SoLiv 2.0

Sow mortality in Denmark

SEGES Innovation

April 14th 2023

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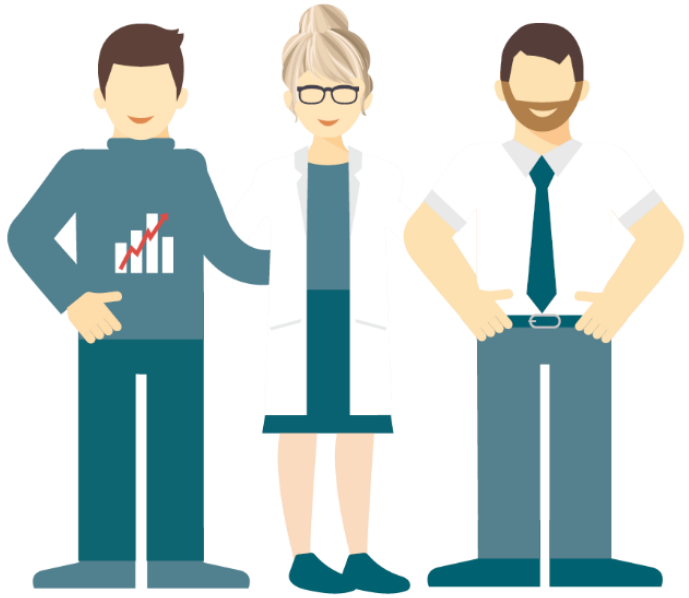
Carlsberg
COPENHAGEN
DENMARK
1847 ONWARDS

Portu
sbon
Casa
M


DANISH
QUALITY SLICED BACON
DANISH CROWN
SELECT
RINDLESS
UNSMOKED BACK BACON
WITH ADDED WATER
DENMARK
SLICED IN UK
Keep refrigerated
2002041247L2
DANISH CROWN
HALIFAX


AREA
42 925 km²
1%
of total
EU area

Vi connect science to practical farming



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Two-level advisory system

Research & Development

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DIRECT information
(Congress, seminars, website etc.)

Advisors

Danish Agricultural Advisory Service

Vet Practices

Companies
(slaughterhouses, feedstuffs, farm technology etc.)

Pig producers

Agenda for today

- Facts on Danish pig production
- Animal welfare challenges
- How do we keep sows in Denmark?
- What do we know about sow mortality in Denmark?
- Research activities on sow mortality

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Facts on Danish Pig production

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Facts about Danish pig production

- Approx. 2.900 farmers with a pig production
- Approx. 1.200 sow herds
- Approx. 900.000 sows
- Average number of sows per herd is 850

- 33 mil. weaners at 30 kg
- 1 mil. for replacement
- 15 mil. piglets at 30 kg for export (Germany, Poland)
- 17 mil. finisher for slaughter in Denmark

- Pork for export approx. 80% (EU, UK, Japan)

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Pig genetics in Denmark

Breeding companies	Size
DANBRED	80 %
DANISH GENETICS	18 %
Topigs Norsvin	1 %
PIC	1 %

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Pig genetics in Denmark

+

Bred Landrace

=

DanBred Dania Hybrid & DanBred Basic Hybrid

+

DanBred Duroc

=

From 2023 sow and piglet survival is included in the breeding goals

COMPLETE THREE-WAY CROSS-BREEDING SYSTEM

Facts about Danish pig production | 2021

Average Danmark 2021	Sows (Average)	Max. (25%)	Min. (25%)
Piglets per sow per year, no.	34.0	36.8	30.1
Litter per sow per year, no.	2.24	2.30	2.15
Nursing period, days	31	30	32
Farrowing rate, %	87.3	90.6	84.1
Liveborn piglets per litter, no.	17.9	18.6	16.9
Weaned piglets per litter, no.	15.0	16.2	13.9
Weight at weaning, kg	6.4	6.0	6.8

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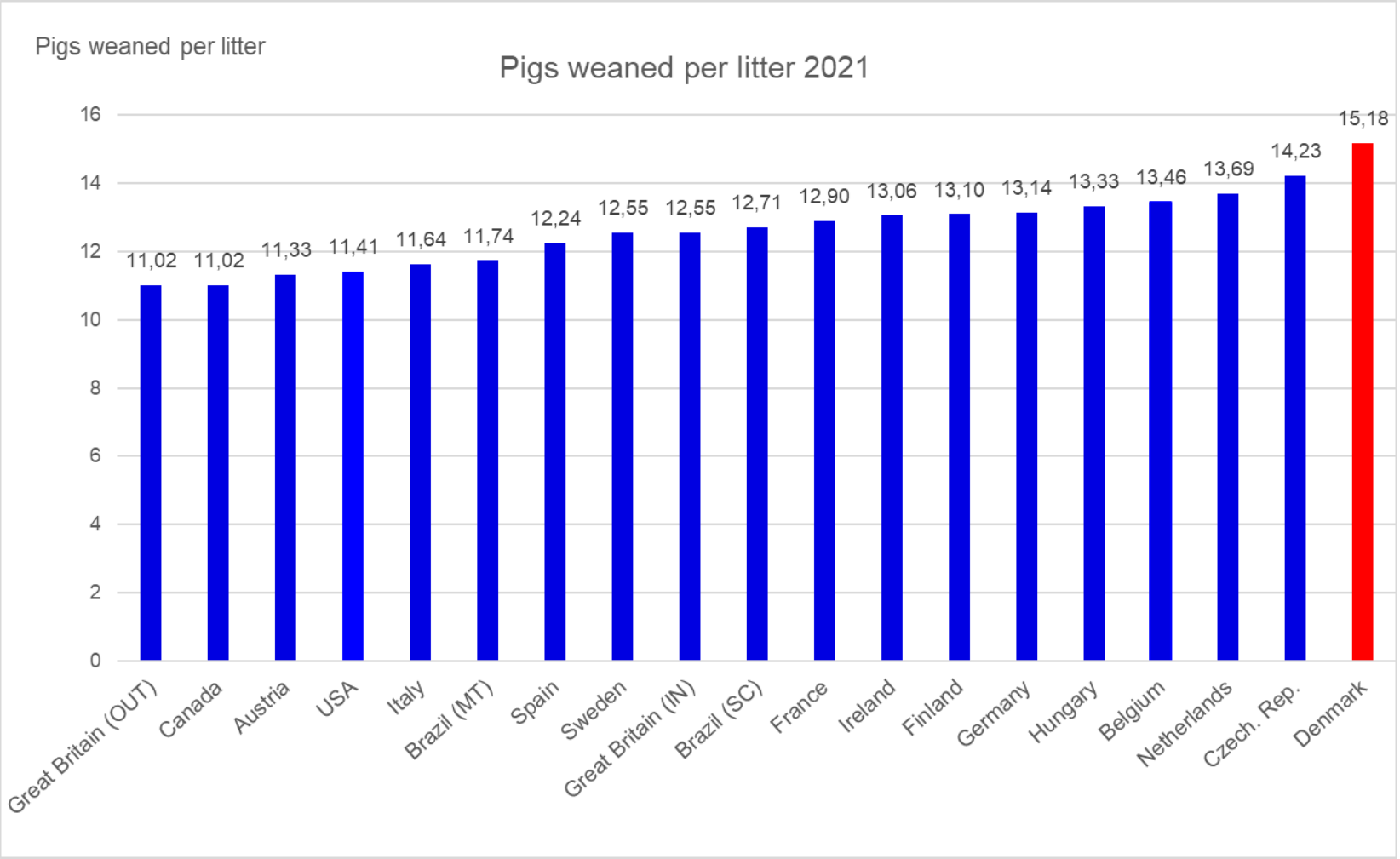
Pigs weaned per litter - 2021



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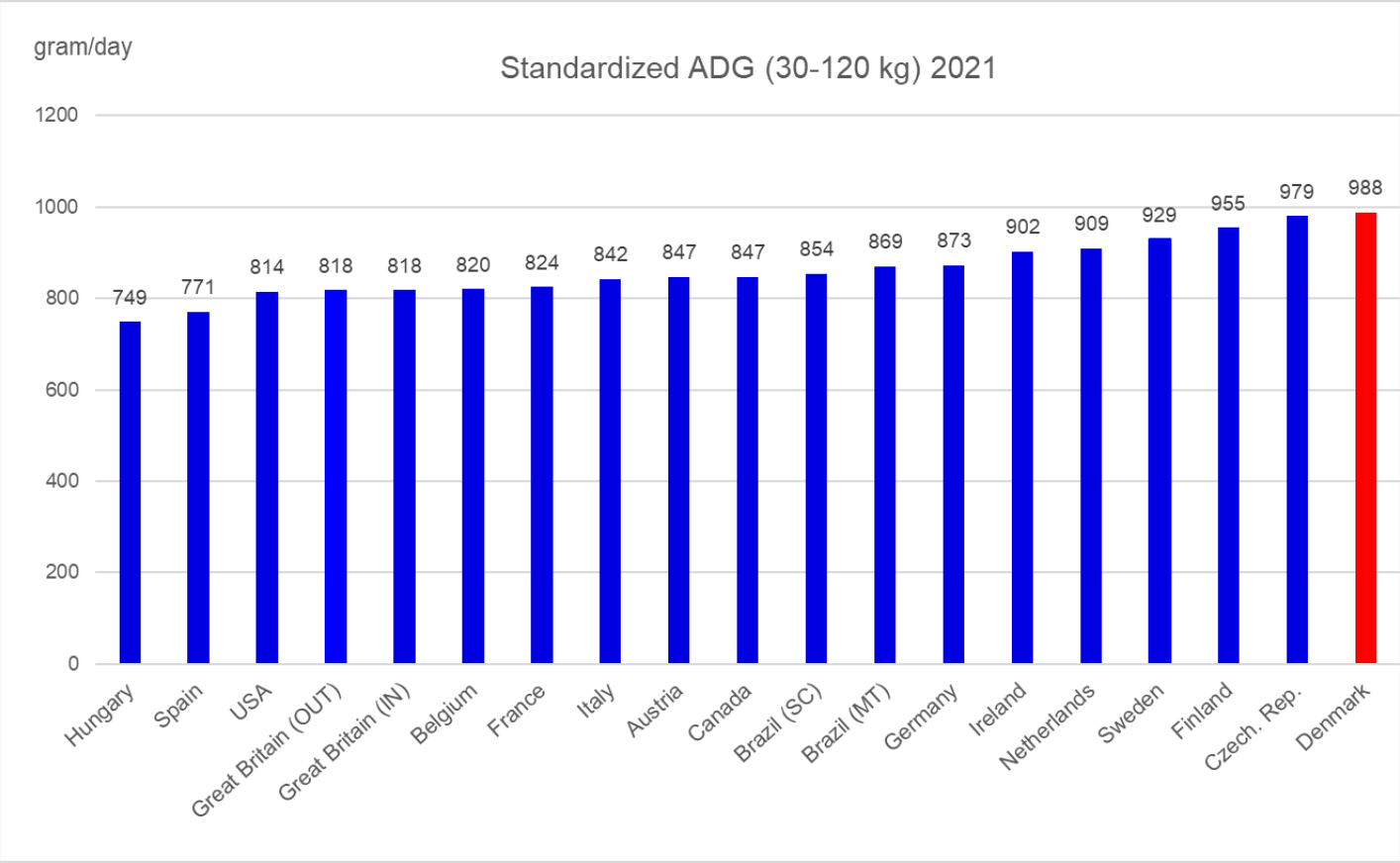
Daily gain fattening - 2021



