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PROGRESS

EUROPEAN CHALLENGES IN SWINE PRODUCTION:
A vision from Spain

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Swine Business Unit Manager

CEVA ANIMAL HEALTH

The AGENDA

1. THE CHALLENGES
2. SOME MACRO NUMBERS ABOUT THE PORK PRODUCTION & CONSUMPTION
3. THE EU NEW REGULATION
4. THE PRRS SITUATION IN SPAIN
5. CONCLUSIONS

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Challenges

- THE SWINE INDUSTRY (PROFITABILITY)
- ANIMAL WELFARE & TRANSPORT
- PEOPLE
- ANTIBIOTIC REDUCTION
- HEALTH CHALLENGES
- SUSTAINABILITY/GROWTH
- TECHNOLOGY & DIGITALIZATION

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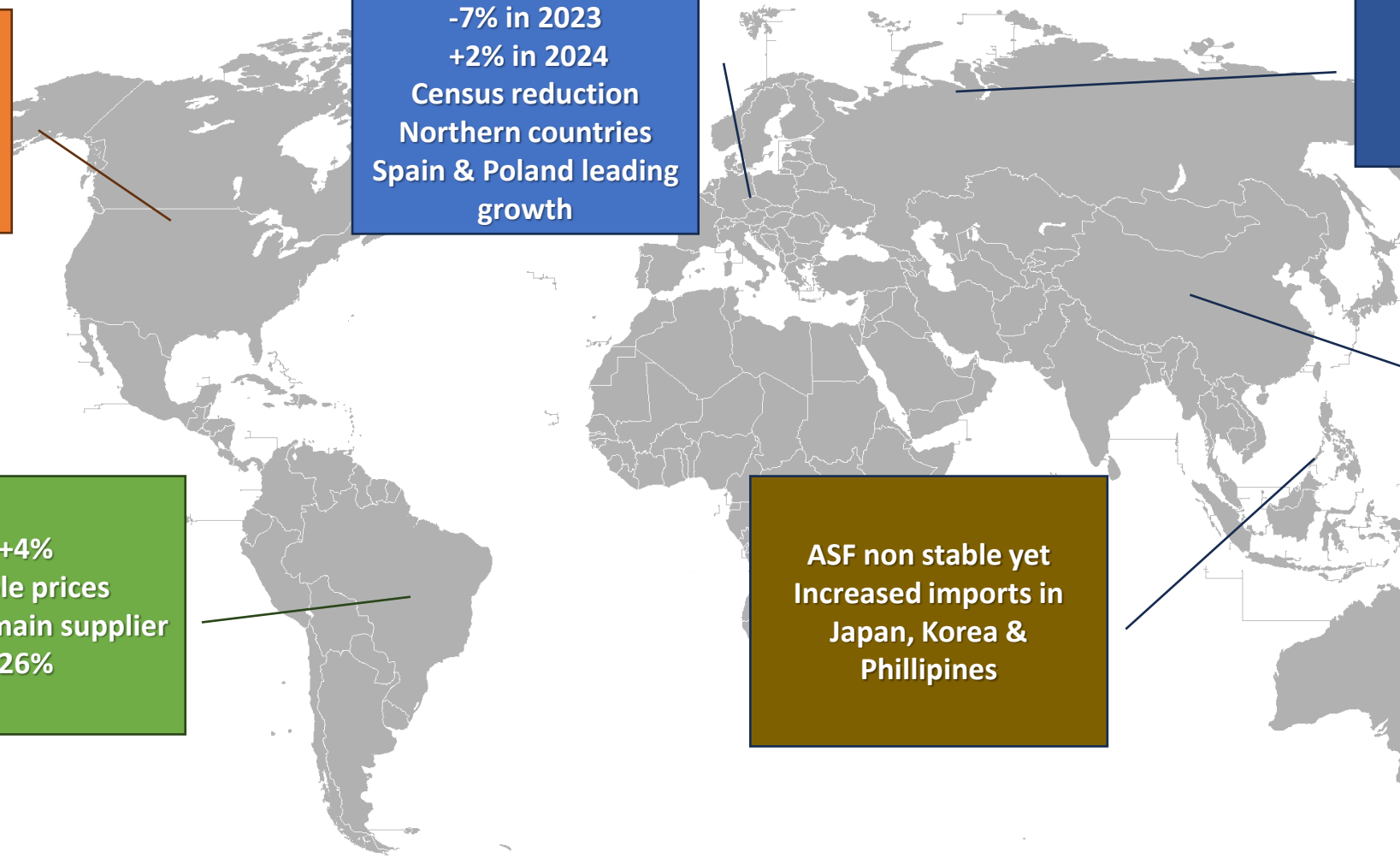
The worldwide swine industry in 2024



+2% in 2023 in the USA
Slight reduction in Canada

-7% in 2023
+2% in 2024
Census reduction
Northern countries
Spain & Poland leading growth

Targeting
SELF SUFFICIENCY

-3% in China
Economic challenges reduce consumption
Import by price

+4%
Stable prices
China´s main supplier
26%

ASF non stable yet
Increased imports in Japan, Korea & Phillipines

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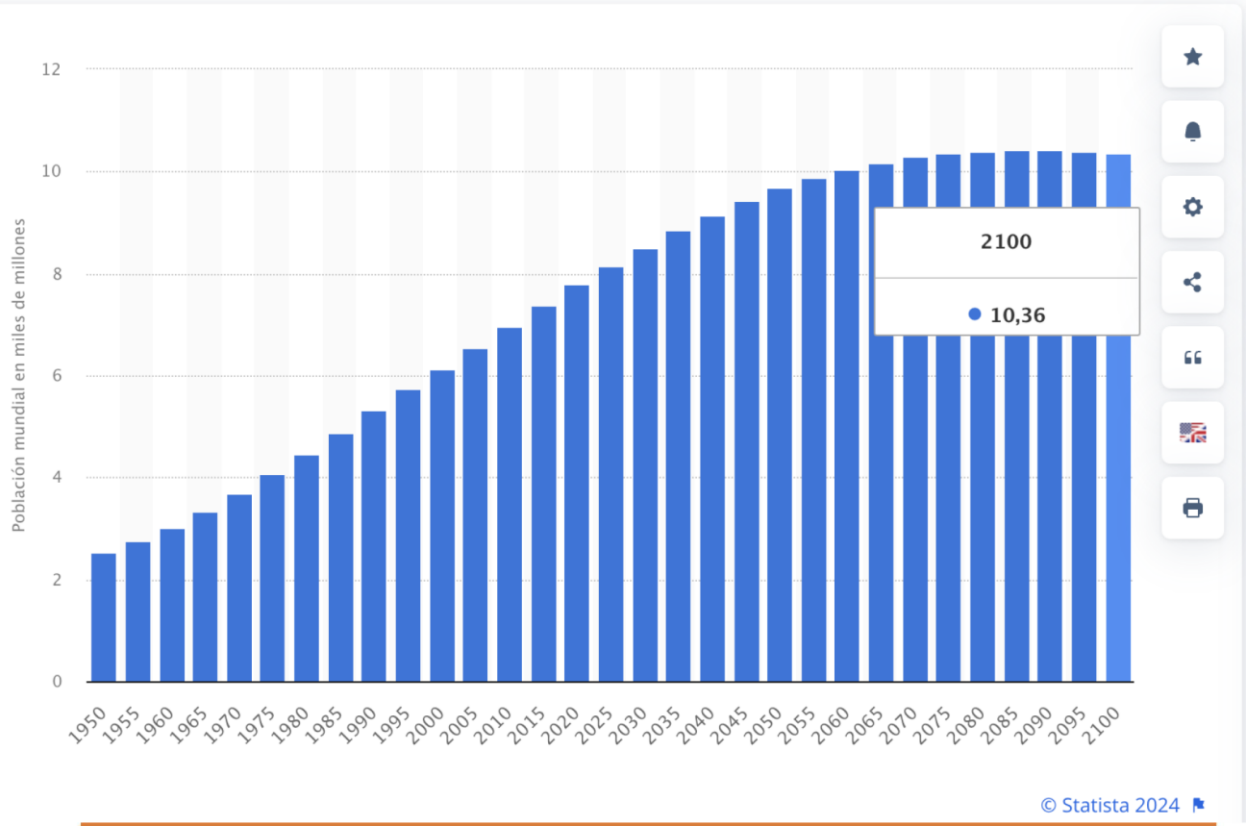
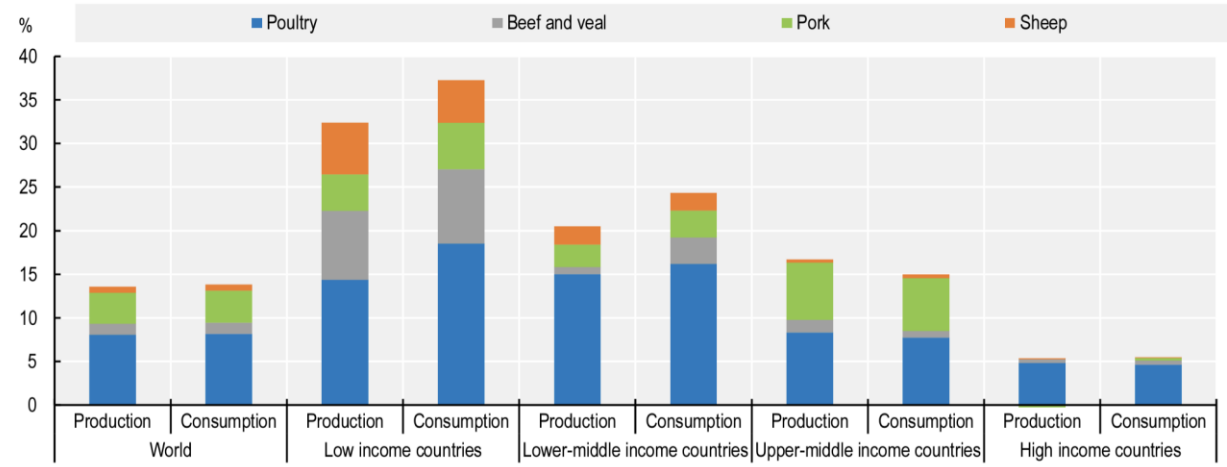
The worldwide swine industry in 2024

WORLDWIDE POPULATION PROJECTION



GROWTH IN MEAT PRODUCTION & CONSUMPTION

Figure 6.1. Growth in meat production and consumption on a protein basis, 2021 to 2030



