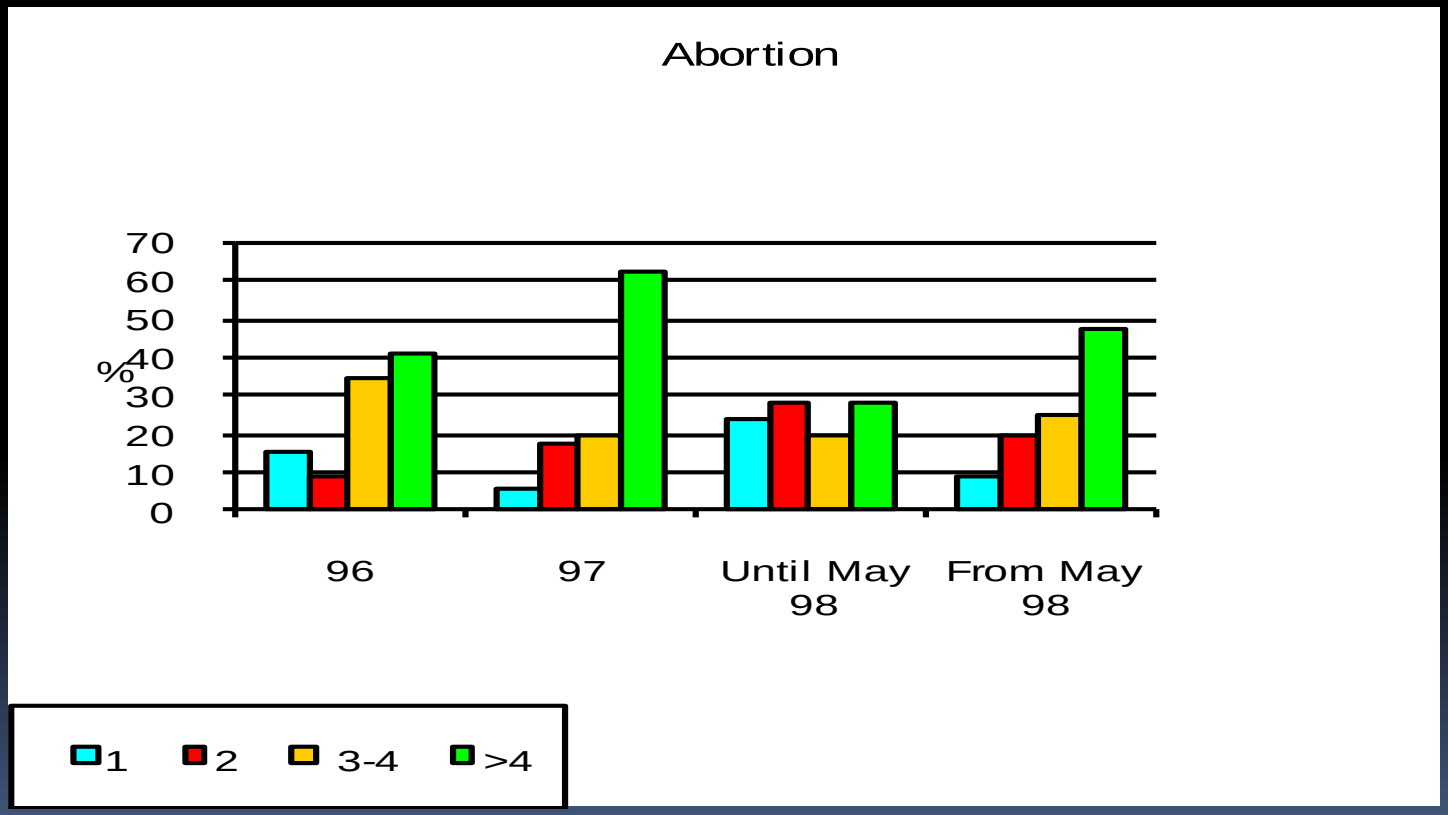
- Introduce 20-30 Kg. BW weaners.
- Introduce 21 day old piglets.
- Introduce 1 day old piglets.

Acclimatization: Avoid herd destabilization

Farms without possibility to prolong acclimatization period:

- Erotic area and first month gestation specific for gilts. Other possibility "Parking" zone.
- Whole gestation specific for gilts.

