Use data to optimize herd productivity

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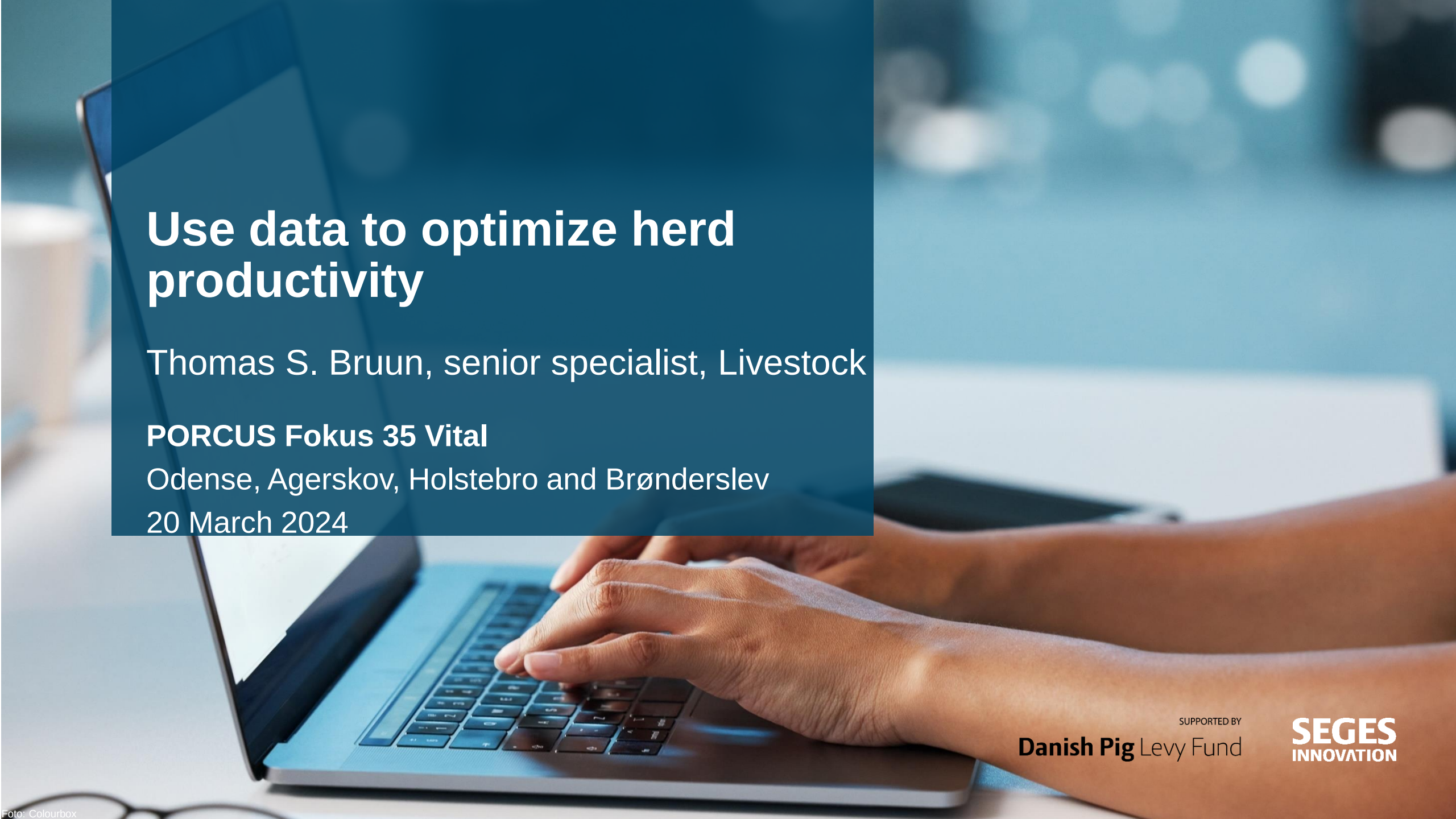

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Foto: Colourbox

Agenda

Case: Problems with heat and return rates

Real-life example

SEGES InSight

Sow survival // Piglet survival // SoOptimeter

Get an overview of your production

Outline // Variations // Batch composition // Utilization of housing capacity

Reproduction & performance

Heat // Gilts // Backfat // Longevity // Litter size // Rearing ability

The way forward from here

Photo: Thomas S. Bruun

SEGES INNOVATION

Case: 1,100 sow herd
Problems with heat (before)

Dage fra Fravænning til Løbning \ Kuld nr.	-1	2	3	4	5	6	7	8	9-	Sum	%	Akk. %
<=1			1				1			2	0,3	0,3
2				1	1					2	0,3	0,7
3		2	10	16	15	21	11	2		77	12,7	13,3
4		10	77	72	51	26	18	1	2	257	42,3	55,7
5		19	51	17	15	12	5	1		120	19,8	75,5
6		5	16	3	3					27	4,4	79,9
7			1	3	1	1				6	1,0	80,9
<=10		3	11	5	1	1	4			25	4,1	85,0
<=16		2	5	2	3	3	2			17	2,8	87,8
<=20		2	4	2	1	2				11	1,8	89,6
<=24		3	4	2	1	2				12	2,0	91,6
<=28		7	11	5		1				24	4,0	95,6
<=100		8	15	2	1	1				27	4,4	100,0
Sum	0	61	206	130	93	70	41	4	2	607	100,0	
%	0,0	10,0	33,9	21,4	15,3	11,5	6,8	0,7	0,3	100,0		
Akk %	65,4	10,0	44,0	65,4	80,7	92,3	99,0	99,7	100,0			