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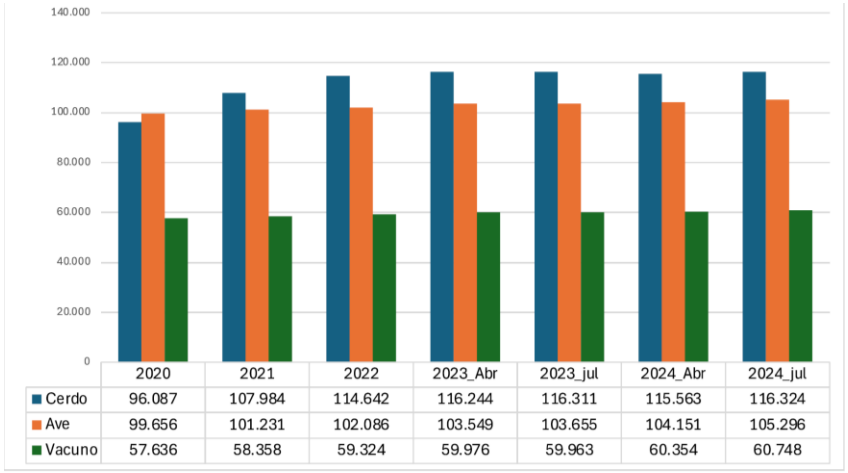
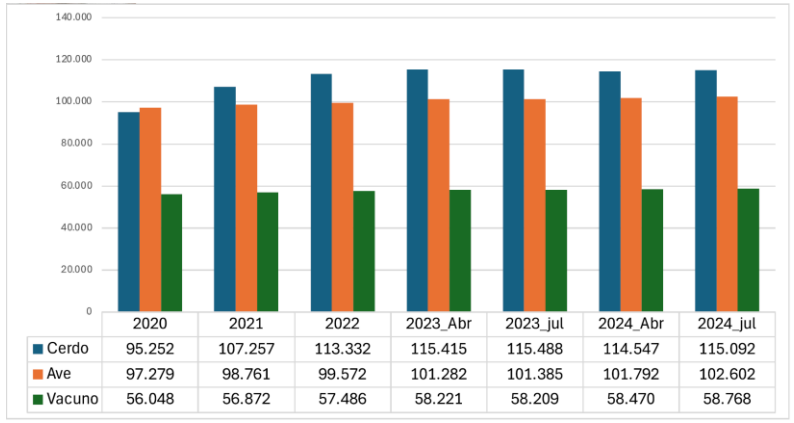
The worldwide swine industry in 2024

WORLDWIDE MEAT PRODUCTION



	2020	2021	2022	2023_Abr	2023_jul	2024_Abr	2024_jul
Cerdo	96.087	107.984	114.642	116.244	116.311	115.563	116.324
Ave	99.656	101.231	102.086	103.549	103.655	104.151	105.296
Vacuno	57.636	58.358	59.324	59.976	59.963	60.354	60.748

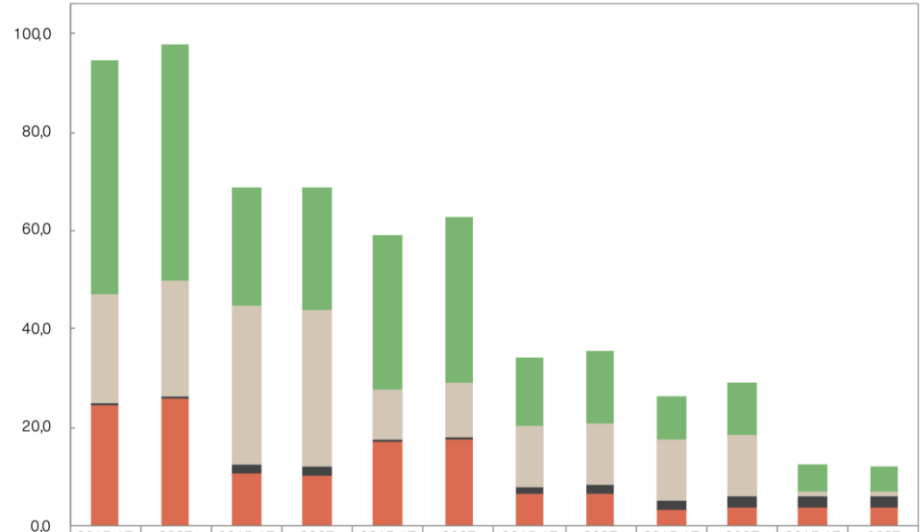
WORLDWIDE MEAT CONSUMPTION



	2020	2021	2022	2023_Abr	2023_jul	2024_Abr	2024_jul
Cerdo	95.252	107.257	113.332	115.415	115.488	114.547	115.092
Ave	97.279	98.761	99.572	101.282	101.385	101.792	102.602
Vacuno	56.048	56.872	57.486	58.221	58.209	58.470	58.768

32,12
33,96
34,92
35,25
34,39
34,35
34,56

WORLDWIDE MEAT CONSUMPTION PER CAPITA



	2015-17	2027	2015-17	2027	2015-17	2027	2015-17	2027	2015-17	2027	2015-17	2027
	Norte América		Unión Europea		América Latina		Total Mundo		Asia y Pacífico		Africa	
POULTRY	47,1	48,0	23,7	25,0	31,4	33,3	13,9	14,7	9,2	10,5	5,4	5,4
SWINE	22,3	23,5	32,3	31,7	9,9	11,3	12,3	12,2	12,2	12,6	1,0	1,0
SHEEPS	0,5	0,4	1,8	2,0	0,6	0,5	1,7	1,8	1,8	2,0	2,1	2,0
CATTLE	24,5	25,8	10,8	10,3	17,0	17,5	6,4	6,6	3,3	3,8	3,9	3,8

Fuente: OCDE-FAO (2023).

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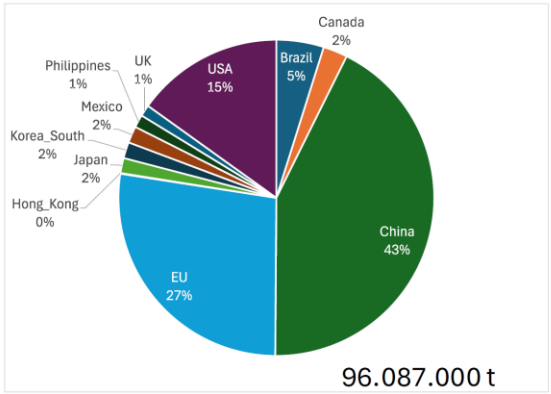
The worldwide swine industry in 2024

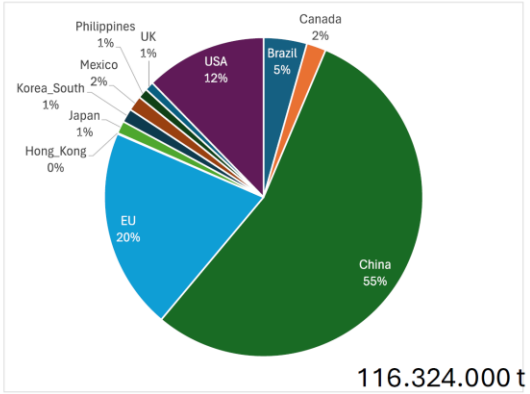
SWINE POPULATION DISTRIBUTION

2020



96.087.000 t

2024 J



116.324.000 t

EU SWINE CENSUS

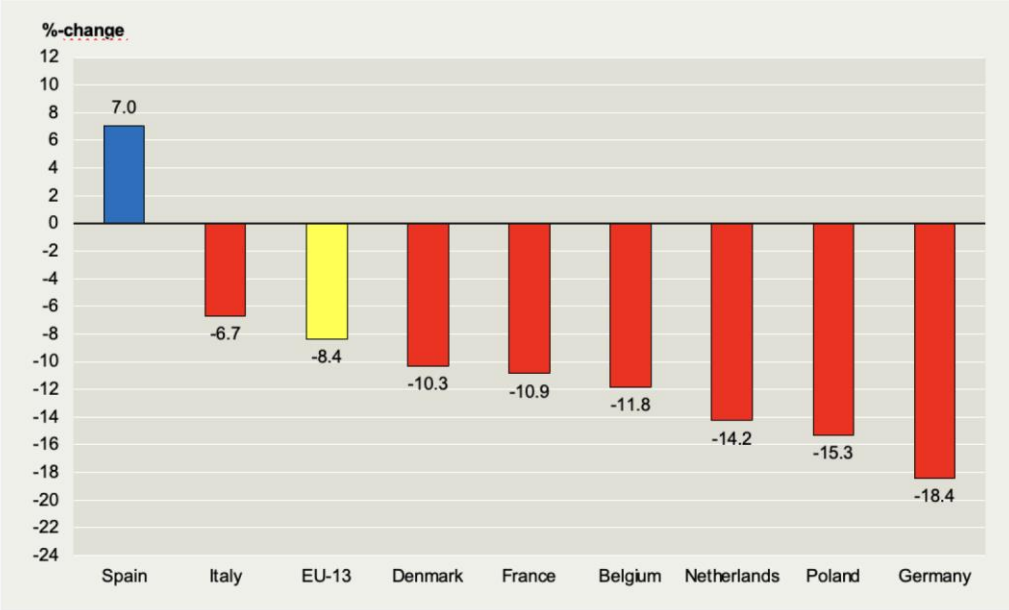
EU Pig Herd, May/June 2024

1,000 heads	Total	2024:23 %-change	Sows	2024:23 %-change
Spain	32,608	-3.7	2,771	1.7
Germany	21,174	1.1	1,414	1.4
France	11,802	-2.8	848	-3.5
Denmark	11,259	2.3	1,142	1.7
Netherlands	10,474	-3.7	853	-3.4
Poland	9,132	-3.2	683	15.6
Italy	8,062	-3.6	612	-0.8
Belgium	5,373	-0.8	350	-1.1
Romania	3,020	0.5	227	1.3
Hungary	2,745	7.2	242	4.3
Austria	2,521	-2.0	208	-1.9
Irland	1,680	1.1	152	4.8
Sweden	1,334	5.4	116	9.4
EU (13)	**121,184**	**-1.6**	**9,618**	**1.4**

Source: Eurostat

EU SWINE CENSUS EVOLUTION

Development in Pig Population 2024:2019
(%-change compared to the same census 5 years earlier)



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The EU challenges…

European Commission

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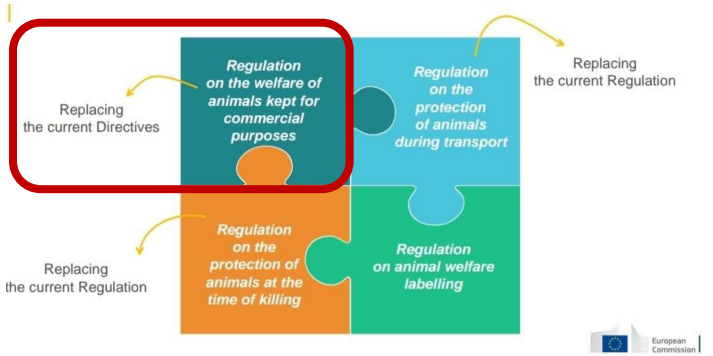
The EU challenges…

1. No stalls in weaned sows (6m^2)
2. Gestation/control in sows (groups at 2,25m^2)
3. Farrowing (7,8m^2->4,3m^2 to 6,3m^2 for the sow)
4. Weaning age 28 days
5. 20 gr straw/pig/day
6. Teeth brush
7. Immunocastration-> Surgical castration
8. Tail cutting -> Fattening pigs (110Kg)-> 1,17m^2
9. Complete removal of slats in fatteners