Acclimatization: Avoid herd destabilization

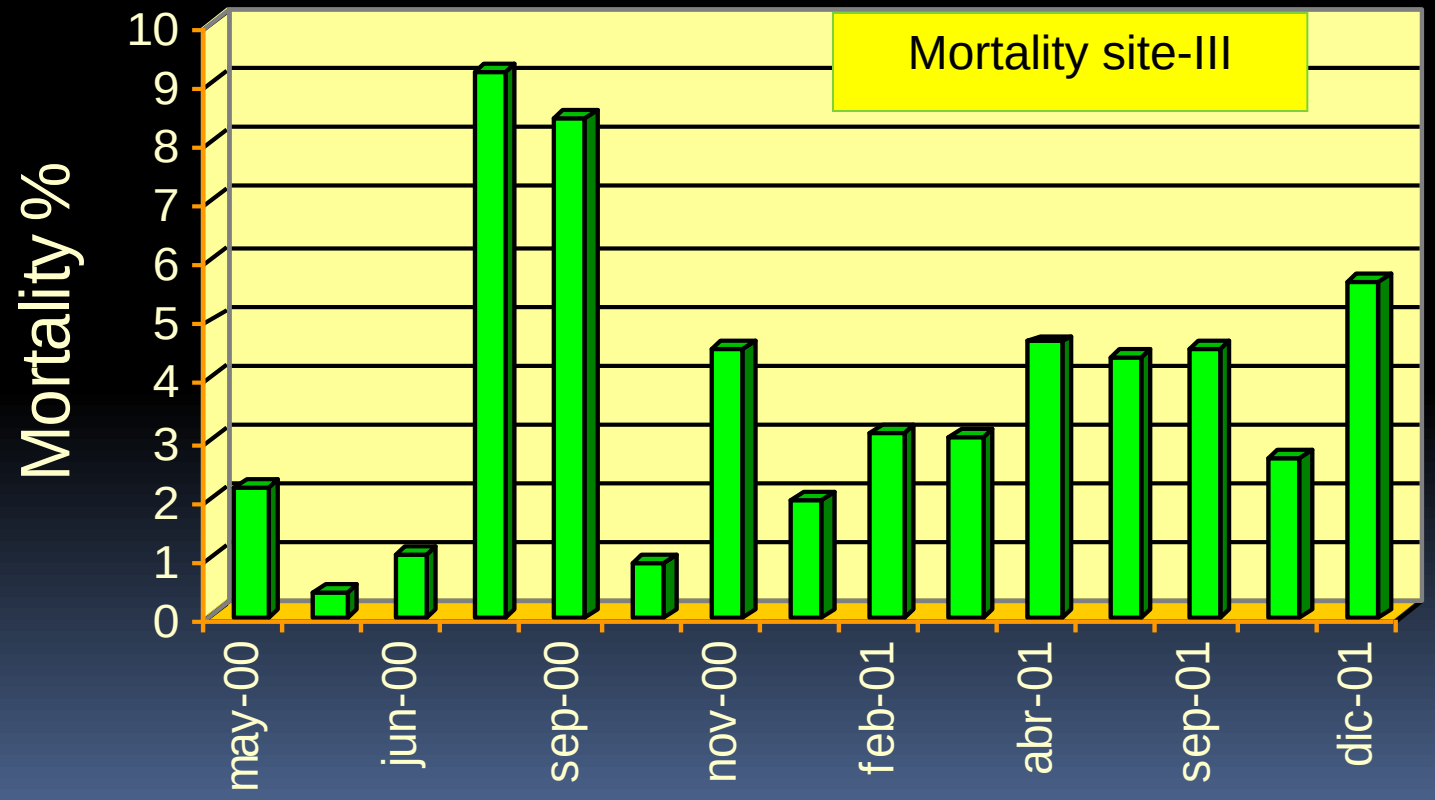


How to control them?

- Avoid Sub-populations
- Replacement is the critical point.
- All in –all out
- Batch management
- Vaccination

How to control them?

- MSP (5400 sows, 3 sites, 8 site-II)



How to control them?