1 in 5 sows moved to another batch

10.4% = 1 in 10 sows moved to another batch +3 times

SEGES INNOVATION

Case: 1,100 sow herd

Problems with irregular return rates (before)

Gruppe											
I perioden	Før	Ind								Efter	
Dage fra Løbning til Løbning			<=18	<=23	<=29	<=38	<=44	<=80	80<		
Reproduktion											
Omløbninger	4	164	37	28	14	29	18	21	17	6	174

22.6% **26.2%**

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Case: 1,100 sow herd
Problems with heat (after)

Dage fra Fravænning til Løbning \ Kuld nr.	-1	2	3	4	5	6	7	8	9-	Sum	%	Akk. %
<=1			2	1	1					4	1,1	1,1
2				1						1	0,3	1,4
3		9	30	20	5	10	3			77	20,9	22,3
4		53	62	42	14	7	2			180	48,9	71,2
5		34	8	9	2	4		1		58	15,8	87,0
6		3	2	1			1			7	1,9	88,9
7		1				1				2	0,5	89,4
<=10		2	1		1					4	1,1	90,5
<=16		2	2	2	2					8	2,2	92,7
<=20		3	1		1					5	1,4	94,0
<=24		3			1					4	1,1	95,1
<=28		8		1						9	2,4	97,6
<=100		7	1	1						9	2,4	100,0
Sum	0	125	109	78	27	22	6	1	0	368	100,0	
%	0,0	34,0	29,6	21,2	7,3	6,0	1,6	0,3	0,0	100,0		
Akk %	84,8	34,0	63,6	84,8	92,1	98,1	99,7	100,0	100,0			

80.9 ⇨ 89.4%

10.4 ⇨ 6.0%

Problem not solved, but reduced

SEGES INNOVATION

Case: 1,100 sow herd

Problems with irregular return rates (after)

Gruppe										
I perioden	Før	Ind								
Dage fra Løbning til Løbning			<=18	<=23	<=29	<=38	<=44	<=80	80<	
Reproduktion										
Omløbninger	2	161	12	34	29	20	23	35	8	163

22.6%
⇩
7.5%

26.2%
⇩
30.4%

Problem not solved, but reduced

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Take-home messages from case

Look for the biological explanations and do not go for half measures

- **Issues with heat patterns and irregular return rates**
  - Focus on loss of body condition (too great) + feeding management in the farrowing unit
  - Focus on thorough heat check – every single day
- **What did the herd change?**
  - Lactation diet (+energy and +flavour adjustment)
- **Feeding curve**
  - Improved % adjustments

Feeding of lactating sows always = feeding for success in subsequent reproduction cycle