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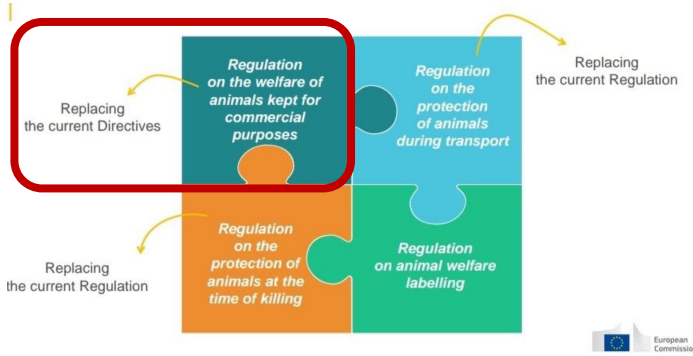
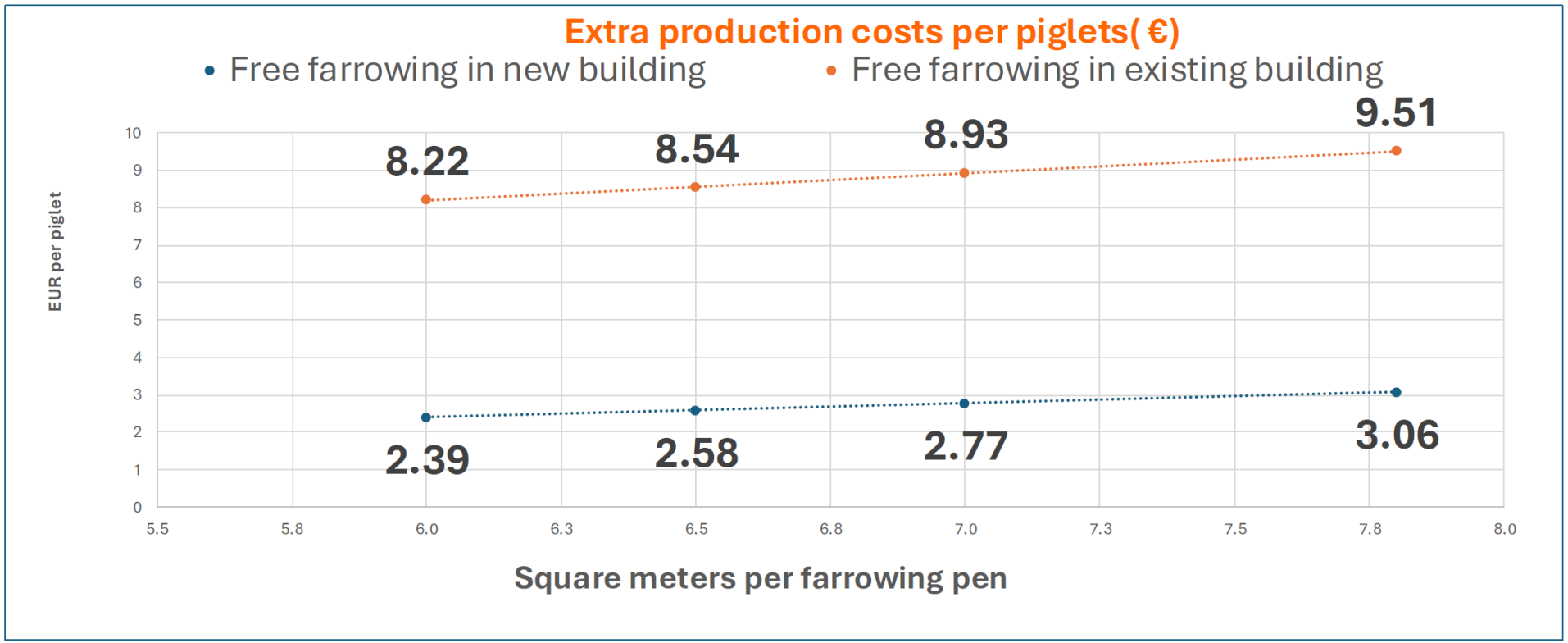
The EU challenges…

1. ECONOMIC IMPACT OF FREE FARROWING





Economic impact of policy options in impact assessment from E&Y

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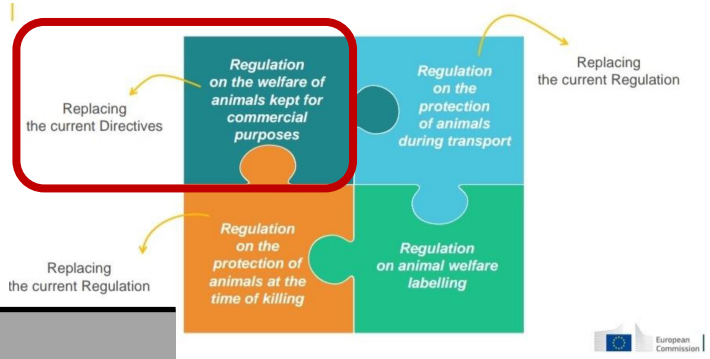
The EU challenges…



2. ECONOMIC IMPACT OF EXTRA SPACE IN EU SWINE PROD

ADITIONAL SPACE PER FATTENING PIG(m^2)	+0,1	+0,2	+0,3	+0,4
Total cost (€Million)	339	677	1016	1355
Extra investment to keep the same production level (€Million)	4.076	8.152	12.228	16.303
EU production reduction(2021)	-13%	-22%	-30%	-36%
New production level(Million pigs/year)	218	194	175	159
Level of self-sufficiency in EU (126 2021)	110	98	88	80
Extra cost per Slaughtered pig (€)	1,36	2,71	4.07	5,43

Economic impact of policy options in impact assessment from E&Y

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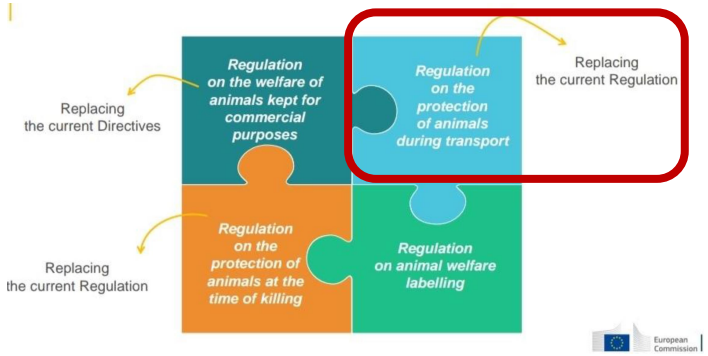
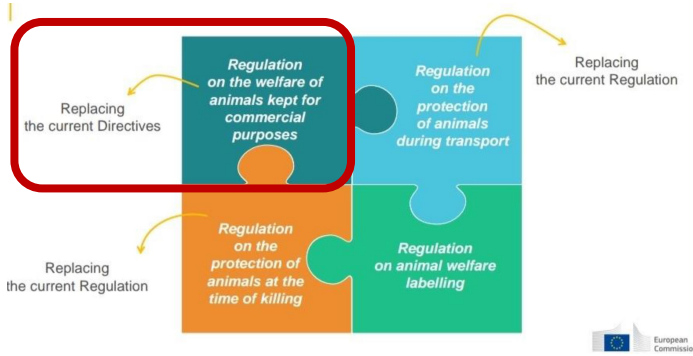
The EU challenges…

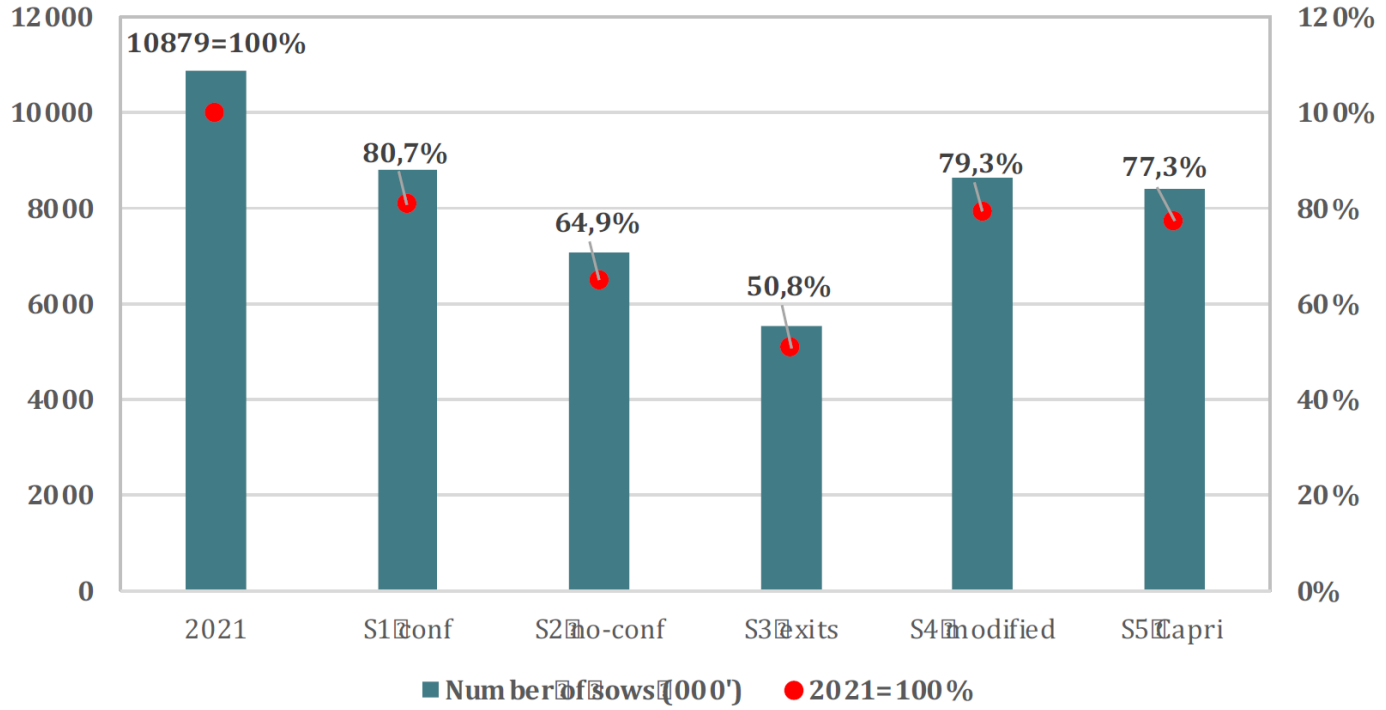


1. **TRAVELLING TIME**
    1. To slaughterhouse ->9 h
    2. For live animals 21h +24 h stop
2. **TEMPERATURE**
    1. Forbidden below -5º C
    2. 25ºC - 30ºC max 9h between 10:00-21:00
    3. >30ºC only night trips between 21:00-10:00
3. **DENSITY**
    1. 0.58m^2 /100 Kg pig (Nowadays 0,43m^2)
4. **LIMITATION FOR NON-WEANED ANIMALS**
    1. No under 21d