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Feed conversion kg feed/kg gain - 2021

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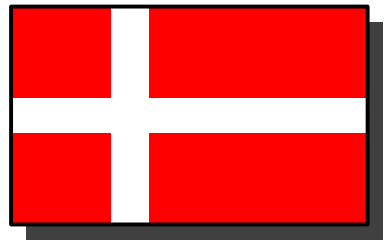
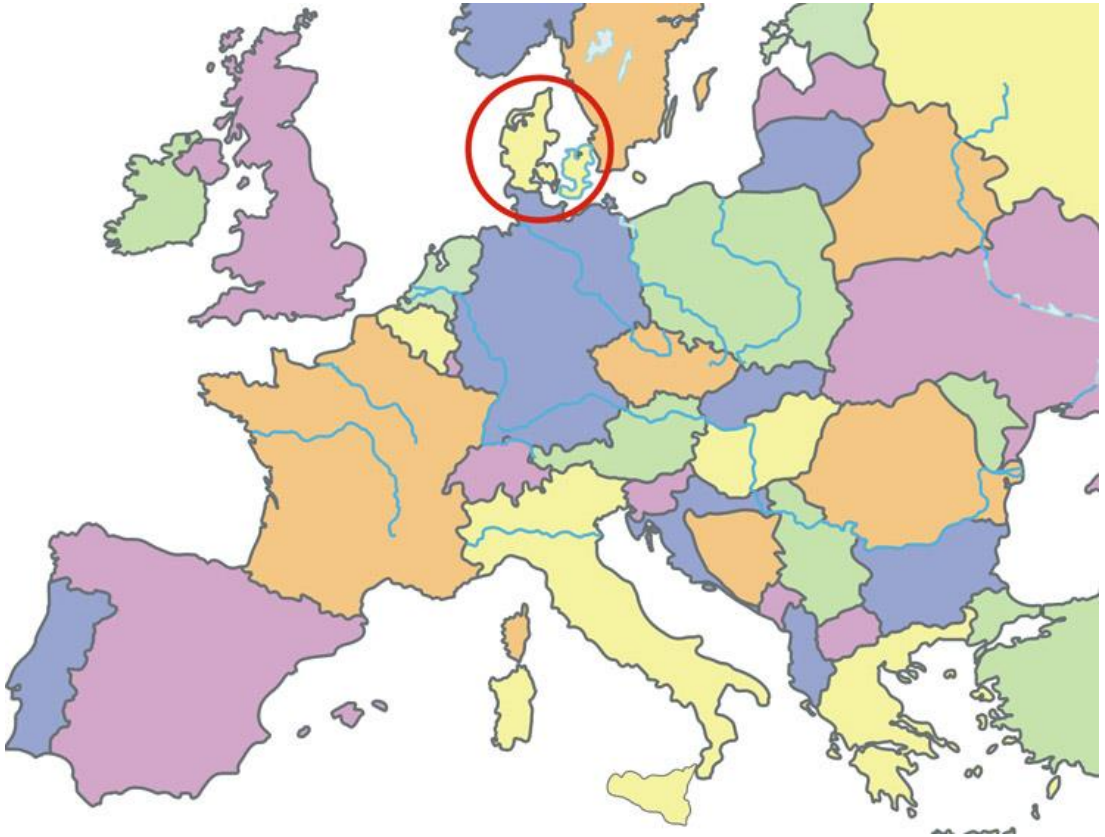
Animal welfare challenges

Denmark is a part of the European Union





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Pig welfare – great public interest!

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End the

European
Initiative

Home > News > Denmark bids farewell to cage egg production

Denmark bids farewell to cage egg production

29 September 2022 Dyrenes Beskyttelse News

The Danish Minister for Food, Rasmus Prehn, has decided to ban the production of cage eggs in Denmark, beginning in 2023.

ANIMAL PROTECTION DENMARK

Our challenge:
Licence to produce

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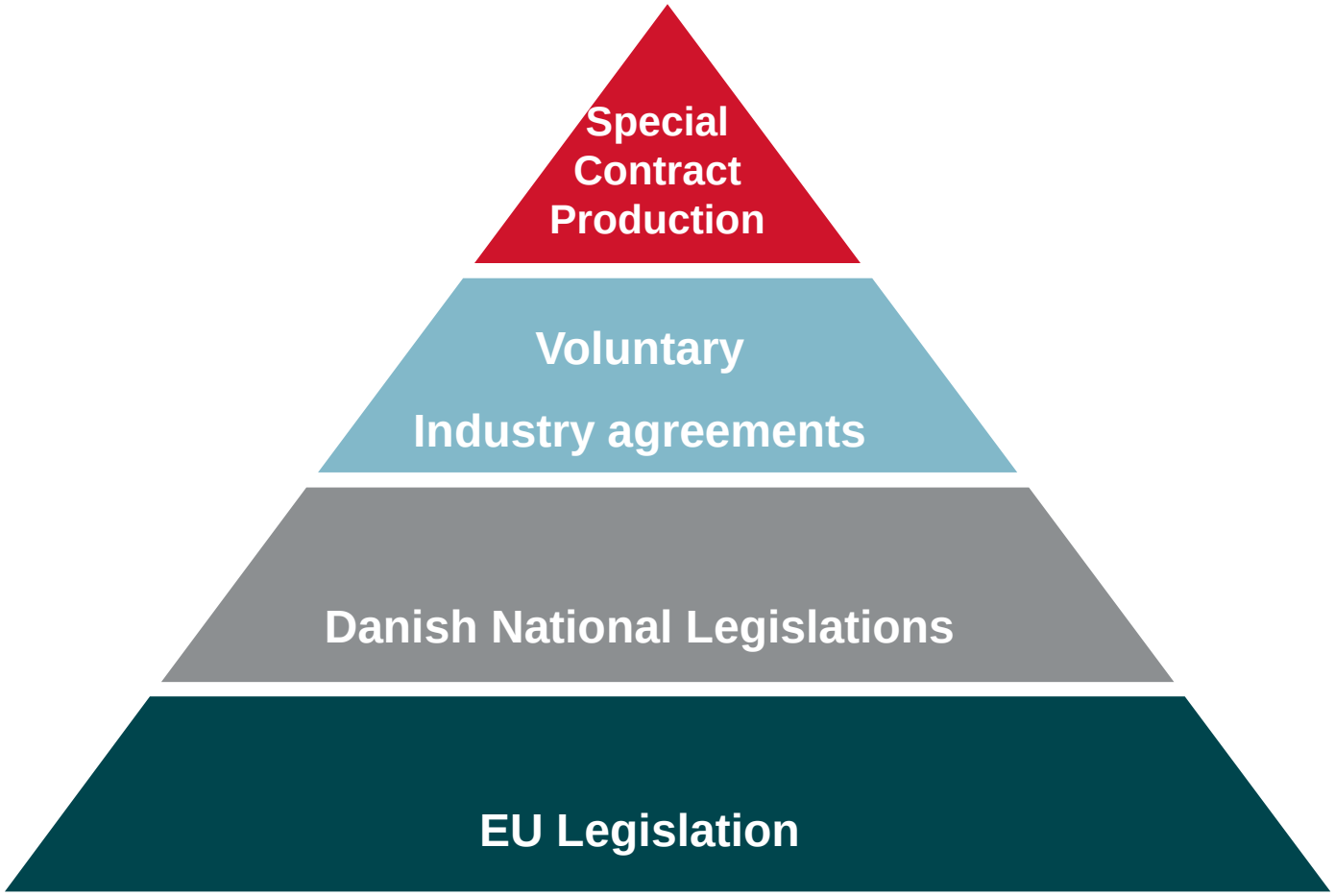
Animal Welfare legislations



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Tail docking

Ban on routinely tail docking in EU

From 2019

1) Written documentation of tail bites
2) Complete a risk assessment
3) Documentation when live pigs are sold

Only half the tail must be docked between day 2 and 4

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Local anesthesia before castration

- **Danish legislation (2018):**

  Farmers are allowed to give local anaesthesia to piglets prior to castration, if they have completed a course

- **Industry initiative (2019):**

  The use of local anaesthesia is a requirement in the Danish pig producers quality assurance program DANISH Product Standard

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The governmental animal welfare label

Bedre Dyrevelfærd

Bedre Dyrevelfærd ♥♡♡ Bedre Dyrevelfærd ♥♥♡ Bedre Dyrevelfærd ♥♥♥

	♥	♥♥	♥♥♥
	More space More straw No tail docking Improved sow housing Shorter transportation time	+ Even more space Even more straw Free-range sows (barns)	+ Much more space Much more straw Piglets and sows in free-range field Outdoor space

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Market driven animal welfare

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Pig industry Animal Welfare Goals

- Loose sows in all sections
- Production of pigs with intact tails
- Better handling of sick pigs
- Increase sow and piglet survival

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How do we keep sows in Denmark?