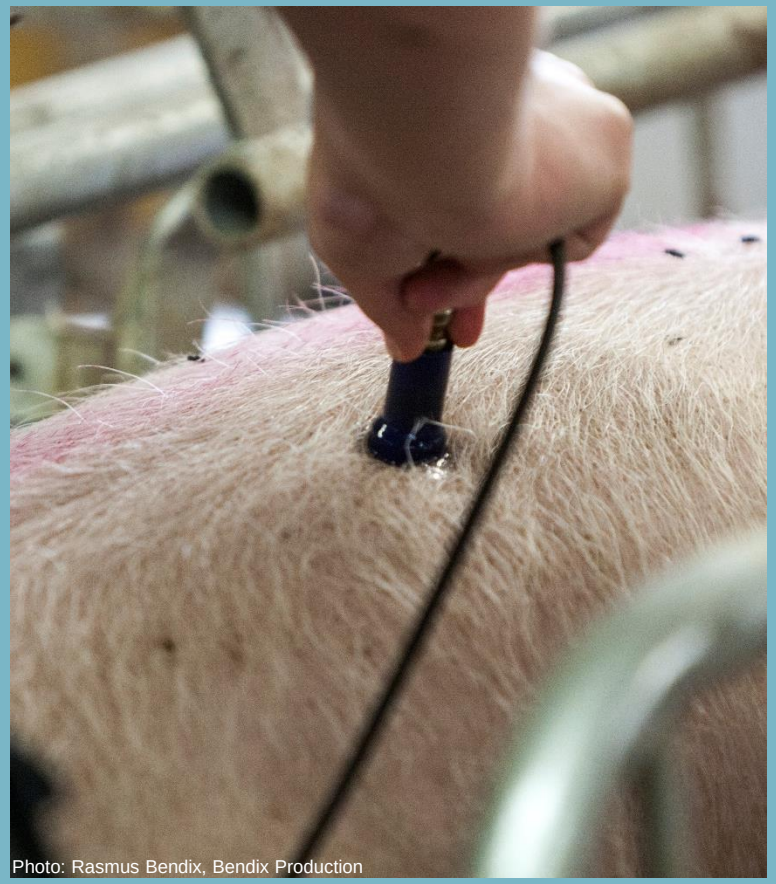

Photo: Rasmus Bendix, Bendix Production

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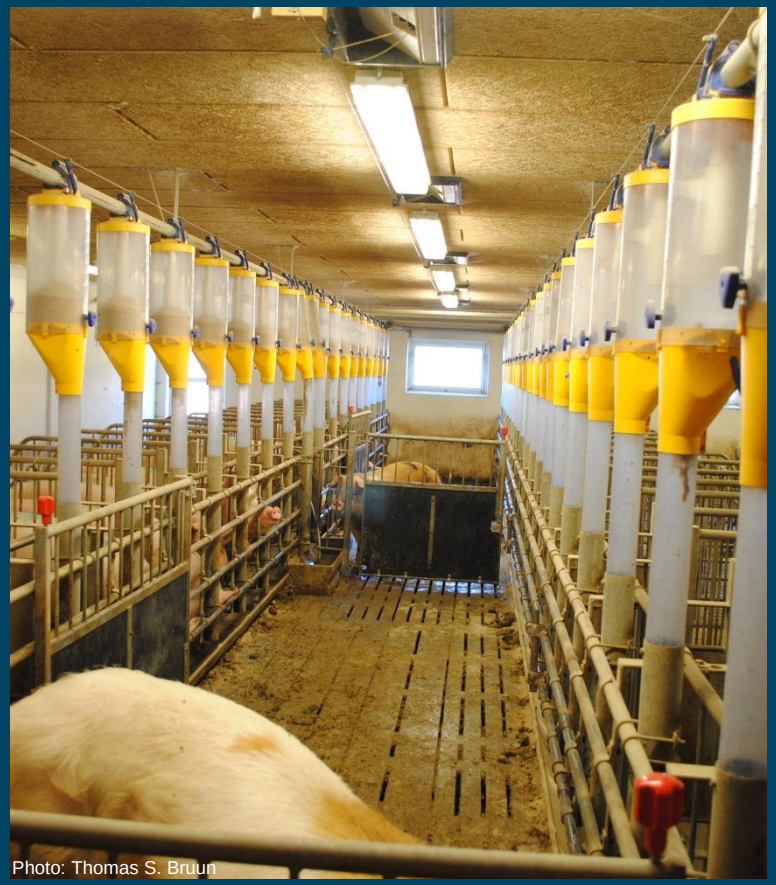

Photo: Thomas S. Bruun

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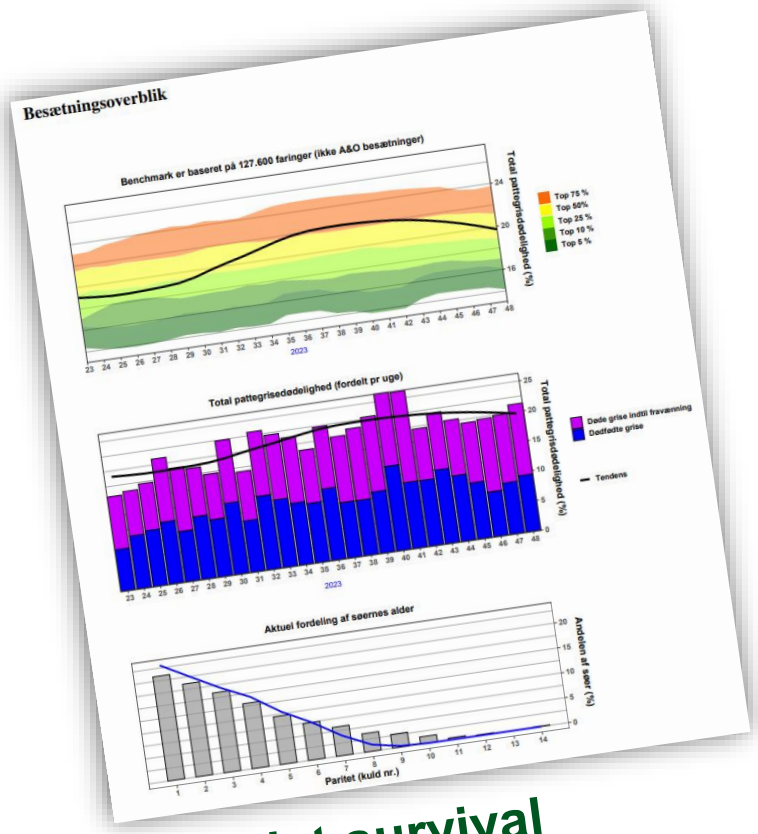
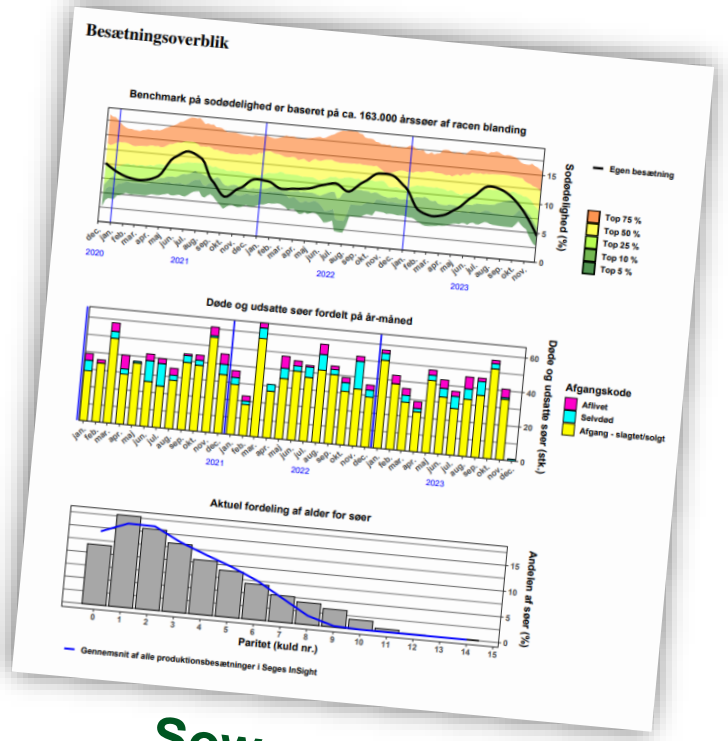
SEGES InSight