The EU challenges…



3. ECONOMIC IMPACT OF EXTRA SPACE IN FARROWING CRATES 5,5m²->7m²



In the EU → 6.200 million €
In Spain → 1.700 million €

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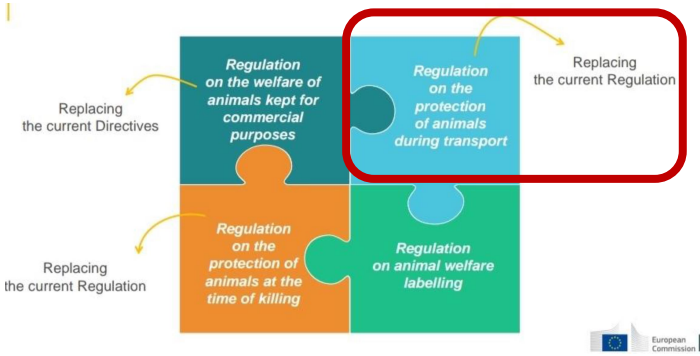
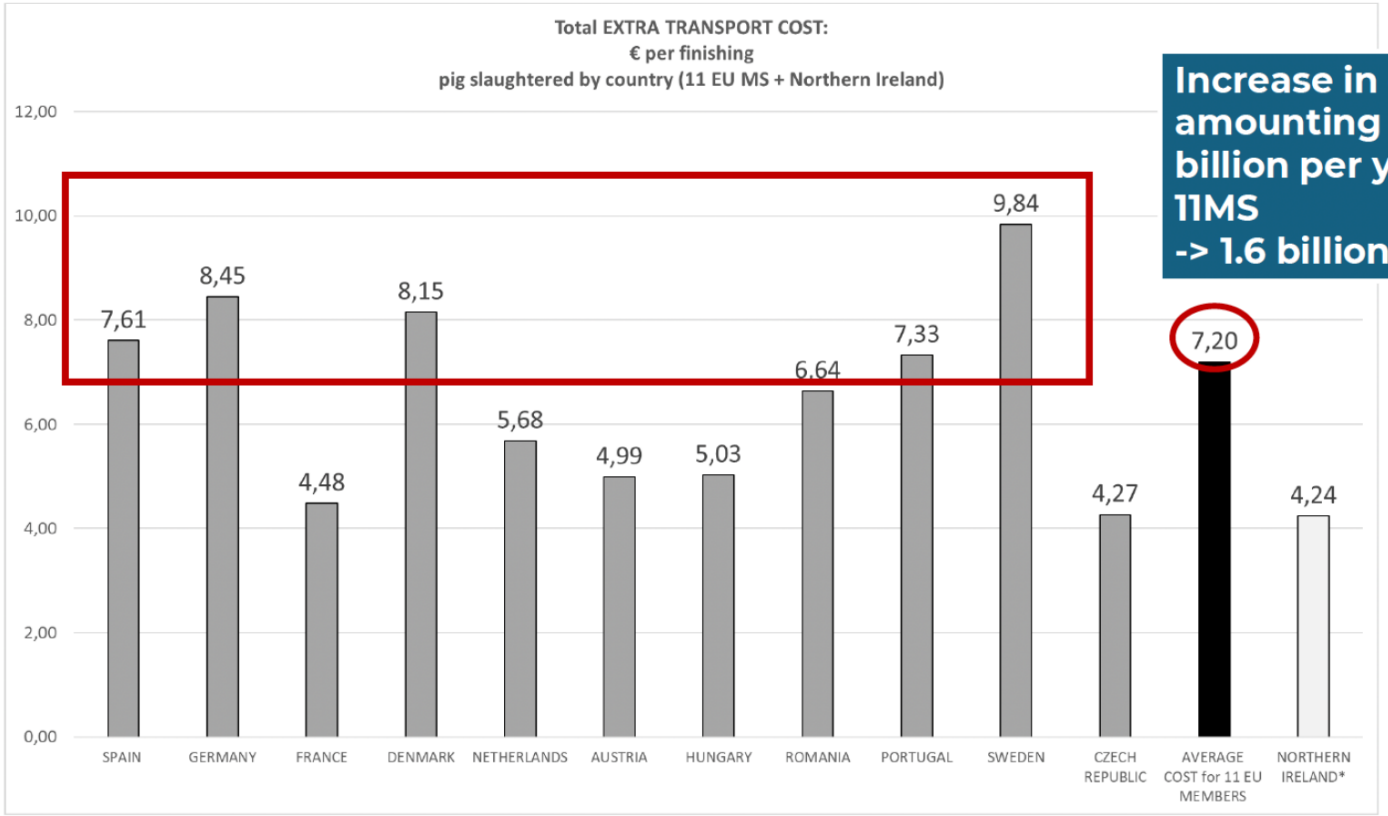
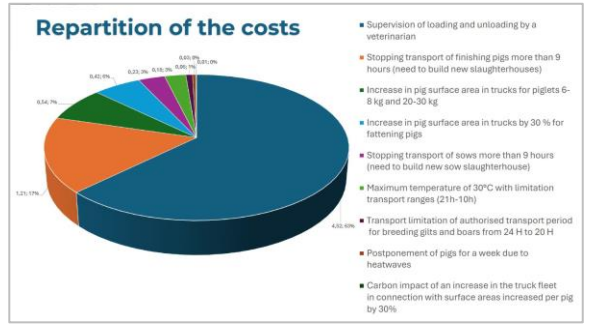
The EU challenges…

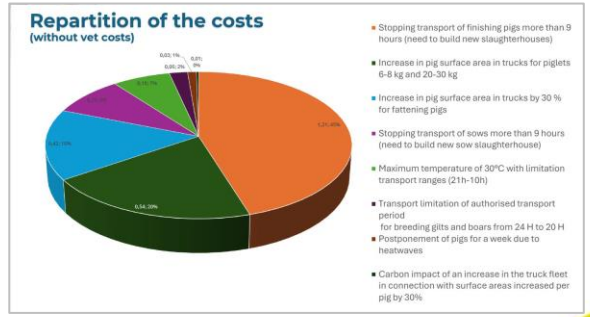


Estimate of average cost by country



Increase in costs amounting to €1.244 billion per year for 11MS
-> 1.6 billion EU27





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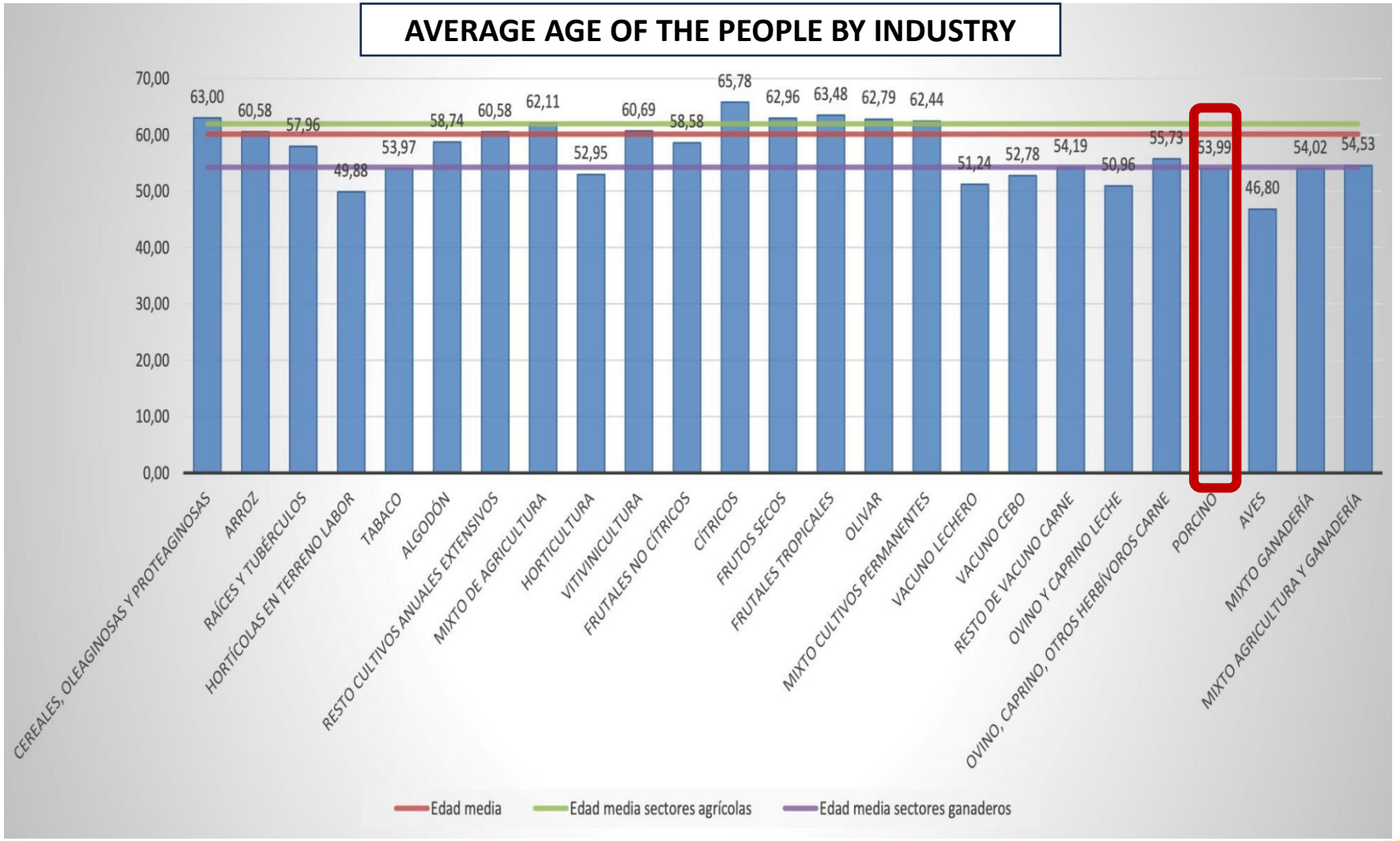
People