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4 – 5 weeks in farrowing unit

1-4-week service period

Gestation period

Group-housed throughout the service and gestation periods

202x? (DK)

2015 – 2035 (DK)

1999 (DK) – 2013 (EU)

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Feeding systems for sows

Electronic sow feeding

Free access stalls

Floor feeding

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Gestation unit

- In Denmark there must be straw on the solid/drained floor
- Sprinkling system required

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Danish legislation on sows and gilts

- **Area:**
  - First 1 – 4 sows/group — 2.8 m^2 per sow
  - Next 5 – 10 sows/group — 2.2 m^2 per sow
  - Next 11 – 17 sows/group — 2.0 m^2 per sow

  - If 18 - 39 sows/group — 2.25 m^2 per sow
  - If 40 - — 2.025 m^2 per sow

  - 1 – 10 gilts — 1.9 m^2 per gilt
  - > 10 gilts — 1.7 m^2 per gilt

- **Lying area** (**solid/drained flooring and <u>bedding/straw</u>**)
  - Sows — 1.30 m^2 per sow
  - Gilts — 0.95 m^2 per gilt

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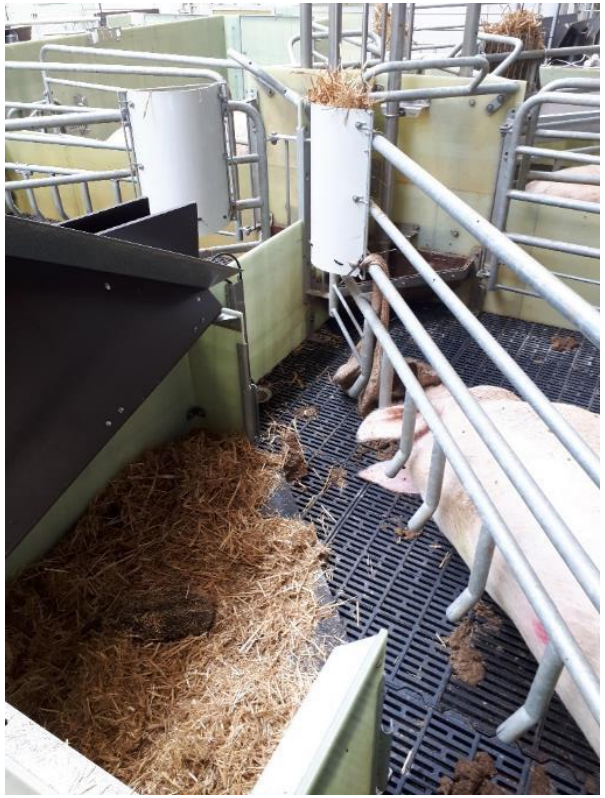
Farrowing unit – traditional

Farrowing unit – loose

Danish industry objectives is to move away from traditional farrowing crates **towards free-farrowing**



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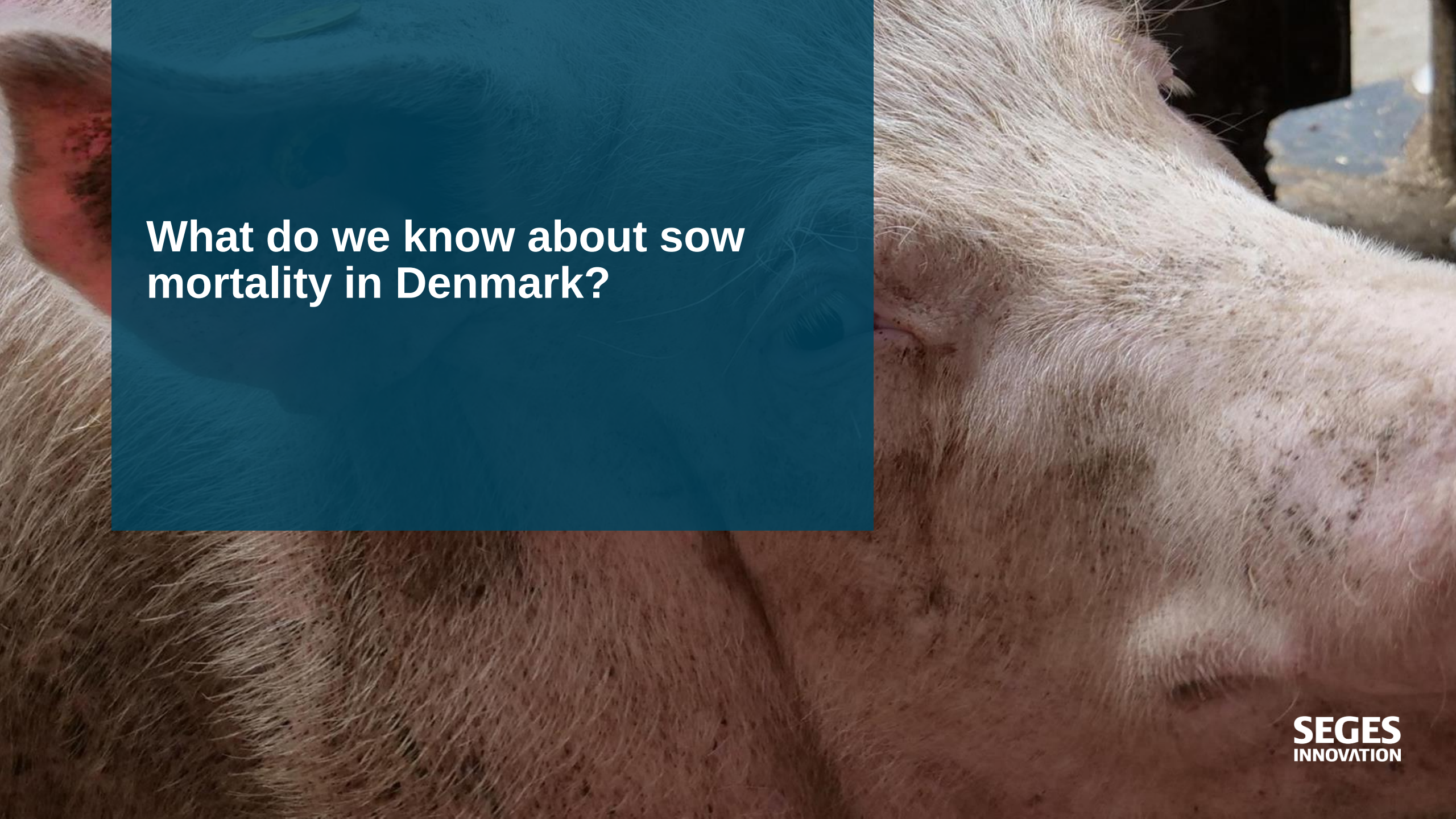
What do we know about sow mortality in Denmark?



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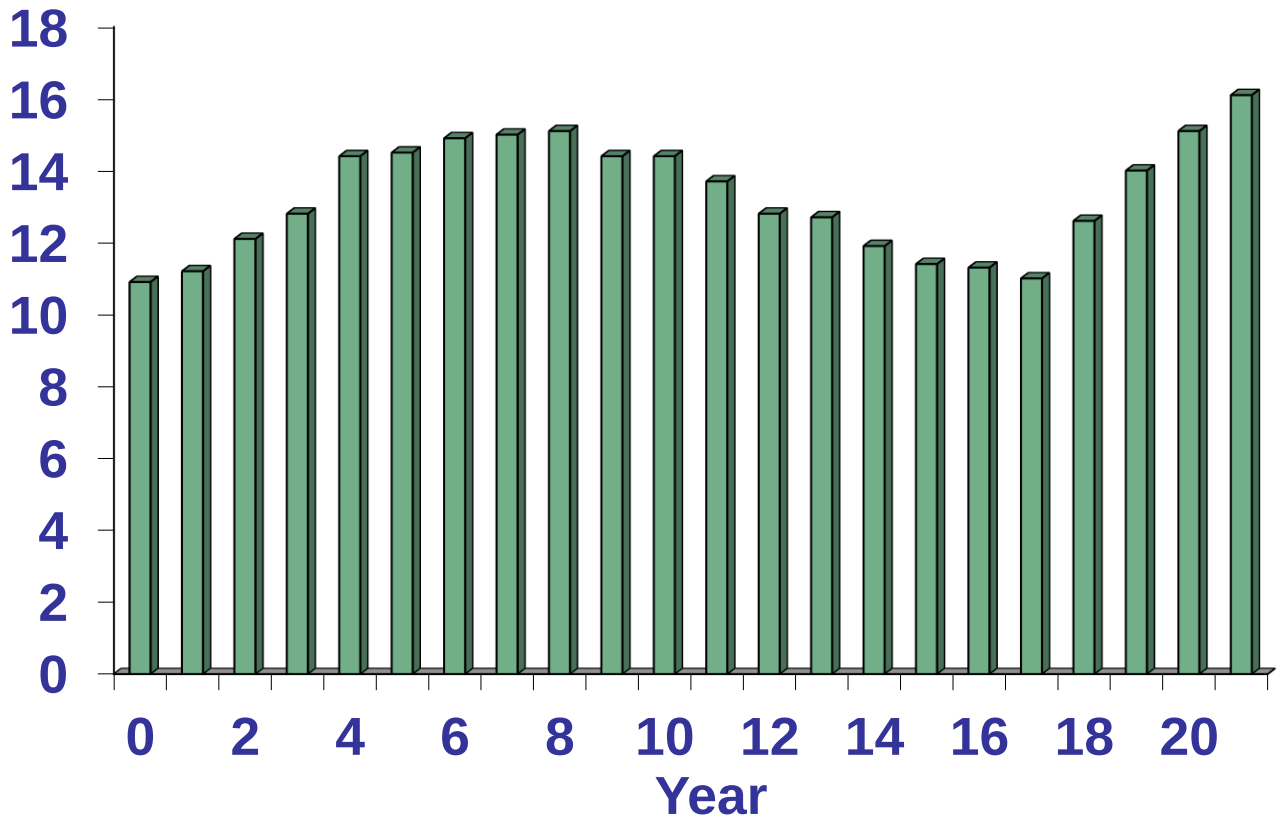
Sow mortality in Denmark