Current reports delivered by e-mail to you and your advisors



Piglet survival



Sow survival

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SEGES InSight

Insight and benchmarks by e-mail to you and your advisors

Outline
KPI and benchmarks (I)

Antal/Gennemsnit	Seneste ugehold	Sidste 4 ugehold	Sidste 12 ugehold	Sidste 36 ugehold
Antal faringer pr. uge	51	45	47	48
Levendefødte grise pr. uge	985	855	910	923
Dødfødte grise pr. uge	118	98	99	104
Fravænnede grise pr. uge	752	838	790	812
Gens. udnyttelse af farestier i procent	80,7	82,81	83,80	85,17
Diegivningsdage hos ammesøer i procent	2,2	6,47	8,03	8,94
Median rygspæk ved løbning	13,0	13,00	13,00	13,00

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Outline
KPI and benchmarks (II)

Antal/Gennemsnit	Seneste ugehold	Sidste 4 ugehold	Sidste 12 ugehold	Sidste 36 ugehold
Antal løbninger pr. uge	55	57	55	55
- heraf søer	43	44	43	42
- heraf polte	12	12	12	13
Løbne inden dag 7 efter fravænning, i pct	98	92	92	92
Udsatte løbne søer inden faring, i pct	0	0	2	7
Faringsprocent	88	91	91	90
Median alder ved løbning af polte	256	241	246	243

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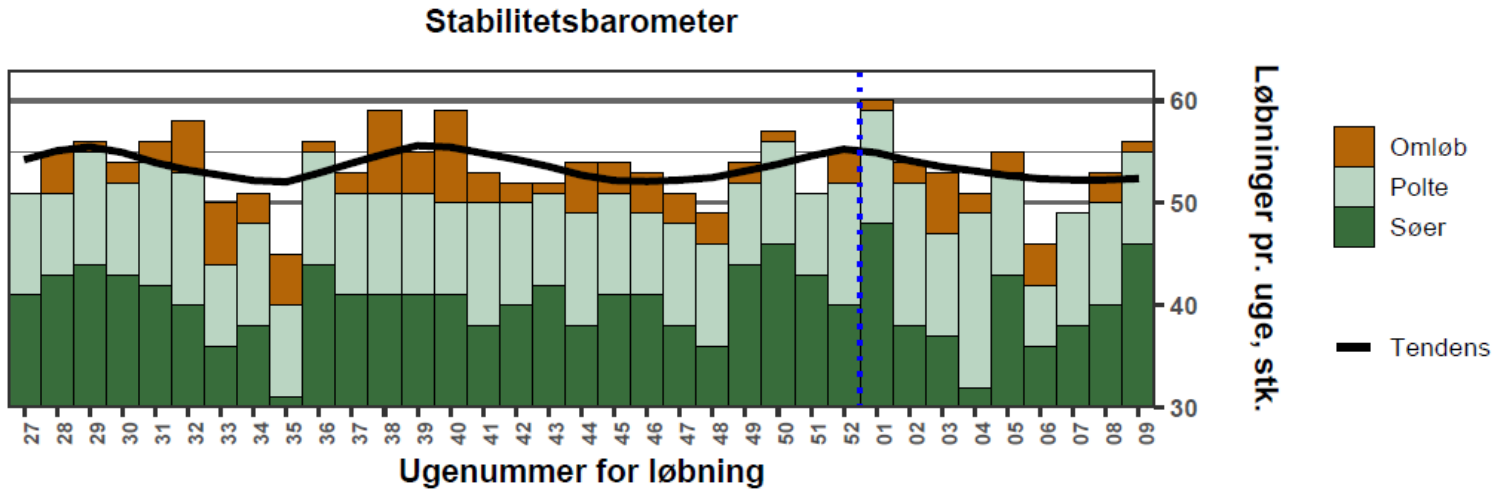
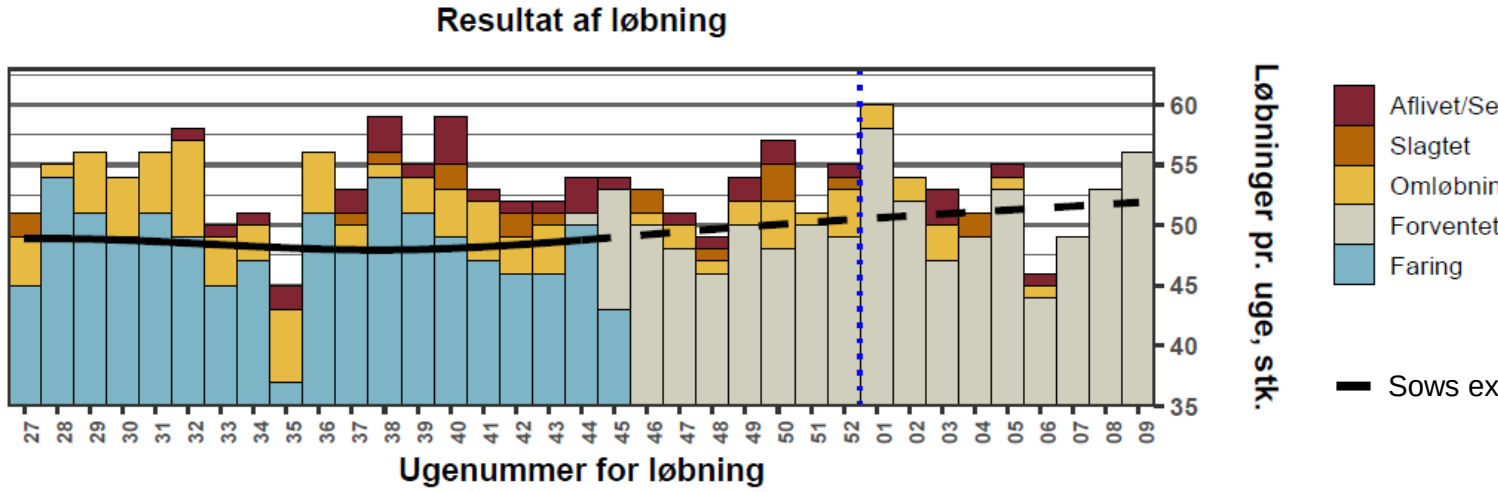
Variations in the sow batch