NO REPLACEMENT
NOT TRAINED
NO INTEREST

BIG ISSUE

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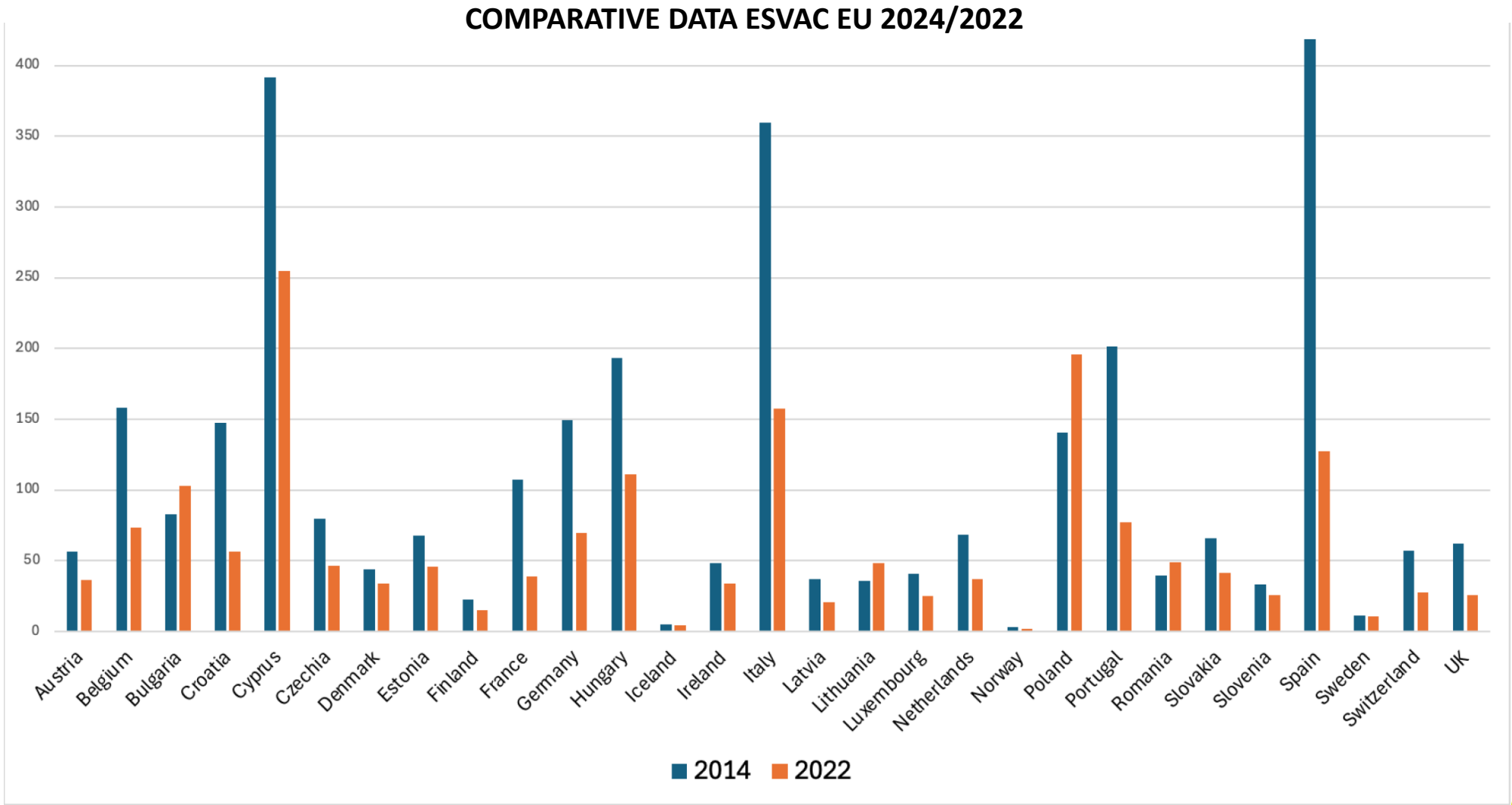
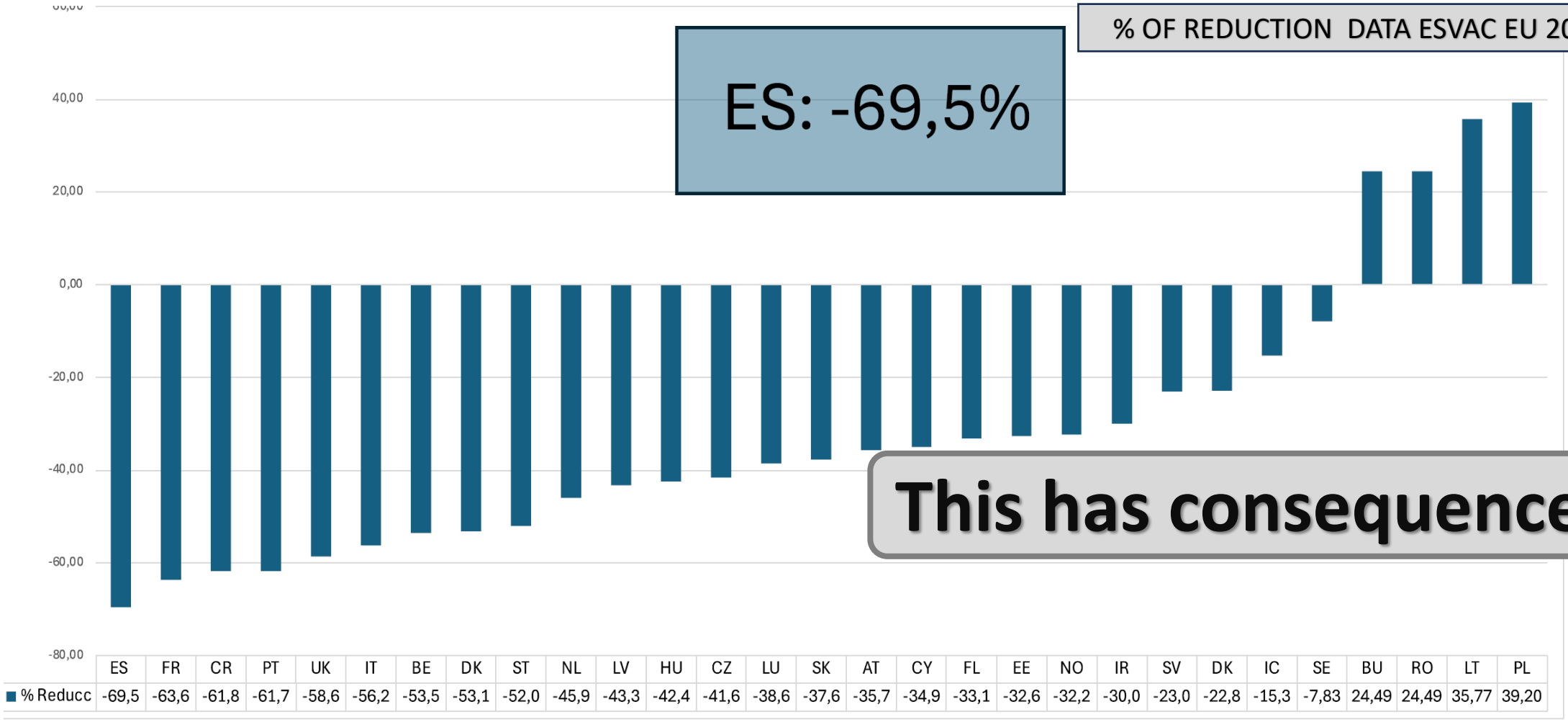
Antibiotic reduction