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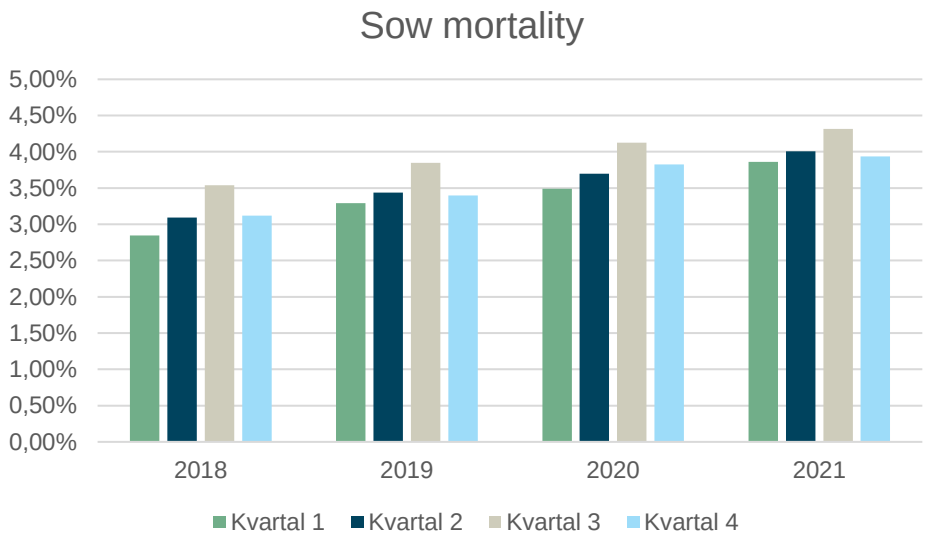
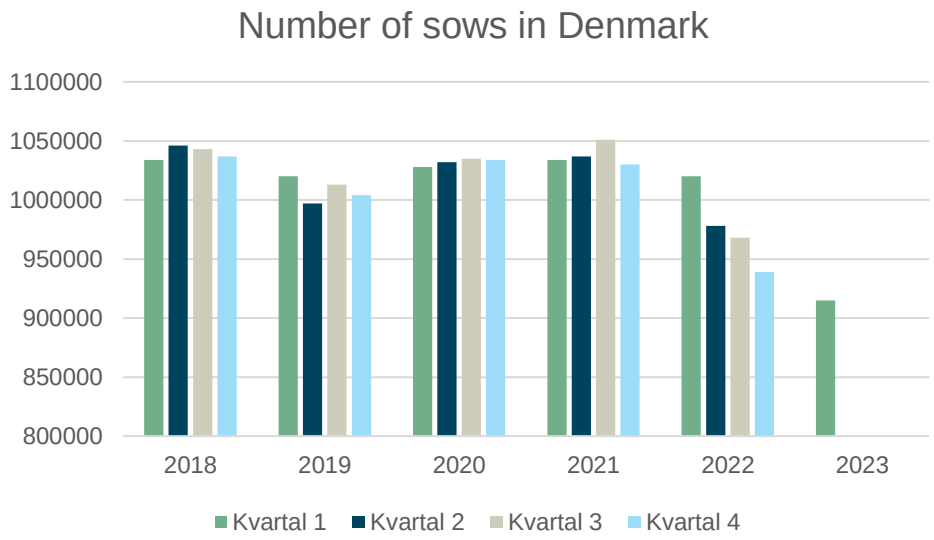
Sow mortality in Denmark





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We continuously collect information from Danish sow herds

- Today we gather information from 200 Danish sow herds
- Those are both production herds and breeding herds
- We identify and analyze patterns in data

AgroVision AGRICULTURAL SOFTWARE

CLOUDFARMS

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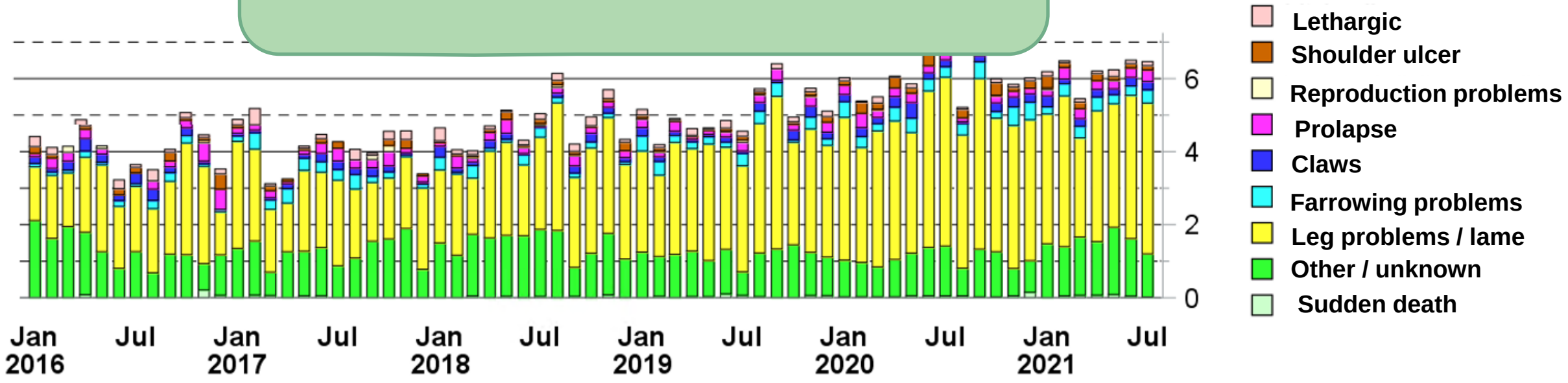
Sow mortality - causes of euthanization

60-70 percent of the sows are euthanized due to claw or leg problems



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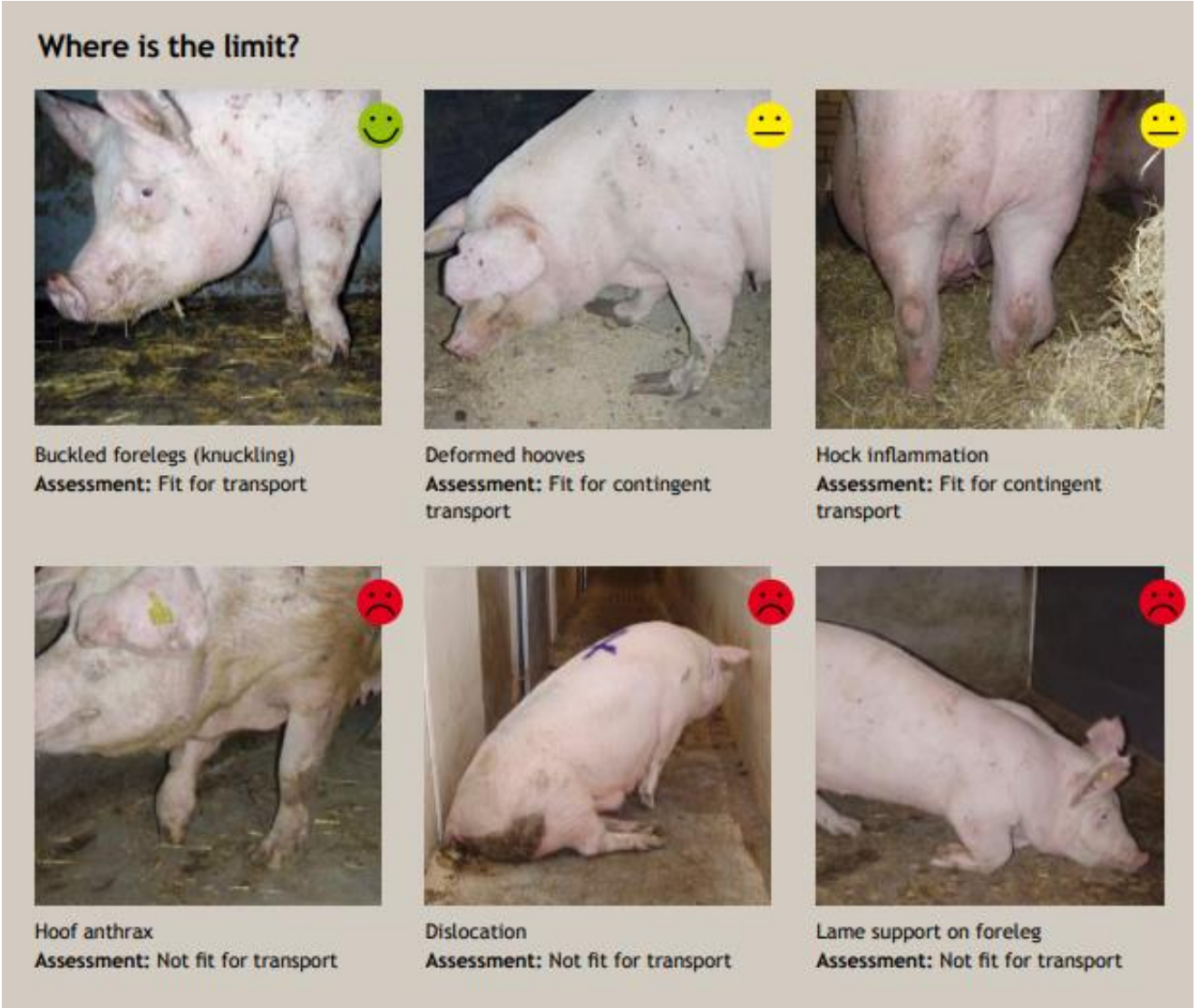
Why are Danish sows euthanized and not send to slaughter?