Composition and performance of the sow batch





SEGES INNOVATION

Utilization of housing capacity

Are farrowing pens being used for max milk production?

Calculating raw utilization of farrowing pens

$$\frac{\text{Realized number of lactation days}}{\text{Potential number of lactation days}}$$

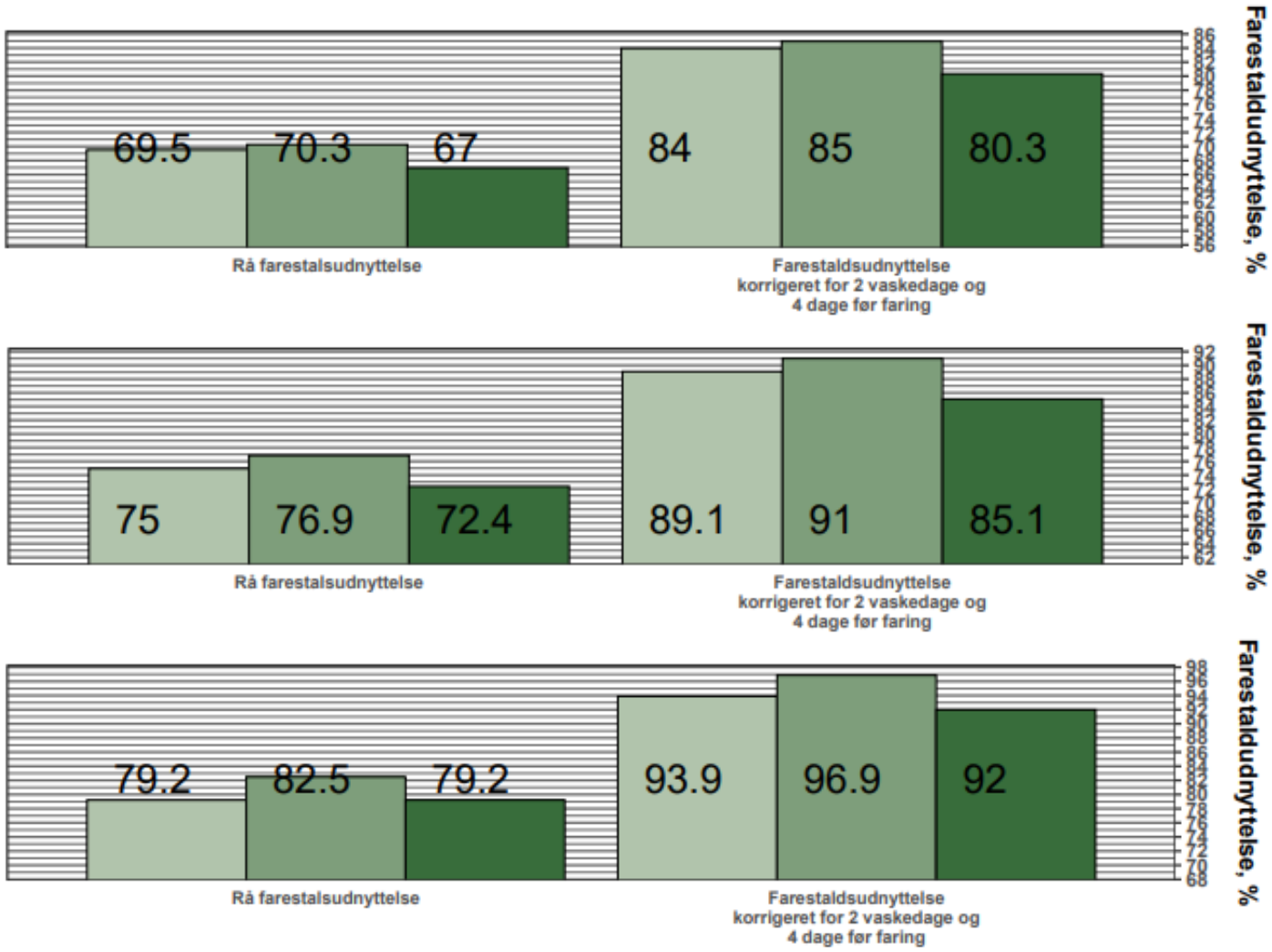
Corrected utilization of farrowing pens