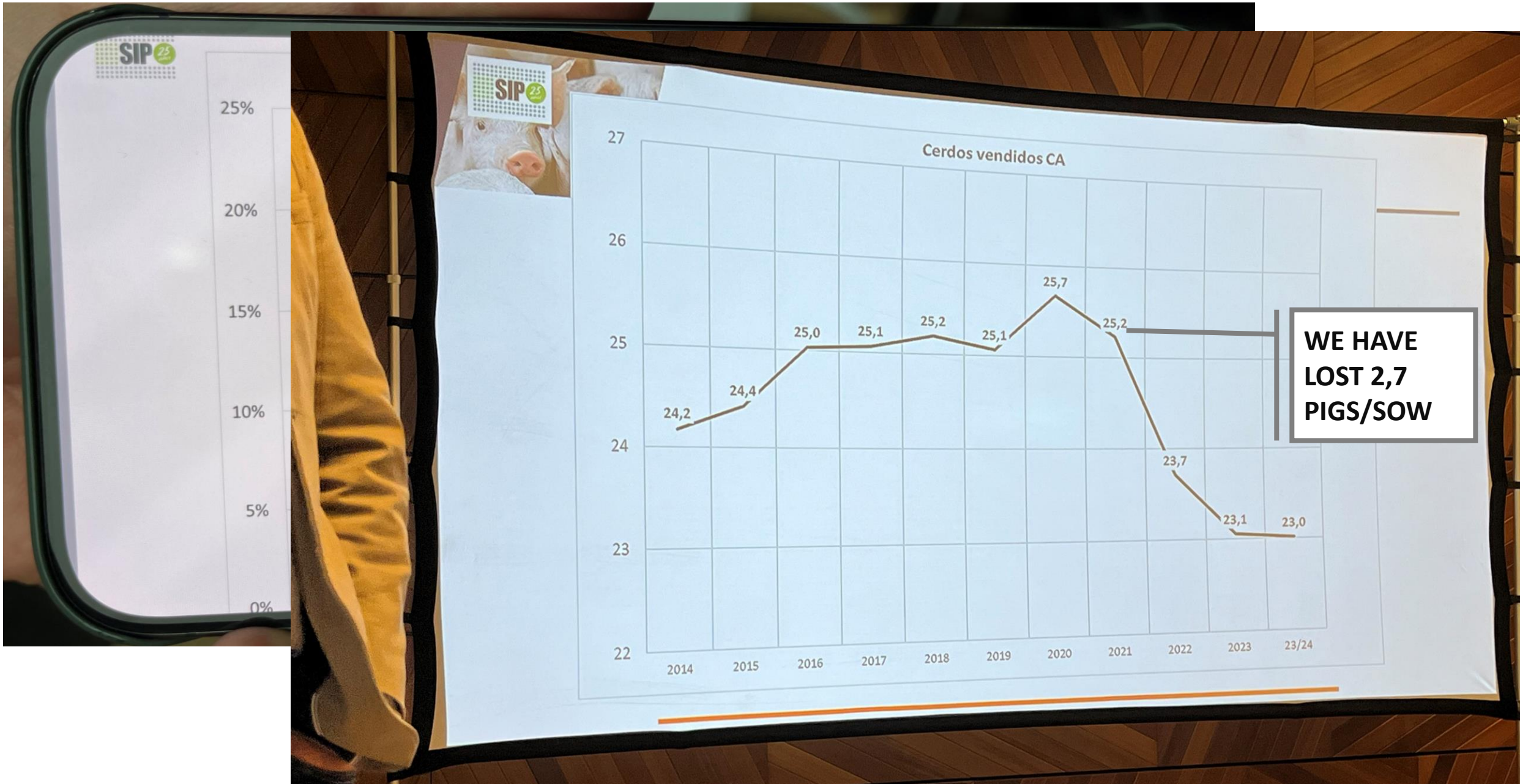


Antibiotic reduction

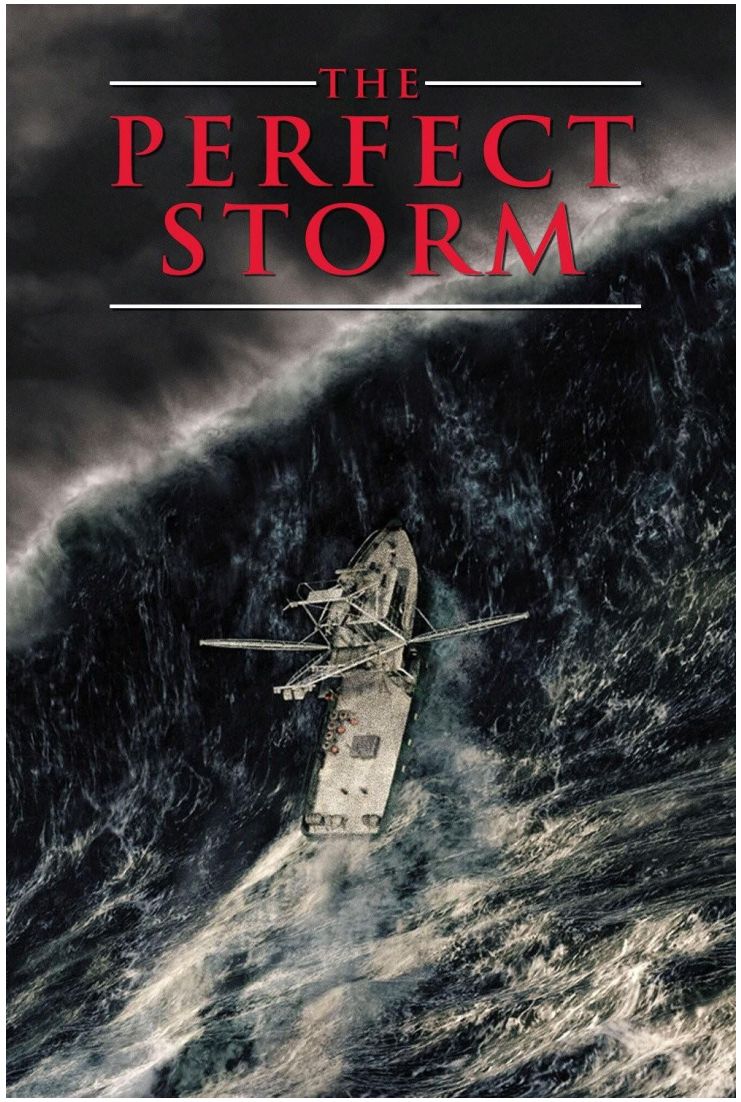


	ES	FR	CR	PT	UK	IT	BE	DK	ST	NL	LV	HU	CZ	LU	SK	AT	CY	FL	EE	NO	IR	SV	DK	IC	SE	BU	RO	LT	PL
% Reducc	-69,5	-63,6	-61,8	-61,7	-58,6	-56,2	-53,5	-53,1	-52,0	-45,9	-43,3	-42,4	-41,6	-38,6	-37,6	-35,7	-34,9	-33,1	-32,6	-32,2	-30,0	-23,0	-22,8	-15,3	-7,83	24,49	24,49	35,77	39,20

Health challenges we are currently facing



Health challenges we are currently facing -> PRRS



- WEANING AGE
- ANTIBIOTIC RESTRICTIONS
- PED
- Zn Oxide BAN
- HIGH % REPLACEMENT
- INTEGRATION SYSTEM
- HYPERPROLIFICACY
- INCREASING FARM SIZE

PRRS
ROSALIA

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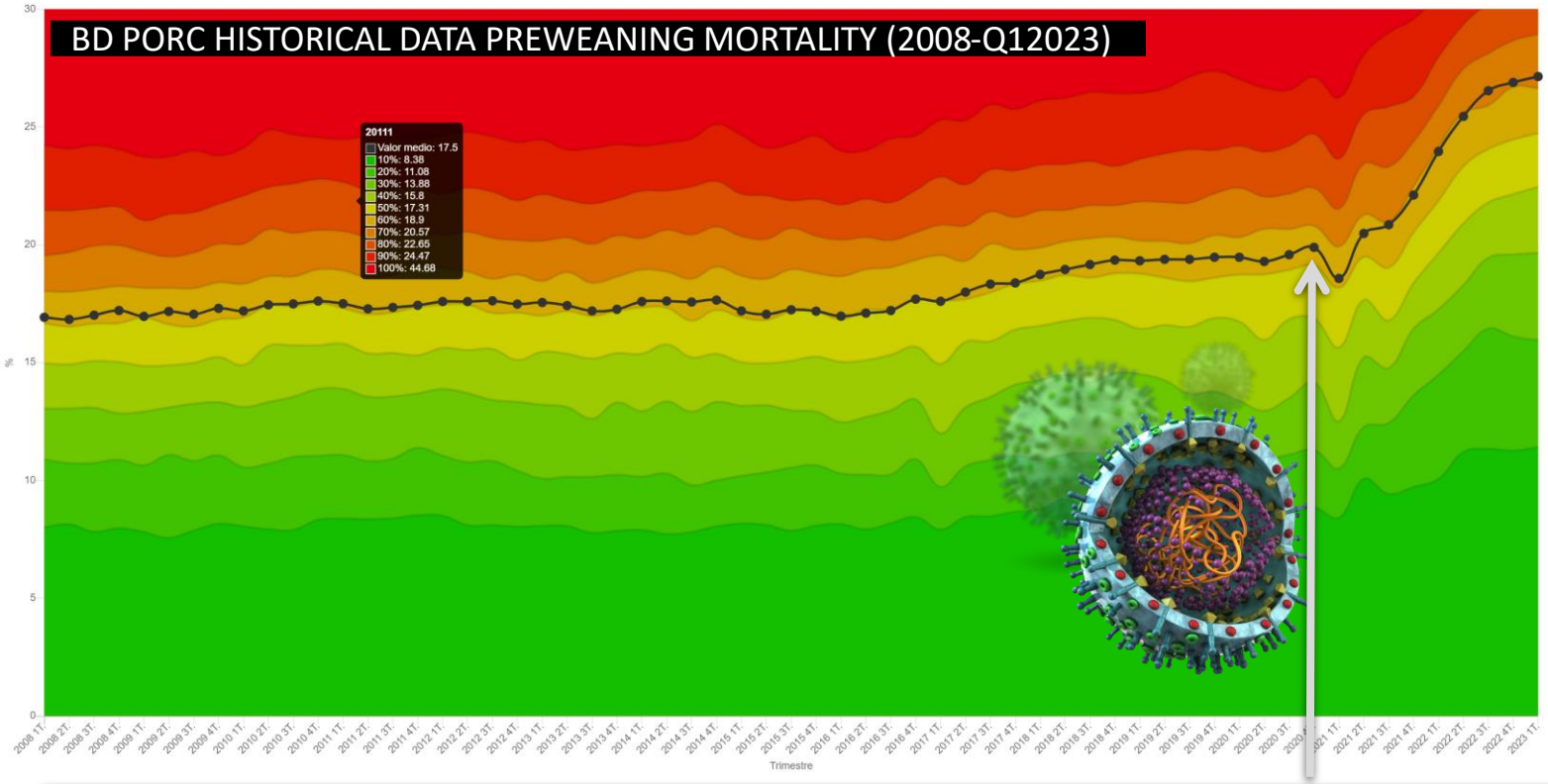
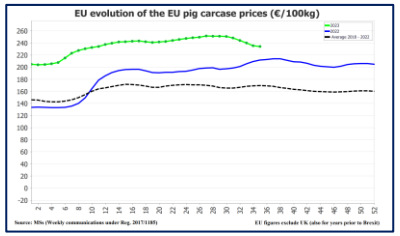
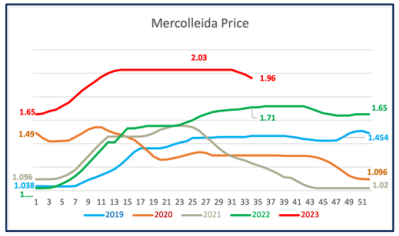
Health challenges we are currently facing



IMPORTED PIGLETS TO SPAIN
3,7M (2024 ESTIMATION)
From

↑ 34%
IMPORTS





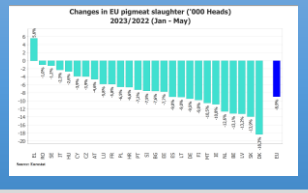
↑ PORK PRICES
↑ PIGLETS' PRICE

2021 HYPERVIRULENT PRRS OUTBREAK

- **↑ % ABORTIONS** (up to 25%)
- **↑ PIGLETS MORTALITY** (up to 50%)
- **↑ PROLONGED IN TIME** (up to 2 Y)

↓  **10%**
PRODUCTION

↓ 
PRODUCTION/CENSUS



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Health challenges we are currently facing -> PRRS

WHO IS ROSALIA??

HIGH VIRULENT PRRSV-1 strain.

In some cases, it is considered even worse than highly pathogenic PRRSV-2 strains

Reassortant (Italy + Korea + Spain + Unknown genes).

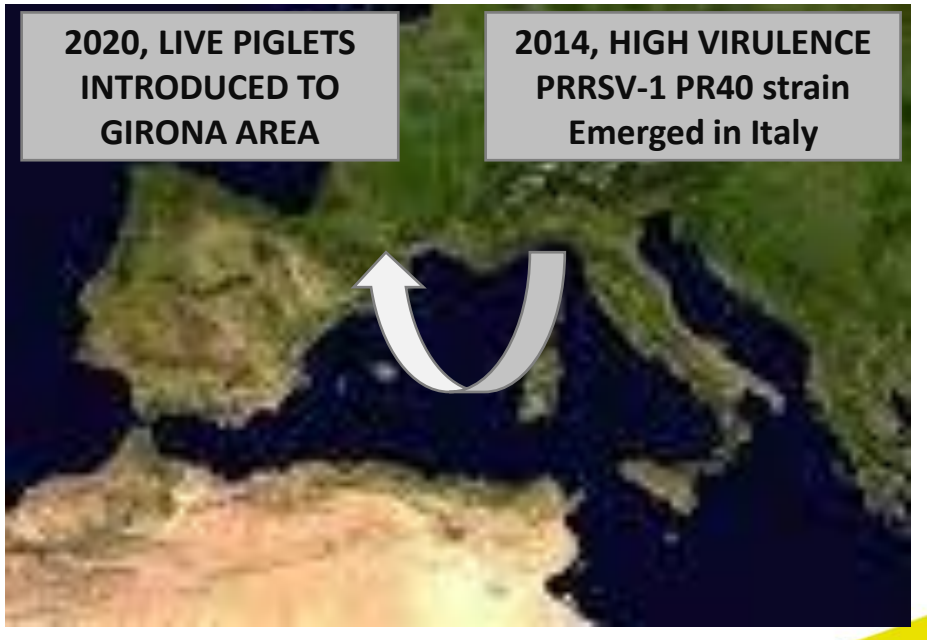
Contents lists available at ScienceDirect

Veterinary Microbiology

journal homepage: www.elsevier.com/locate/vetmic

Phenotypic characterization of a highly pathogenic Italian porcine reproductive and respiratory syndrome virus (PRRSV) type 1 subtype 1 isolate in experimentally infected pigs

Elena Canelli[a,*], Alessia Catella[a], Paolo Borghetti[a], Luca Ferrari[a], Giulia Ogno[a], Elena De Angelis[a], Attilio Corradi[a], Benedetta Passeri[a], Valeria Bertani[a], Giampietro Sandri[b], Paolo Bonilauri[c], Frederick C. Leung[d,e], Stefano Guazzetti[f], Paolo Martelli[a]