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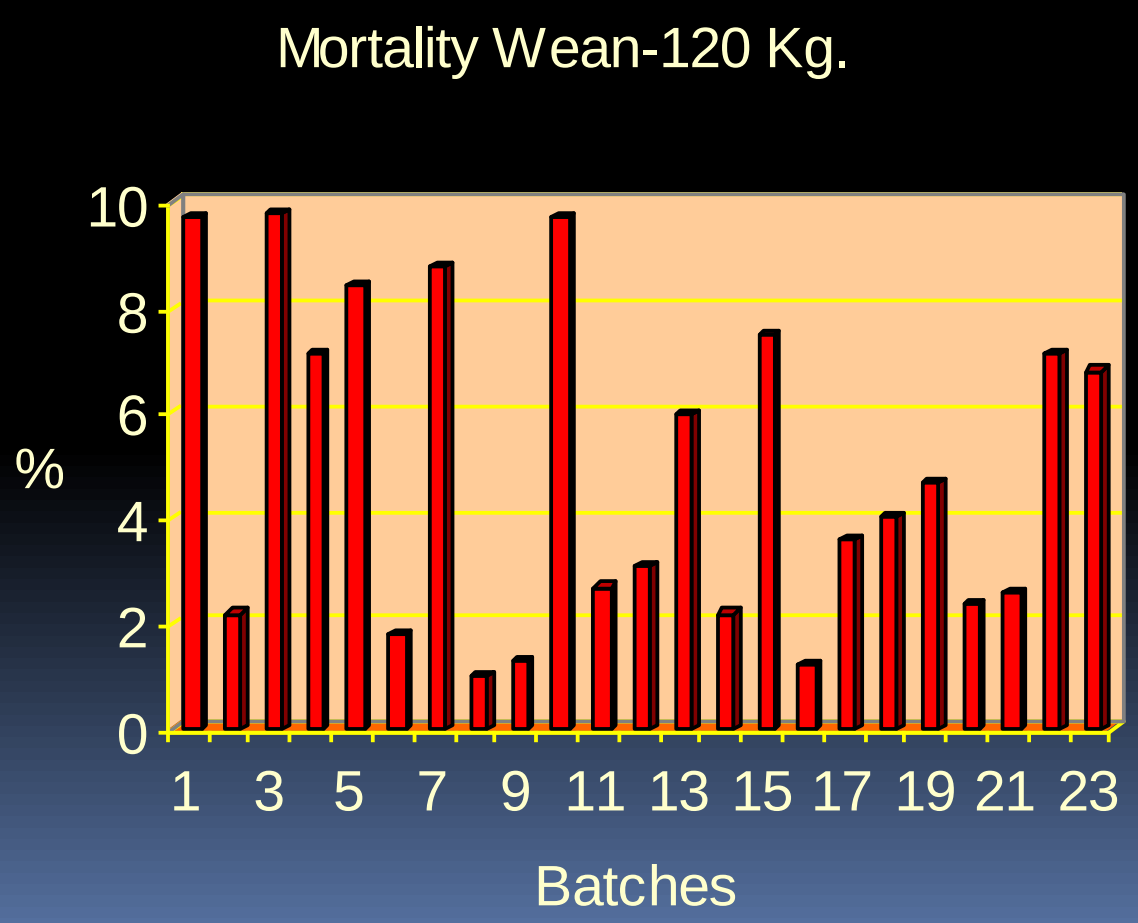
How to control them?

650 sows, 3 week grouping system



How to control them?

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Vaccination againts PCV2

Farm	Nº animals	Weight in	Weight out	% losses	F.C.	Vaccine
A.	480	19	105	11’67	2’65	No
B	280	23	109	1’79	2’35	Si
C	400	19	110	3’25	2’52	Si

WHAT'S NEXT?

UNIVERSITY OF CAMBRIDGE

AW (Dan) Tucker, University of Cambridge, UK
Marnie Mellencamp, Genus plc
Meritxell Donadeu, PIC Europe (Genus plc)
Linda Scobie, University of Glasgow