$$\frac{\text{Realized number of lactation days} + \text{2 days for washing and 4 days before farrowing}}{\text{Potential number of lactation days}}$$

SEGES INNOVATION

Utilization of housing capacity

Are farrowing pens being used for max milk production?



SEGES INNOVATION

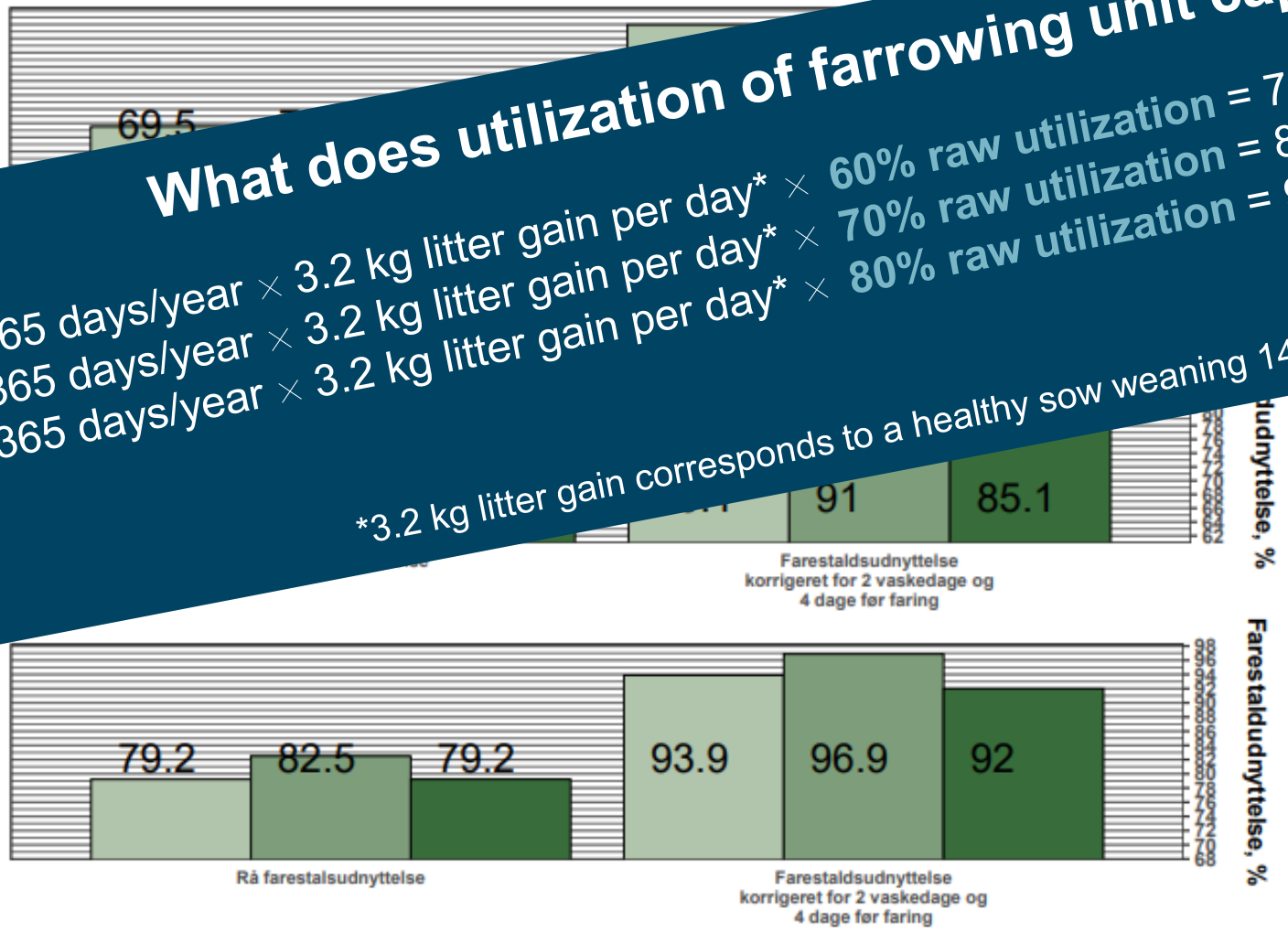
Utilization of housing capacity

Are farrowing pens being used for max milk production?

What does utilization of farrowing unit capacity really mean?