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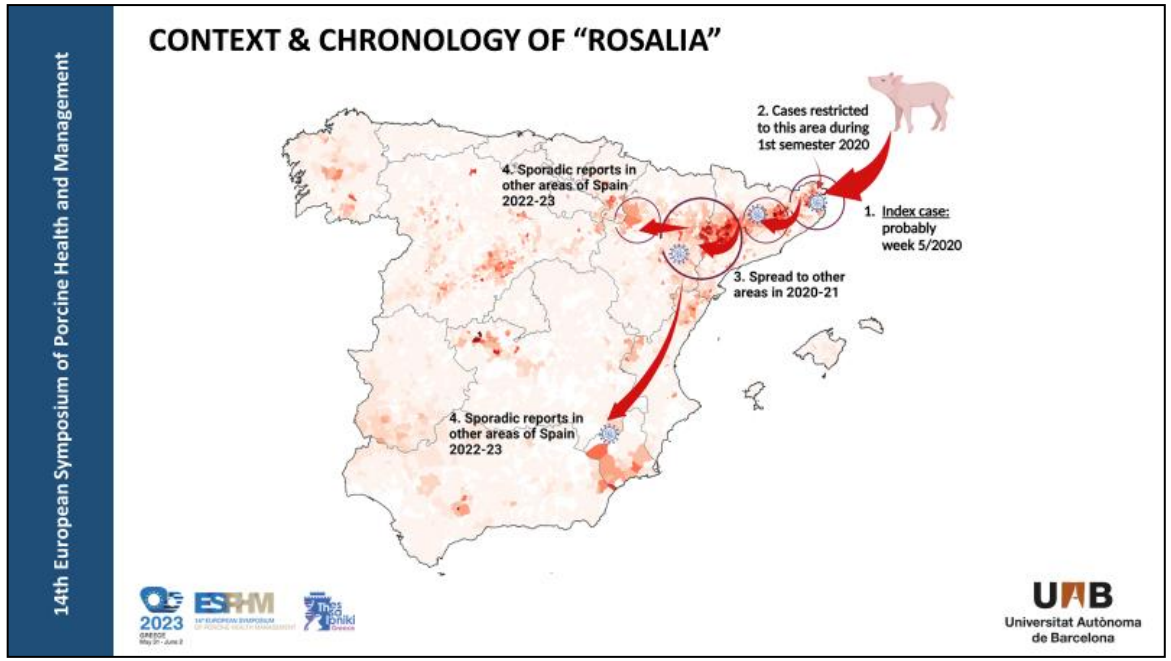
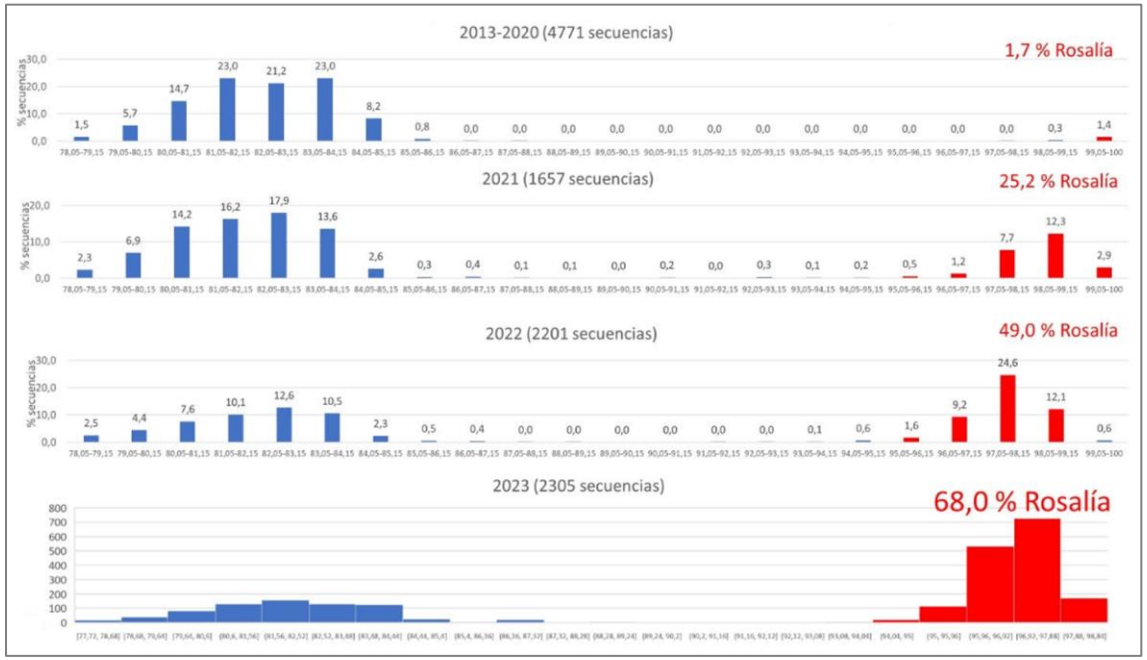
Health challenges we are currently facing -> PRRS

SPREADING VERY FAST



GSP Lab SEQUENCING RESULTS



- Higher replication in larger range of tissues = Larger viremia (X6) / higher viral loads (X1000) / Lower infective dose
- New strain = no previous immunity = epidemic outbreaks = Higher transmission rate between animals and farms = Higher incidence
- Higher variation due to mutation (genetic drift) annual nucleotide substitution rate x10:
- High reassortment: High number of animals affected during longer time
- HIGH VARIABILITY IN RELATION TO TIME

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Health challenges we are currently facing -> PRRS

- **Airborne transmission**: Manure in fields + airborne??
  - i.e.: Large Company, 25Ksow farms.
  - From 25k, only 2 remain free from Rosalia, both with filtered air…
  - "BUNKER" EFFECT???
- Semen, Fomites, Pigs + other animal vectors…
- Equipment shared between farms (maily growers / sometimes nurseries…)
  Attention to vaccination teams: Same vaccination equipment & syringes between farms…
- **Corpse containers**
- **Commercial trucks** moving piglets

LONG TRIPS sometimes
+ FREQUENCY (i.e. 2/week in large farms)
+ HIGH NUMBER OF ANIMALS (i.e. 1800 weaners in a 3 flat truck)

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Health challenges we are currently facing -> PRRS

Not too many companies have proper facilities to clean trucks (5000 l water + 1 hour time to clean in adequate facilities)

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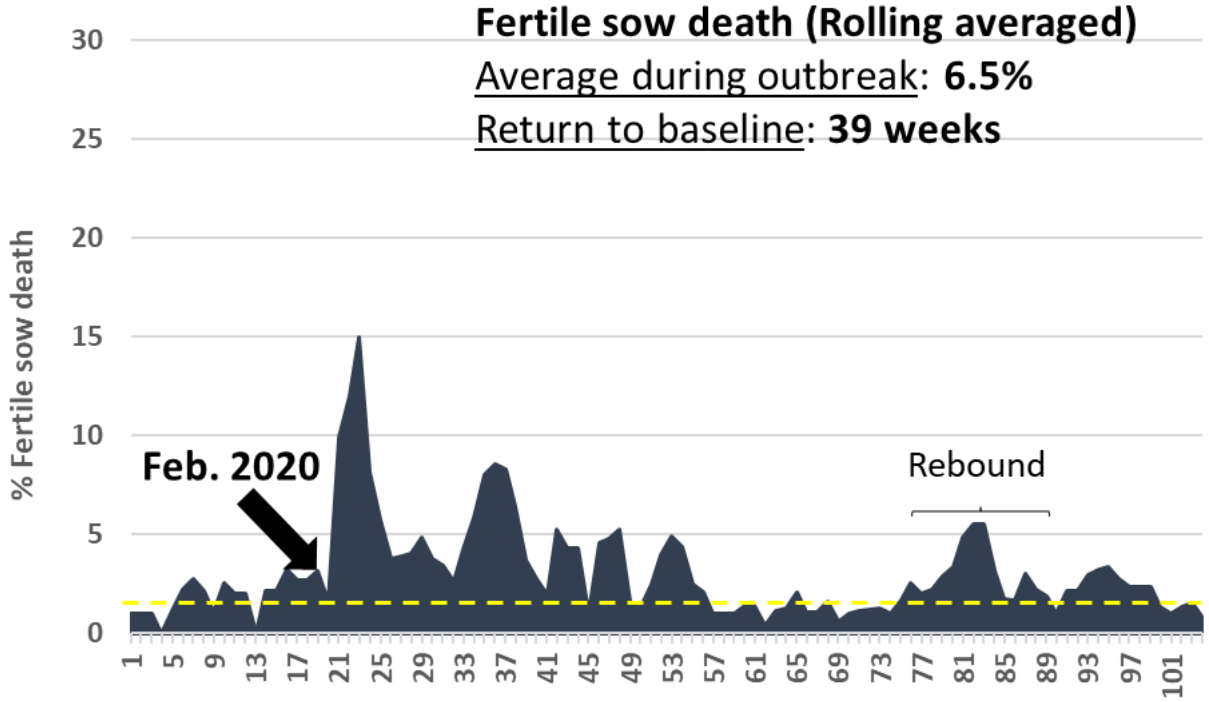
Health challenges we are currently facing -> PRRS

CLINICAL SIGNS AND PRODUCTIVE IMPACT

SOWS:

- Fever, inappetence, laying down, respiratory signs, death.
- Blue ears and mammary glands in some cases.



Early outbreak (Winter-spring 2020). PRRSV-1 stable farm (1,330 vaccinated shows)

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Health challenges we are currently facing -> PRRS

CLINICAL SIGNS AND PRODUCTIVE IMPACT

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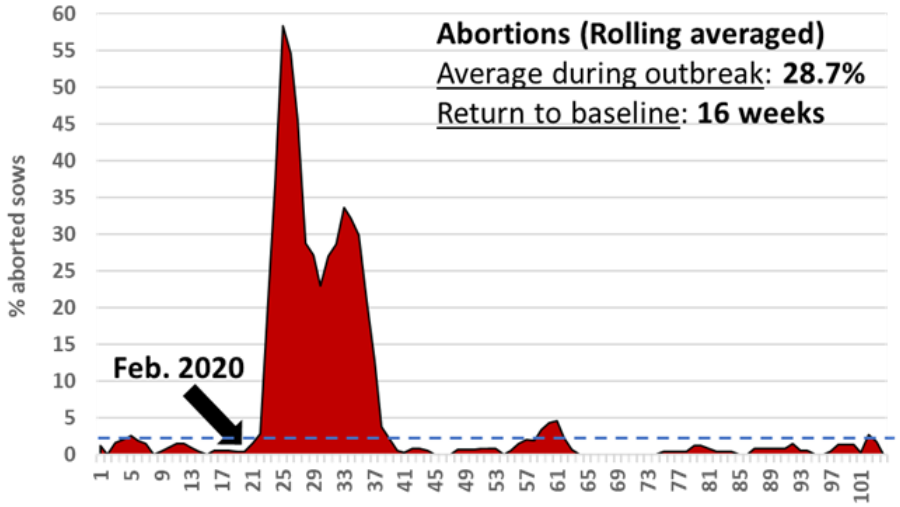
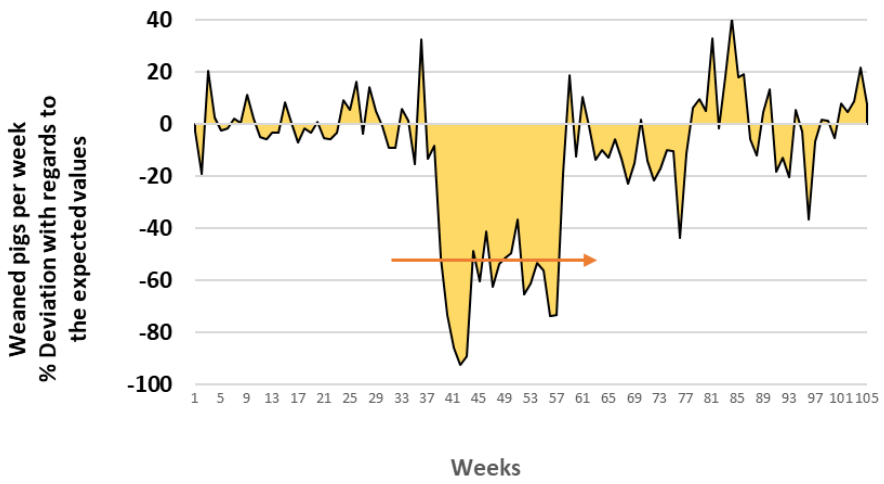
- Blue ears and mammary glands in some cases.