RETROVIRAEMIA IN COMMERCIAL PIGS

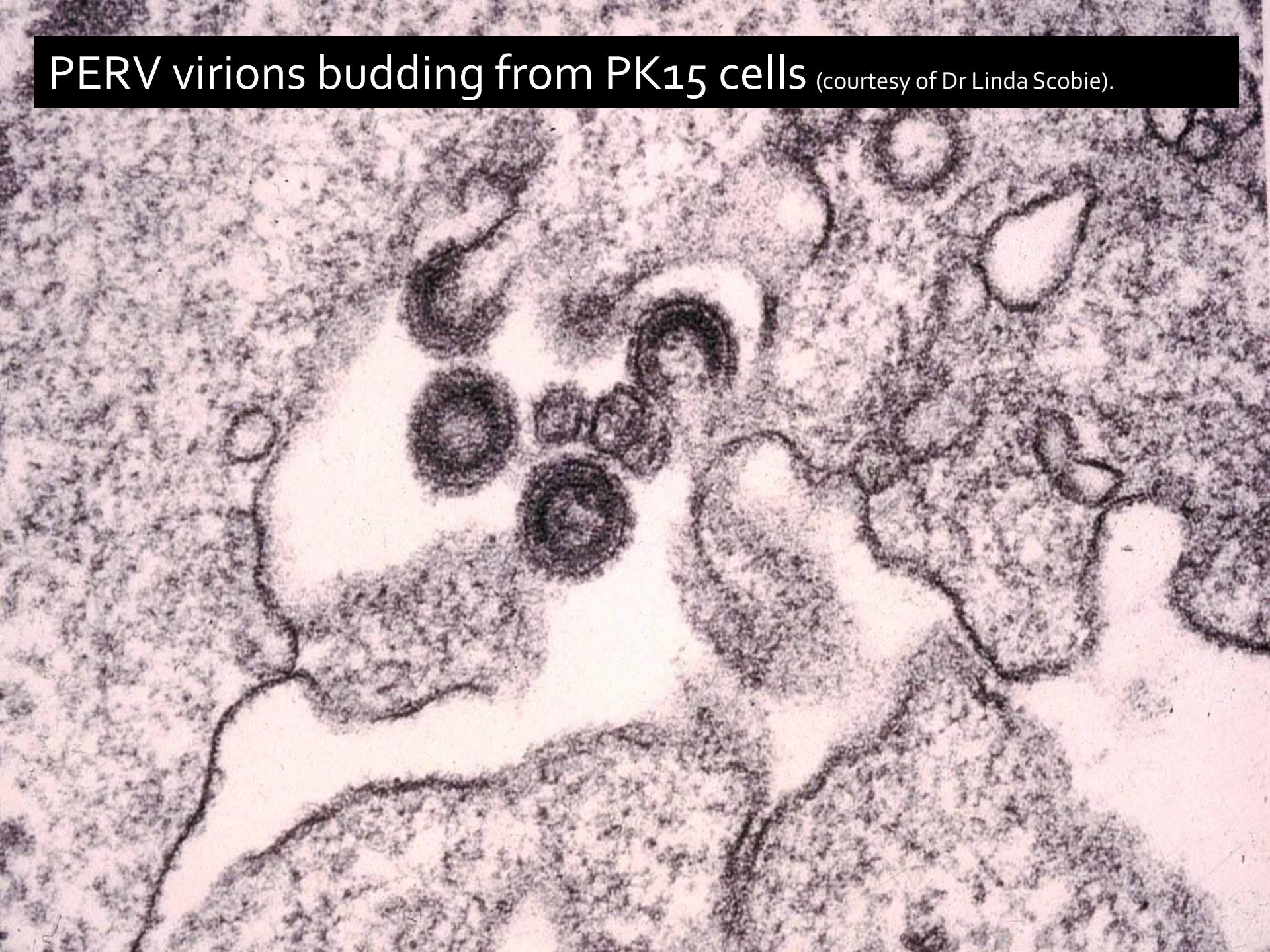
PRELIMINARY ASSOCIATION WITH LOW HEALTH STATUS

Methods: 1

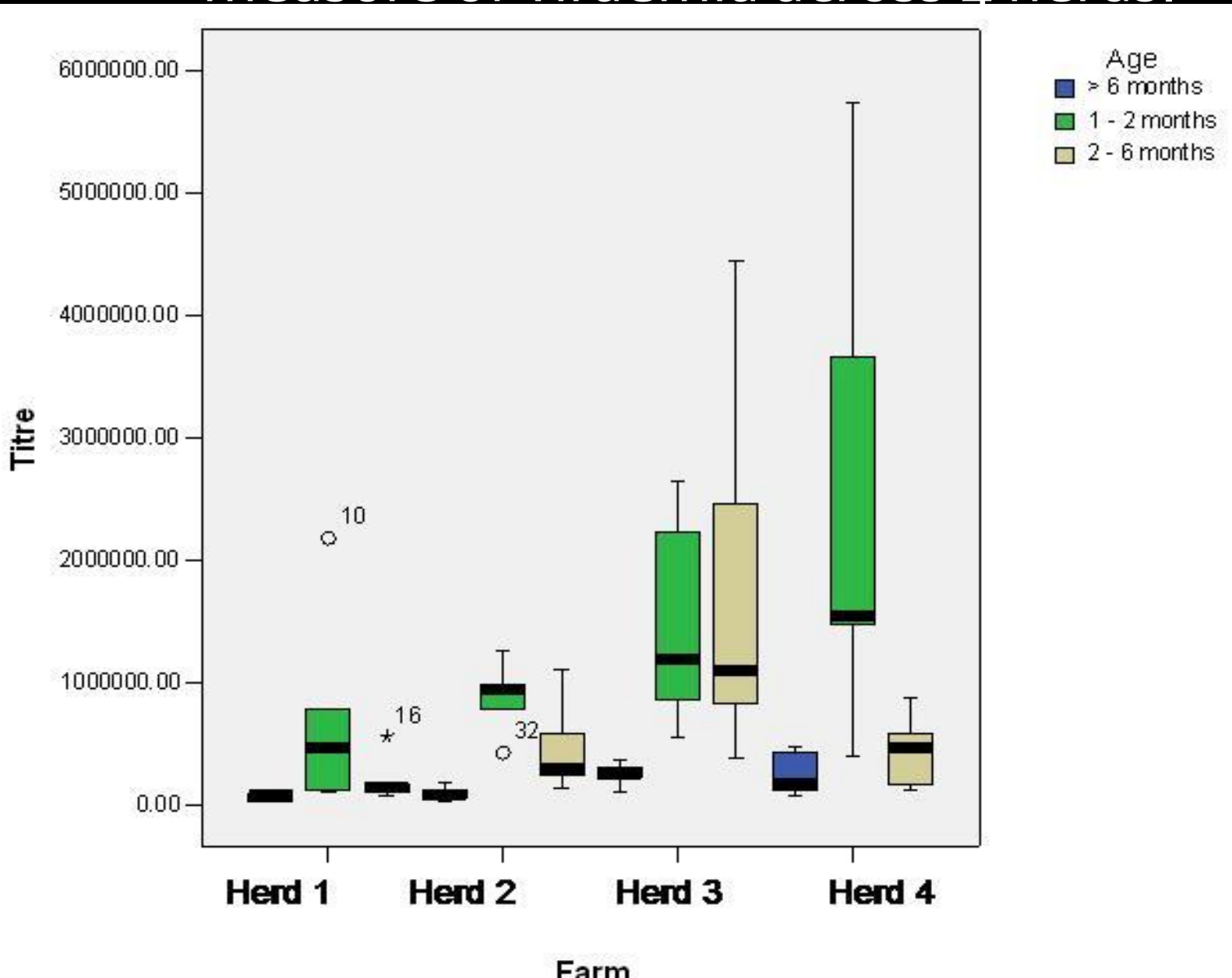
Sample populations

1. **Farm 1: Ellegaard minipigs (high health)**
   - Environment: biosecure barrier
   - High health: high (PRRSV neg, PMWS neg), mort. <5%
2. **Farm 2: Large white cross (high health)**
   - Environment: climatic housing
   - High health: (PRRSV neg, PMWS neg), mort. <5%
3. **Farm 3: Large white cross (low health)**
   - Environment: climatic housing (not all in all out)
   - Very low health: (PRRS **pos**, PMWS **pos**), mort. >20%
4. **Farm 4: Large white cross (low health)**
   - Environment: climatic housing (all in all out)
   - Low health: (PRRS **neg**, PMWS **pos**), mort. ~10%

PERV virions budding from PK15 cells (courtesy of Dr Linda Scobie).



PERV viral RNA as a semi-quantitative measure of viraemia across 4 herds.



Conclusions

- Many viruses can affect post-weaning pigs
- Fortunatly the most common ones can be control throuhg
  - Vaccination
  - Management
    - Replacement policy
    - Bacht management
    - Alll in- All out
- Future will bring new chalanges

THANK YOU VERY MUCH FOR YOUR ATTENTION