365 days/year × 3.2 kg litter gain per day* × **60% raw utilization** = 701 kg pig produced/farrowing pen/year
365 days/year × 3.2 kg litter gain per day* × **70% raw utilization** = 818 kg pig produced/farrowing pen/year
365 days/year × 3.2 kg litter gain per day* × **80% raw utilization** = 934 kg pig produced/farrowing pen/year

*3.2 kg litter gain corresponds to a healthy sow weaning 14 pigs of 7.2 kg after 26 days



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The way forward from here

Photo: Thomas S. Bruun

SEGES INNOVATION

Heat barometer that reveals a few facts…

State of the art (example 1)

Alle søer	Kuldnummer							Løbninger		%		
Dage fra frav. Til løbning/Kuld nr.	1	2	3	4	5	6	>6	Antal løbninger	Løbninger, samlet	Samlet, %	Top 50 %	Top 10 %
0 - 1	0	1	1	0	1	0	0	3	3	0,2	0,9	2,8
2	1	3	1	0	0	1	1	7	10	0,7	1,5	4,9
3	20	32	27	18	16	11	10	134	144	9,9	6,1	18,7
4	173	190	159	126	87	72	109	916	1060	72,9	62,9	79,1
5	92	57	46	23	25	12	21	276	1336	91,9	84,3	91,2
6	17	6	3	1	2	2	2	33	1369	94,2	88,1	93,8
7	9	1	0	0	0	0	0	10	1379	94,8	89,9	94,5
8 - 10	6	3	0	1	0	0	0	10	1389	95,5	91,9	95,6
11 - 16	5	0	2	1	1	0	1	10	1399	96,2	94,6	97,3
17 - 20	3	3	2	1	2	1	0	12	1411	97,0	96,4	98,1
21 - 24	3	5	0	1	2	0	0	11	1422	97,8	97,5	99,1
25 - 28	14	2	2	1	0	0	2	21	1443	99,2	98,8	99,7
>29	6	0	1	0	3	0	1	11	1454	100,0	100,0	100,0

~ 5% of all sows moved to another batch

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Corresponding analysis (minus benchmark) available in Cloudfarms (⇨ Beta-funktioner ⇨ Kuldfordelingsanalyse) and AgroVision (Analyse søer ⇨ Effektanalyse ⇨ PigVision ⇨ Fordelingskurver)

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0 - 1	0	1	1	0	1	0	0	3	3	0,2	0,9	2,8
2	1	3	1	0	0	1	1	7	10	0,7	1,5	4,9
3	20	32	27	18	16	11	10	134	144	9,9	6,1	18,7
4	173	190	159	126	87	72	109	916	1060	72,9	62,9	79,1
5	92	57	46	23	25	12	21	276	1336	91,9	84,3	91,2
6	17	6	3	1	2	2	2	33	1369	94,2	88,1	93,8
7	9	1	0	0	0	0	0	10	1379	94,8	89,9	94,5
8 - 10	6	3	0	1	0	0	0	10	1389	95,5	91,9	95,6
11 - 16	5	0	2	1	1	0	1	10	1399	96,2	94,6	97,3
17 - 20	3	3	2	1	2	1	0	12	1411	97,0	96,4	98,1
21 - 24	3	5	0	1	2	0	0	11	1422	97,8	97,5	99,1
25 - 28	14	2	2	1	0	0	2	21	1443	99,2	98,8	99,7
>29	6	0	1	0	3	0	1	11	1454	100,0	100,0	100,0

Nurse sows

Check point 1: ≥ 92%

Check point 2: ≤ 1.5%

Check point 3: = 0%

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Corresponding analysis (minus benchmark) available in Cloudfarms (⇨ Beta-funktioner ⇨ Kuldfordelingsanalyse) and AgroVision (Analyse søer ⇨ Effektanalyse ⇨ PigVision ⇨ Fordelingskurver)

Heat problems

When things do not go quite as planned… (example 2)

Alle søer	Kuldnummer							Løbninger		%		
Dage fra frav. Til løbning/Kuld nr.	1	2	3	4	5	6	>6	Antal løbninger	Løbninger, samlet	Samlet, %	Top 50 %	Top 10 %
0 - 1	5	17	21	18	14	15	27	117	117	3,6	0,9	2,8
2	0	5	7	6	7	4	2	31	148	4,6	1,5	4,9
3	7	19	18	13	13	10	13	93	241	7,5	6,1	18,5
4	430	466	335	228	204	178	166	2007	2248	70,0	62,6	79,1
5	150	49	36	21	29	12	22	319	2567	80,0	84,2	91,1
6	41	16	8	9	8	3	4	89	2656	82,7	88,1	93,7
7	9	8	6	6	2	0	3	34	2690	83,8	89,9	94,5
8 - 10	11	11	7	18	9	6	3	65	2755	85,8	91,9	95,6
11 - 16	21	24	30	39	25	26	17	182	2937	91,5	94,6	97,3
17 - 20	15	14	24	15	14	14	6	102	3039	94,7	96,4	98,1
21 - 24	4	4	5	8	2	1	1	25	3064	95,5	97,5	99,0
25 - 28	34	9	14	10	6	2	7	82	3146	98,0	98,8	99,7
>29	22	6	7	10	6	6	7	64	3210	100,0	100,0	100,0

16.2% of all sows moved to another batch

11.7%

5.3%

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Heat problems

Are nurse sows acting differently? (example 3)