On average, -18% of the annual production of weaned pigs lost during the outbreak

PARTNERS IN PROGRESS

Health challenges we are currently facing -> PRRS

CLINICAL SIGNS AND PRODUCTIVE IMPACT

SOWS

	Situation 1 (S1)			Situation 2 (S2)		
Per cicle:	**%**	**Days**	**NPD**	**%**	**Days**	**NPD**
Wean to 1rst service interval			7,5			7,5
Repetitions	9,0%	35	3,2	9,0%	35	3,2
Abortions	7,5%	80	6,0	2,0%	90	1,8
Gest. sows slaughtered	3,0%	72	2,2	3,0%	72	2,2
Gestation sows died	6,0%	45	2,7	2,0%	90	1,8
Total			21,5			16,4
Days of Gestation			116			116
Days of Lactation Piglet			23			23
Days of Lactation Sow			26			26
NPD / year			*48*			*38*

0,134

SIP average **SIP**

Clean:

Sows **F_1**

Nursery **F_2**

Finishing **F_3**

€/piglet

	S1	S2	Diff.
Litters/sow/year	2,23	2,30	
Piglets weaned / farrow	10,50	12,62	
Production	*23,4*	*29,1*	7,8
Gestation Feed (kg/day)	2,4	2,4	
Lactation Feed (kg/day)	6,7	6,7	
Feed Sow/year	*1.154*	*1.163*	
Feed Price (€/T)	*327*	*327*	
Gilt cost at first service	253	253	
Slaughtered sows price	163	163	
% Reposition	54%	54%	
Sow Cost per year	**940**	**902**	
Feed	378	380	-0,1
Accomod. and Manag.	366	366	
Reposition	72	58	0,5
Treatment			
Medicines	100,0	74,0	0,9
Service	24,0	24,0	
Weaned piglet cost6,3kg	**40,1**	**31,0**	**9,1**
Non productive days Cost	**2,6**	**2,5**	

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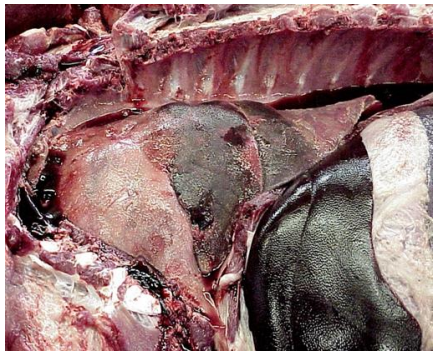
Health challenges we are currently facing -> PRRS

CLINICAL SIGNS AND PRODUCTIVE IMPACT



NURSERY:

- High fever, lying down, severe coughing, and respiratory signs.
- Interstitial pneumonia: Severe and persistent lung lesions
  - (5-6 weeks after infection still lesions detected).
- Conjunctivitis, swollen eyes in some cases.
- Secondary infections: Polyserositis.
- Multifocal petechia + haemorrhages

IMMUNE SYSTEM COMPROMISED:

- Severe lymphopenia
- Exacerbation of other diseases
- Influenza (UAB study much higher prevalence, flu new outbreaks match mortality peaks).
- Vaccination failure
- PCV2, mhyo, app…

PARTNERS IN PROGRESS

Health challenges we are currently facing -> PRRS

CLINICAL SIGNS AND PRODUCTIVE IMPACT

PARTNERS IN PROGRESS

Health challenges we are currently facing -> PRRS

CLINICAL SIGNS AND PRODUCTIVE IMPACT

NURSERY	S1	S2	€/piglet Diff.
Piglet IN Cost 6,3kg	**50,1**	**32,6**	
Weight IN	*6,3*	*6,3*	
Weight OUT	*18,0*	*18,0*	
Economic Growth (g/day)	160	270	
Technical Growth (g/day)	220	291	1,3
Economic accomodation days	*63,7*	*42,4*	
Economic Feed conversion	2,20	1,58	
Technical Feed convertion	1,70	1,50	1,3
Feed per piglet (kg)	*22,4*	*18,1*	
Mortality	25,0%	5,0%	11,0
Weight of the dead animals (kg)	12	12	
Medicines	2,5	1,5	0,6
Treatment (€/piglet)			
Piglet Cost18kg	**71,1**	**48,1**	**23,0**
Feed	12,3	9,9	
Hosting and Management	6,1	4,1	
Medicines	2,5	1,5	
Treatment			
Economic return			
Mortality - Nursery			
% Regular mortality	25,0%	5,0%	
Weight (kg)	12	12	

FINISHING	S1	S2	€/pig Diff.
Piglet IN Cost 18kg	**87,4**	**50,0**	
Weight IN	*18,0*	*18,0*	
Weight OUT	*114,0*	*114,0*	
Economic Growth (g/day)	703	676	
Technical Growth (g/day)	972	709	-4,0
Economic accomodation days	*130,7*	*140,9*	
Economic Feed conversion	2,85	2,40	
Technical Feed convertion	2,55	2,35	5,9
Feed per pig (kg)	*261,8*	*228,7*	
Mortality	23,0%	4,0%	21,3
Weight of the dead animals (kg)	55	55	
Medicines	2,7	1,7	0,6
Tratamiento (€/cerdo)			
Pig Cost114kg	**188,2**	**140,3**	**47,9**
Feed	83,8	73,2	
Hosting and Management	14,3	15,4	
Medicines	2,7	1,7	
Treatment			
Cost (€/kg)	**1,65**	**1,23**	
Economic return			
Total Eco. Return			
Mortality - Finishing			
% Regular mortality	23,0%	4,0%	
Weight (kg)	55	55	

FOR EVERY 1000 SOWS, WE LOSE 1.5€M

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Health challenges we are currently facing -> PRRS

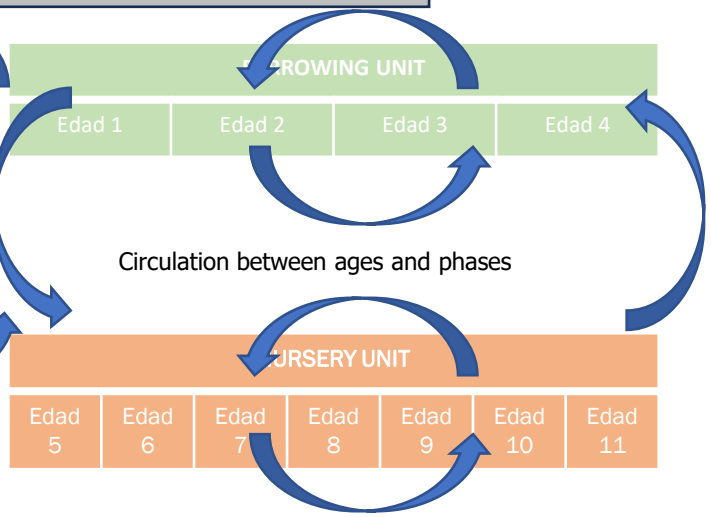
CLINICAL SIGNS AND PRODUCTIVE IMPACT

Quarantine

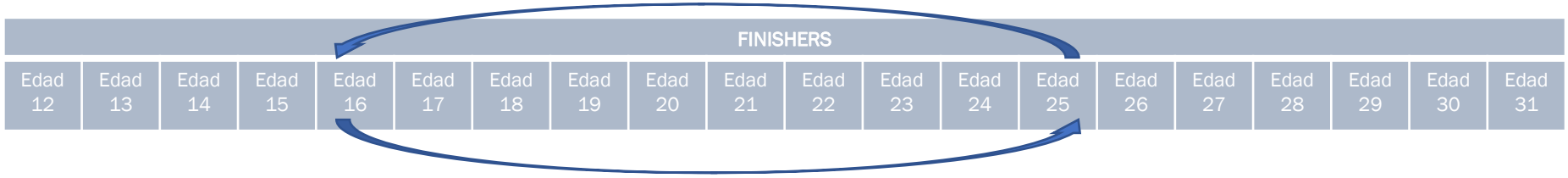
Adaptation

Control gestation (crates)

Confirmed Gestation (pens)



Rosalia: Faster replication / transmission / higher virulence



REALITIVELY "EASY" TO ACHIEVE "ALMOST" NEGATIVE PIGLETS AT WEANING
THE BIG PROBLEM IS ROSALIA CIRCULATION IN NURSERIES:
7-10 days Incubation period, Clinical signs start 2-3 weeks after weaning

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Conclusion 1

Rosalia totally changed the rules of production in Spain

- **Change in production mentally** (volume vs. health and piglet quality).
- **Continuous production flows no longer viable**
  - Key point is AI-AO in nursery
- **Batch management transformation**
  - >1 Week is a very helpful tool, no matter of the farm size
  - 3-5 weeks batch management is a trend
- **Increase biosecurity, plan eradication programs**
- **Dramatic increase of the bacterial problems**
  - S suis especially 2,9
  - APP with a big increase of new serotypes 9
  - Coinfections with other viral diseases like swine influenza
- **Still big problems with E. coli**
  - **Ban of zinc oxide** transformed the nutrition in the nurseries
  - Feed additives are proliferating
  - Organic acids, essential oils & other and combinations are the future

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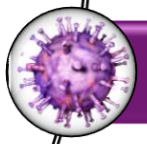
Conclusions 2

THE SWINE INDUSTRY (PROFITABILITY)	WORK DAILY TO IMPROVE PRODUCTION COST

ANIMAL WELFARE & TRANSPORT	WILL COME-> NO CHANCE

PEOPLE	INVEST IN PEOPLE & RETENTION

ANTIBIOTIC REDUCTION	ALTERNATIVE MOLECULES & COMBOS



HEALTH CHALLENGES	ASF/PRRS/FLU/S SUIS/APP/E COLI

SUSTAINABILITY/GROWTH	IS IT POSSIBLE?

TECHNOLOGY & DIGITALIZATION	ADOPT IT AS SOON AS POSSIBLE

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THANK YOU!

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