Fitness for transport

EU regulations and Danish regulations

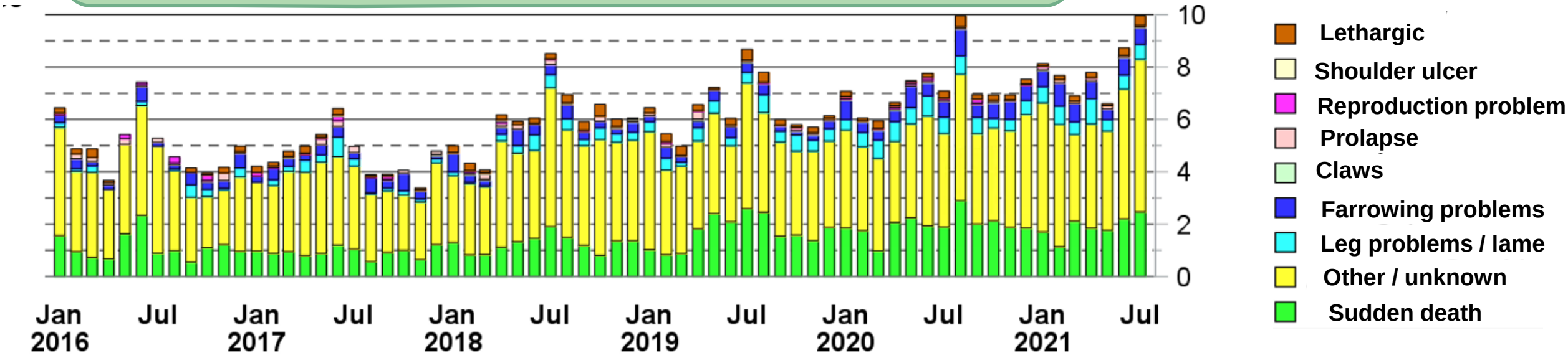
Not fit for transport:

- Lame sows
- Sows with severe wounds
- Sows with a prolapse
- Sows who are generally affected



Sow mortality – causes of sudden deaths

80 percent of sudden deaths are of unknown reasons



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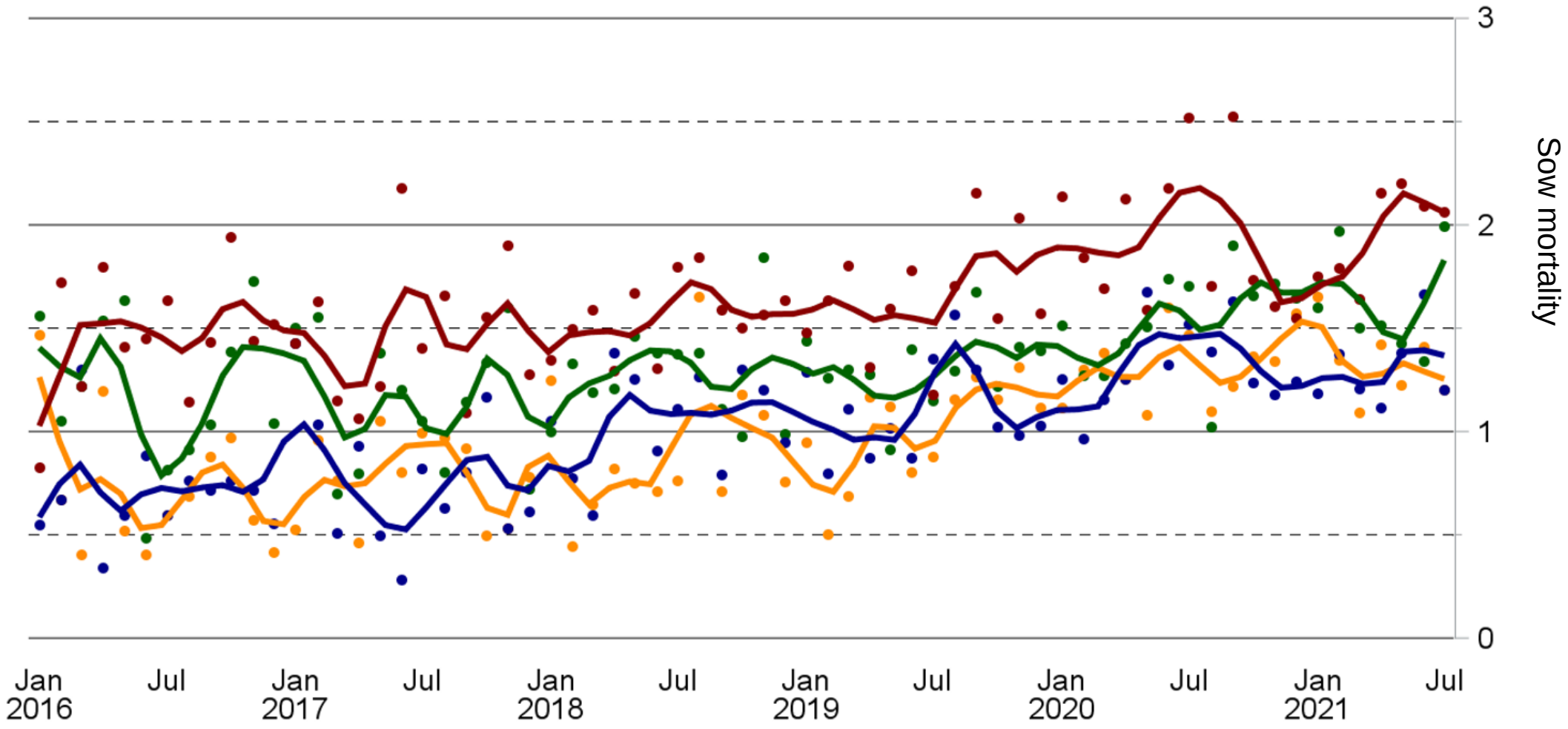
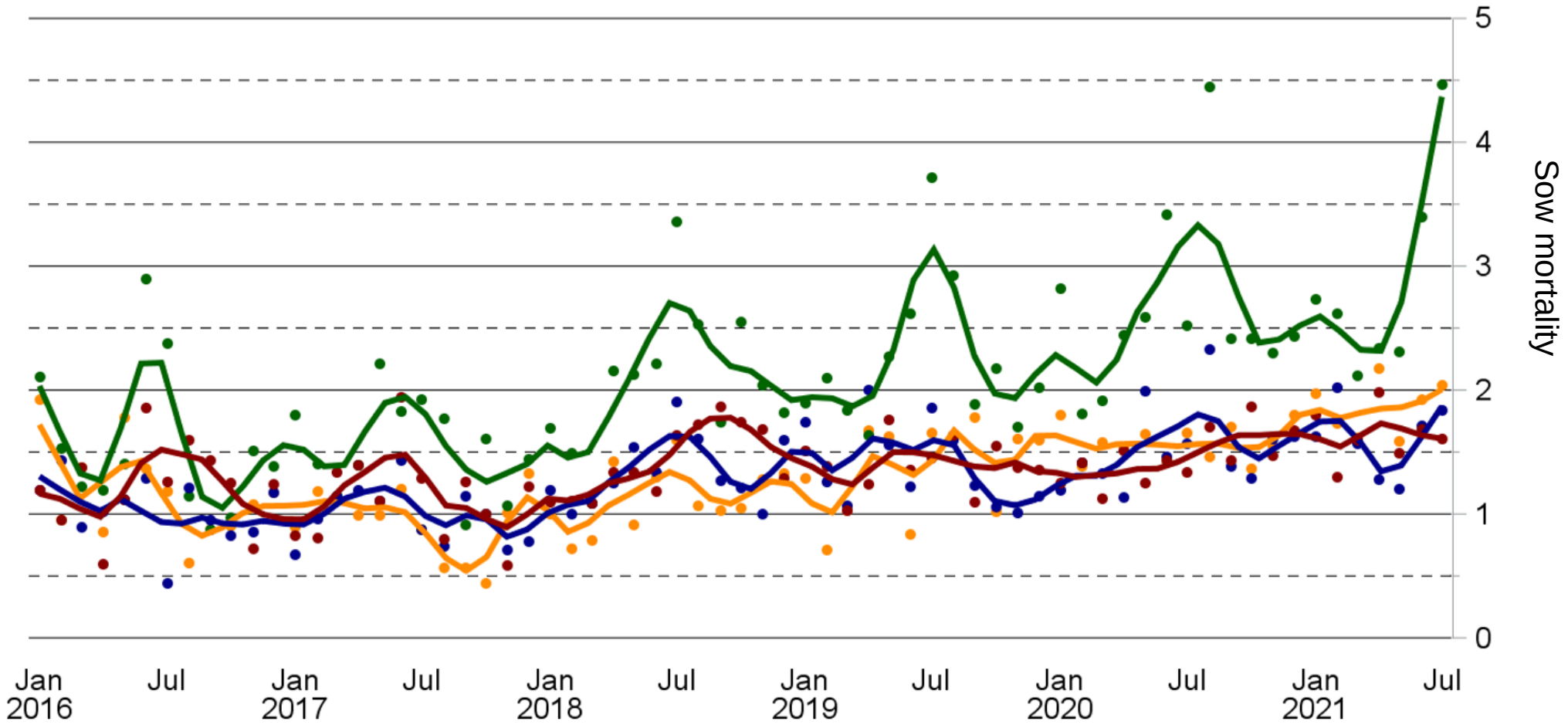
Euthanized sows at different times in the production cyclus



SEGES INNOVATION

Sudden deaths at different times in the production cyclus



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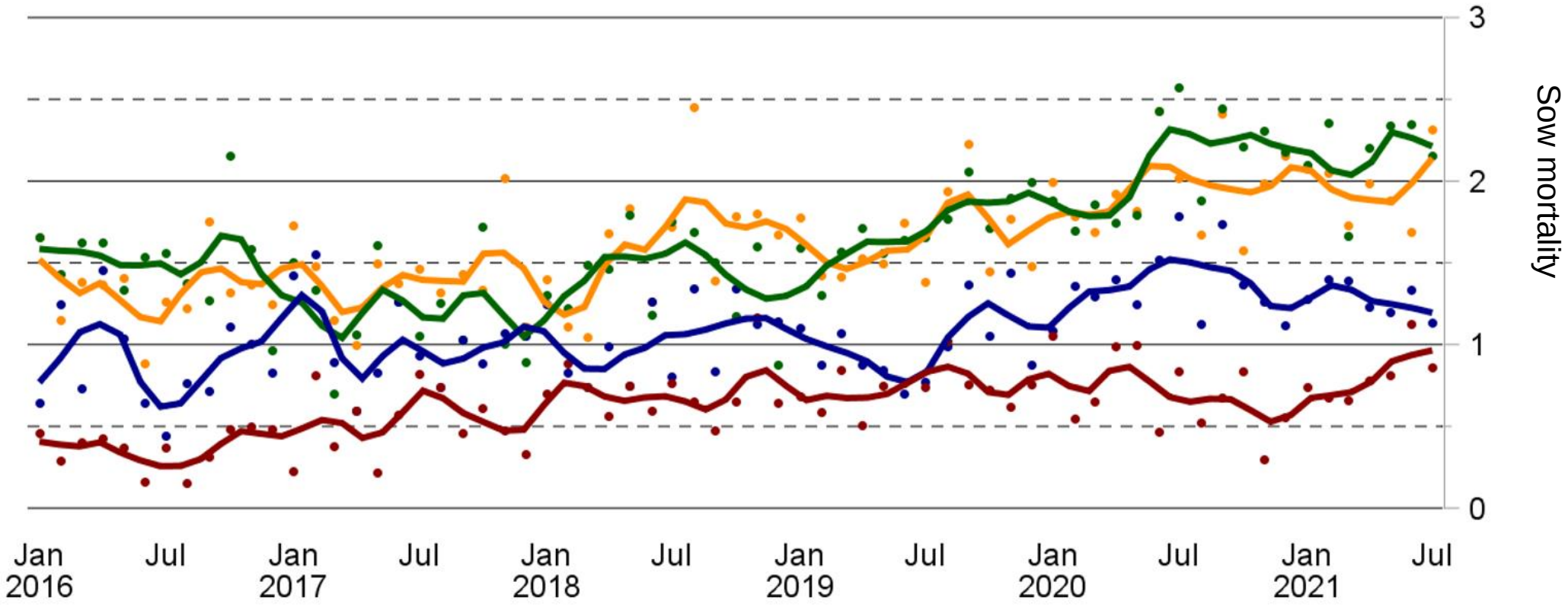
Euthanized sows in different age group



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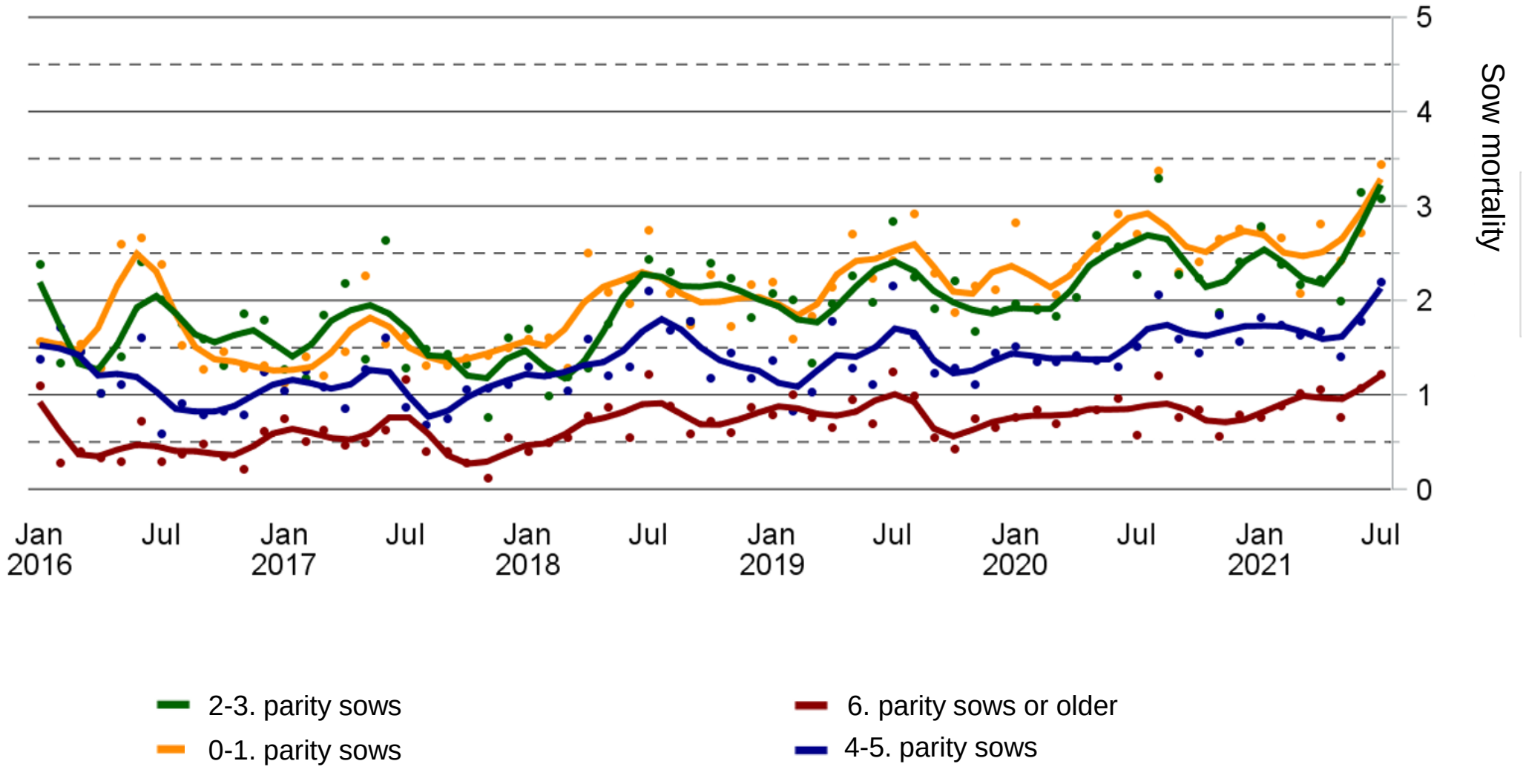
Sudden death in different age groups



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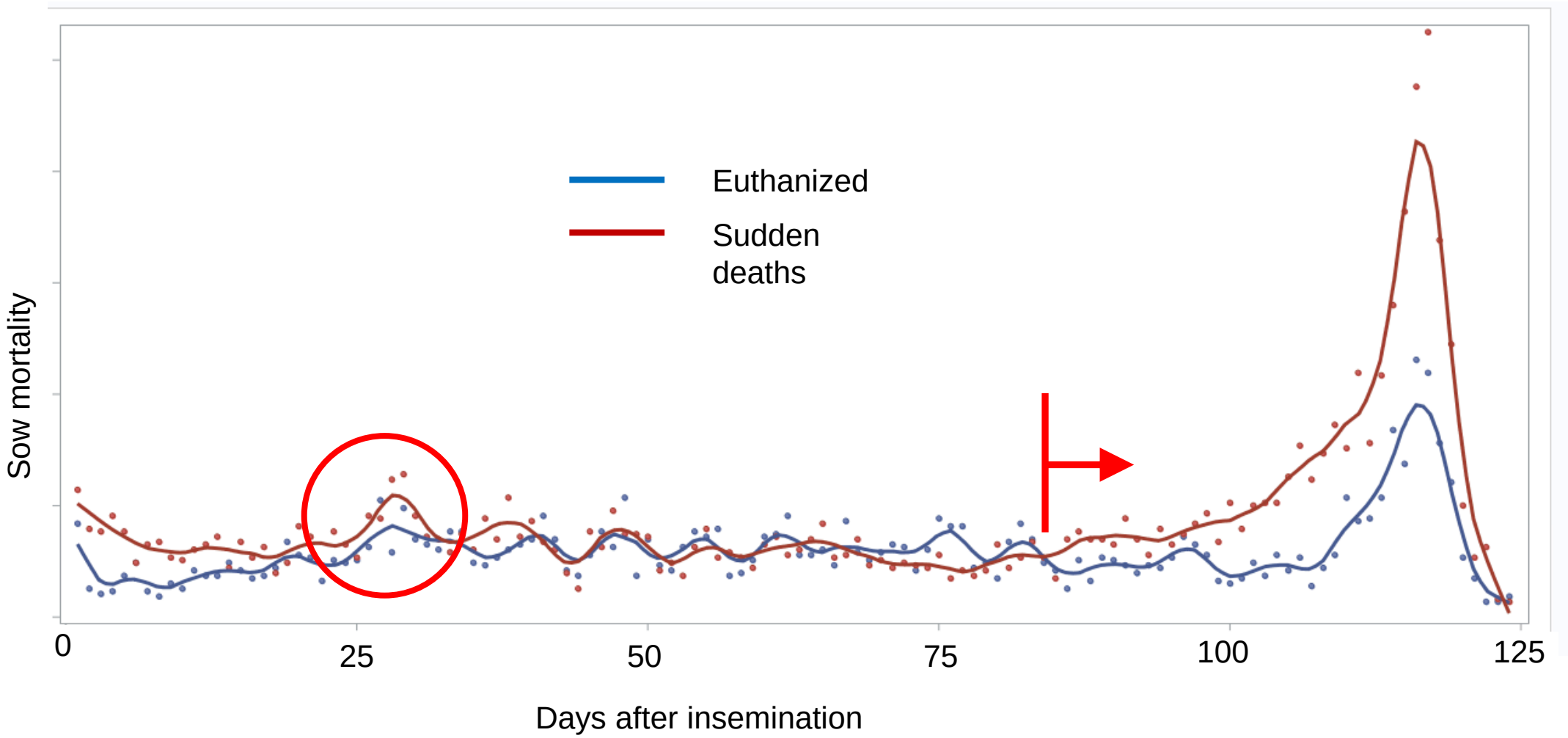
Sow mortality in the gestation barn



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In summary

- In 2021 – 16 % of Danish sows were euthanized or died suddenly
- Approximately 50 % die suddenly and 50 % are euthanized
- Unknown causes of sudden deaths
- Leg and claw problems are the main causes of euthanization
- Sudden deaths have a seasonal variation
- Sows in late pregnancy have increased risk of sudden death

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Research activites on sow mortality

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Continous surveillance of sow mortality in Denmark

- Annual report on overall mortality (press release)
- Internal monthly report of sow mortality in database herds (dead/euthanized)

- Farmer-oriented activities
  - Annual report on mortality for sow herds (individual letters)
  - Articles in farmers press
  - Webinars
  - Seminars

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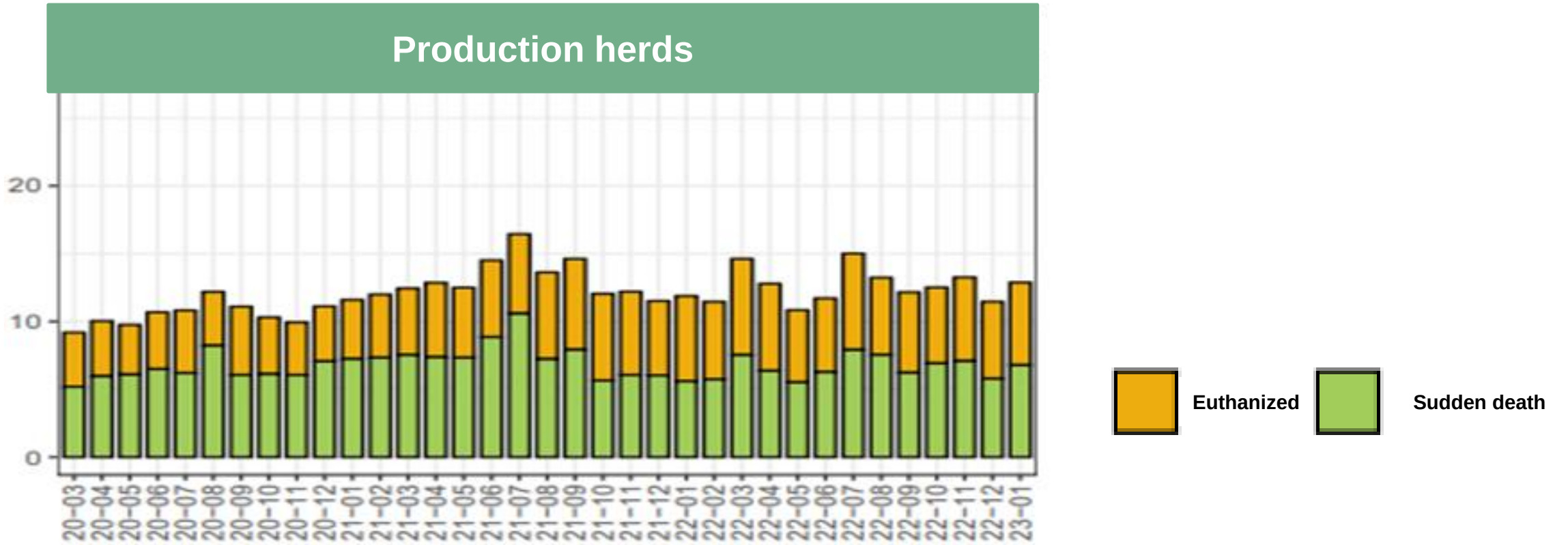
Sow mortality in production herds



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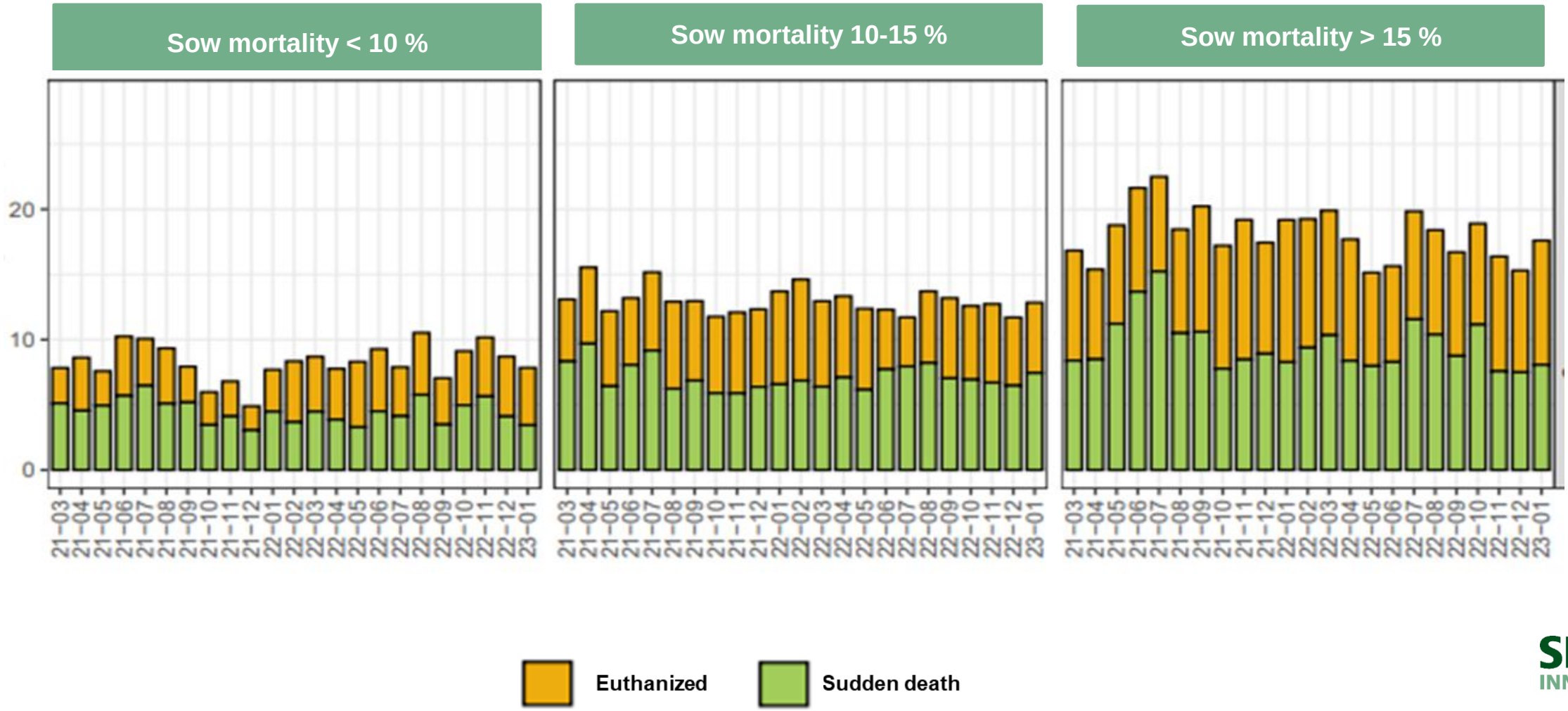
Dead and euthanized according to mortality level



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Pilot study

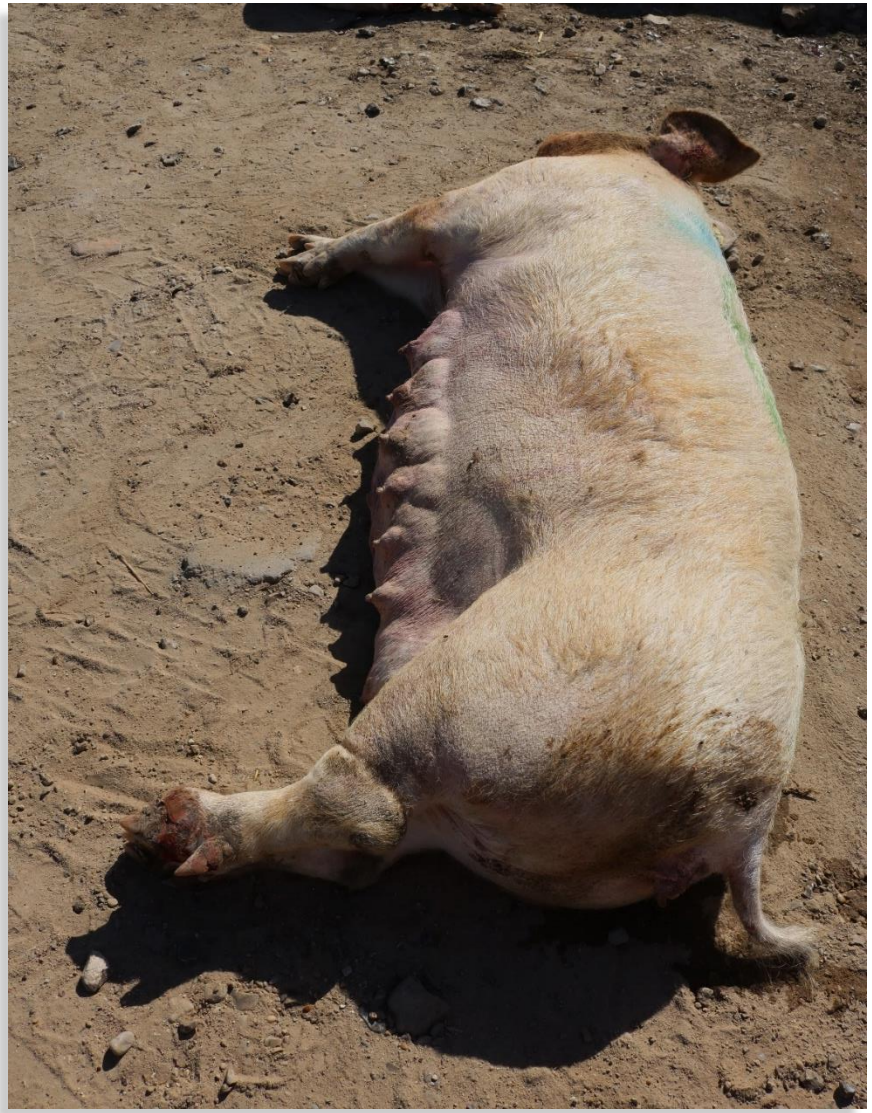
4 herds with high incidence of claw diseases

21 lame sows selected for claw autopsy

Characterization of bacterial flora

Main finding

1. Claw infection	9 sows
2. Laminitis	4 sows
3. Growth line congestion	3 sows
4. Traumatic/mechanical	4 sows



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In most cases, the damage is worse than the lameness

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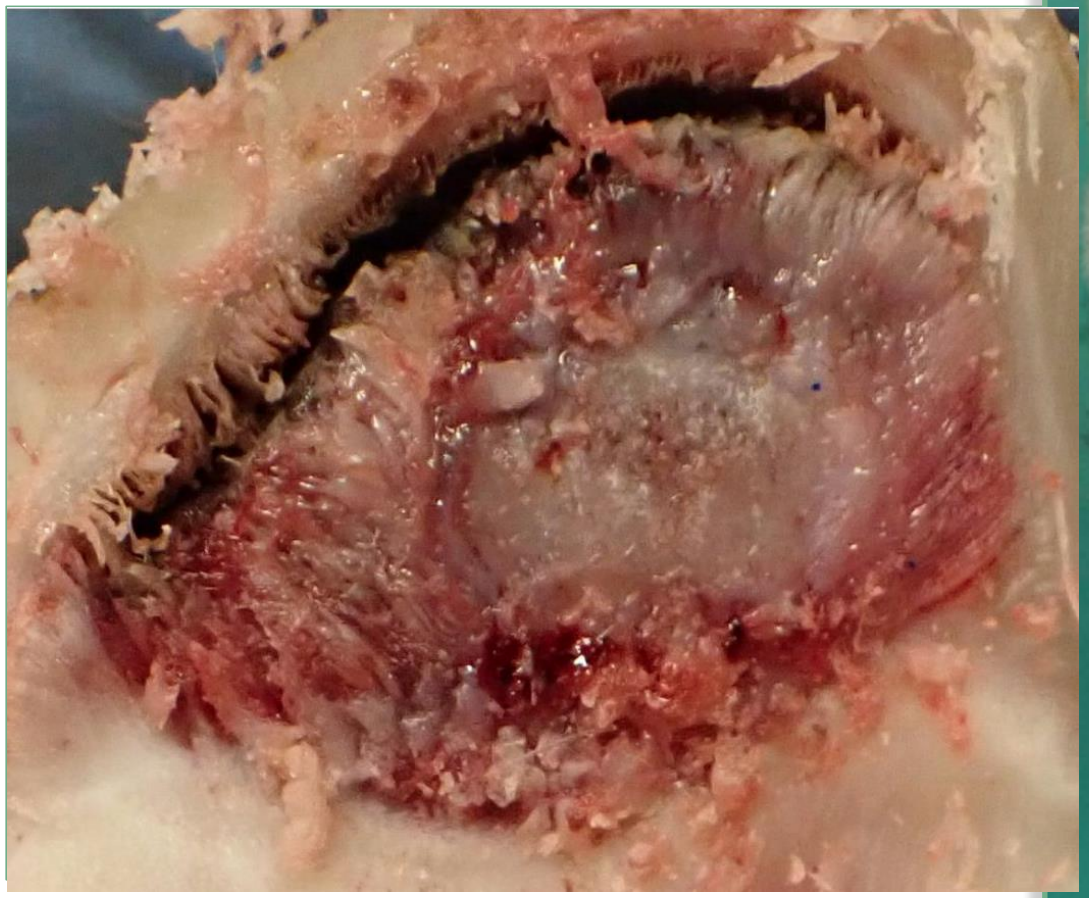
Many lame sows with claw lesions cannot be saved



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Project ”Sovival”

Purpose

Gain knowledge of reasons for sudden death among sows in the farrowing unit, service unit and gestation unit

Activity 1

a) Litterature study om sudden death in sows throughout the production cycle

b) Multivariate analysis of farmer recordings (database), weather data etc.

Activity 2

a) Extra recordings for sows that die during 6 monhts (10 herds)

b) a + autopsy of 50 sows (2 herds)

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Claw screening project

Purpose

Increase sow survival through targeted development of procedures for prevention and treatment of the most common leg- and claw diseases

Activity 1

a) Screening for prevalence of leg- and claw disorders in Danish sows

   Legs will be collected at slaughter and at DAKA and sent to lab for autopsy

b) Development of an extended slaughterhouse examination (USK) for legs

Activity 2

For the most prevalent claw diagnoses identified under activity 1, specific procedures for prevention and treatment will be tested in clinical trials

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Mixing sows after weaning – lameness

- The aim is to lower the percentages of sows that are identified as lame one week after transfer to the gestation pen
- Hypothesis: Transfer of not-lame sows to a mixing pen with 5 m^2 per sow and confinement of the sows during heat (for 3 days) will reduce the percentage of sows that become lame at transfer to the gestation facility from 20% to 5% compared with sows housed in a pen with 3 m^2 per sow and no confinement during heat.

- The trial is designed as a 2*2 factor trial with the two factors ‘stall’ (open; closed) and ‘space’ (3 m2; 5 m2).
- It is assumed that group size is 45 sows and that there is a 0.17 correlation within batch. Correction will be made for 3 comparative tests. Identification of a difference between 12.5% and 5% lame sows requires 10 replicates/pen per group at a power of 80.

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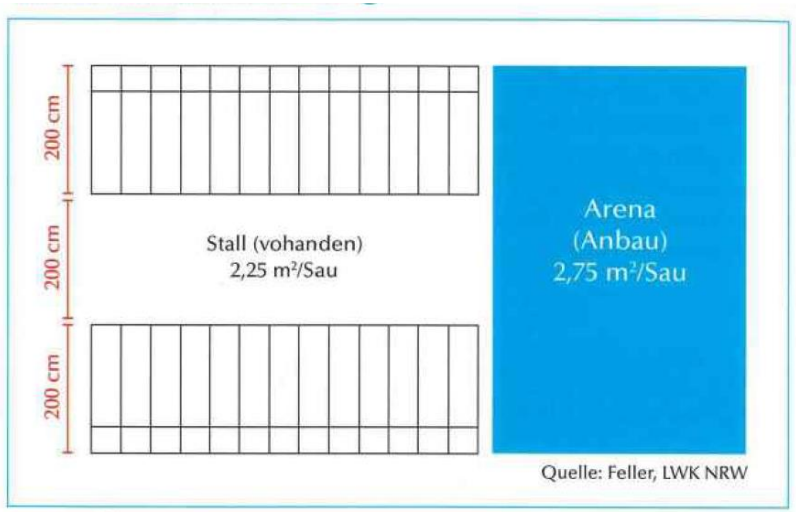
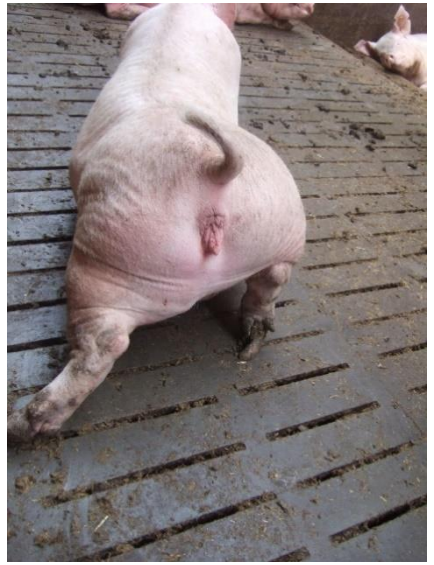
Design of mixing pen



Um 5 m²/Sau im Deckzentrum zu erreichen, bietet sich der Anbau eines Auslaufs an. Die zusätzlich benötigte Fläche hängt von der Breite des vorhandenen Laufgangs ab. In diesem Beispiel sind es 2 m. Stall: 0,75 m Standbreite x (2 m Standlänge ohne Trog + 2 m Laufgang + 2 m Standlänge ohne Trog)/2 = 2,25 m² je Sau. Auslauf/Arena: 5 m² – 2,25 m² = 2,75 m².



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