Ammesøer	Kuldnummer							Løbninger		
Dage fra frav. Til løbning/Kuld nr.	1	2	3	4	5	6	>6	Antal løbninger	Løbninger, samlet	Samlet, %
0 - 1	3	1	0	0	0	1	1	6	6	1,3
2	2	0	0	0	3	0	3	8	14	3,0
3	15	0	1	0	2	8	16	42	56	12,1
4	113	3	4	7	15	39	52	233	289	62,3
5	43	2	2	3	5	6	8	69	358	77,2
6	7	0	0	1	0	0	1	9	367	79,1
7	6	0	0	0	0	1	0	7	374	80,6
8 - 10	16	1	0	0	0	3	4	24	398	85,8
11 - 16	13	0	0	2	3	13	6	37	435	93,8
17 - 20	4	0	0	0	1	1	1	7	442	95,3
21 - 24	4	0	0	0	0	1	1	6	448	96,6
25 - 28	6	0	0	0	0	1	1	8	456	98,3
>29	7	0	0	0	0	1	0	8	464	100,0

80.6%

14.7%

4.7%

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0 - 1	3	1	0	0	0	1	1	6		
2	2	0	0	0	3	0	3			
3	15	0								
4										
5										
6										
7									374	80,6
8 - 10						3	4	24	398	85,8
11 - 16	13	0	0	2	3	13	6	37	435	93,8
17 - 20	4	0	0	0	1	1	1	7	442	95,3
21 - 24	4	0	0	0	0	1	1	6	448	96,6
25 - 28	6	0	0	0	0	1	1	8	456	98,3
>29	7	0	0	0	0	1	0	8	464	100,0

Is heat an issue?

Focus on heat in nurse sow (use SoOptimeter)

How much do sows lose in the farrowing unit? 0-15 kg and 2-3 mm backfat is ok

Flex-weaning 1-3 piglets then you ask for trouble with heat in the farrowing unit

80.6%

14.7%

4.7%

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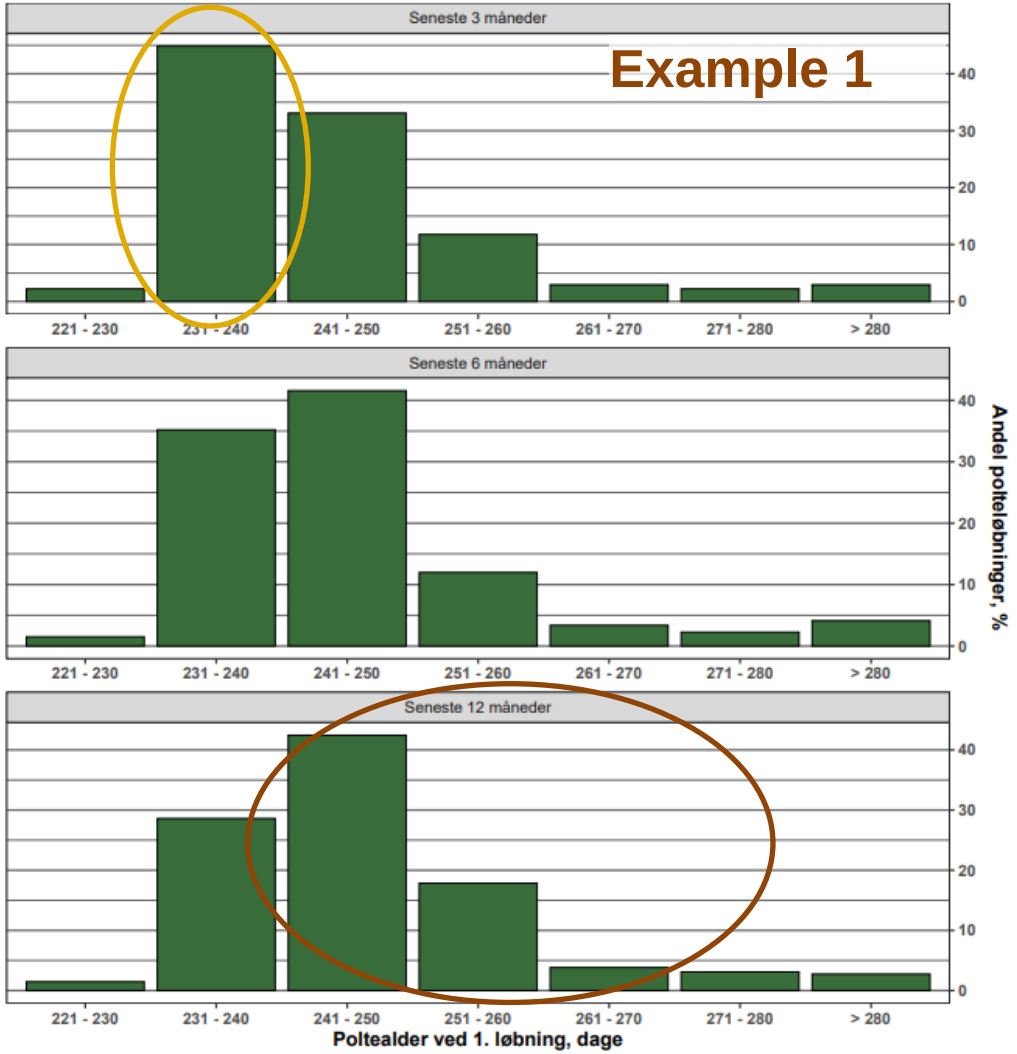
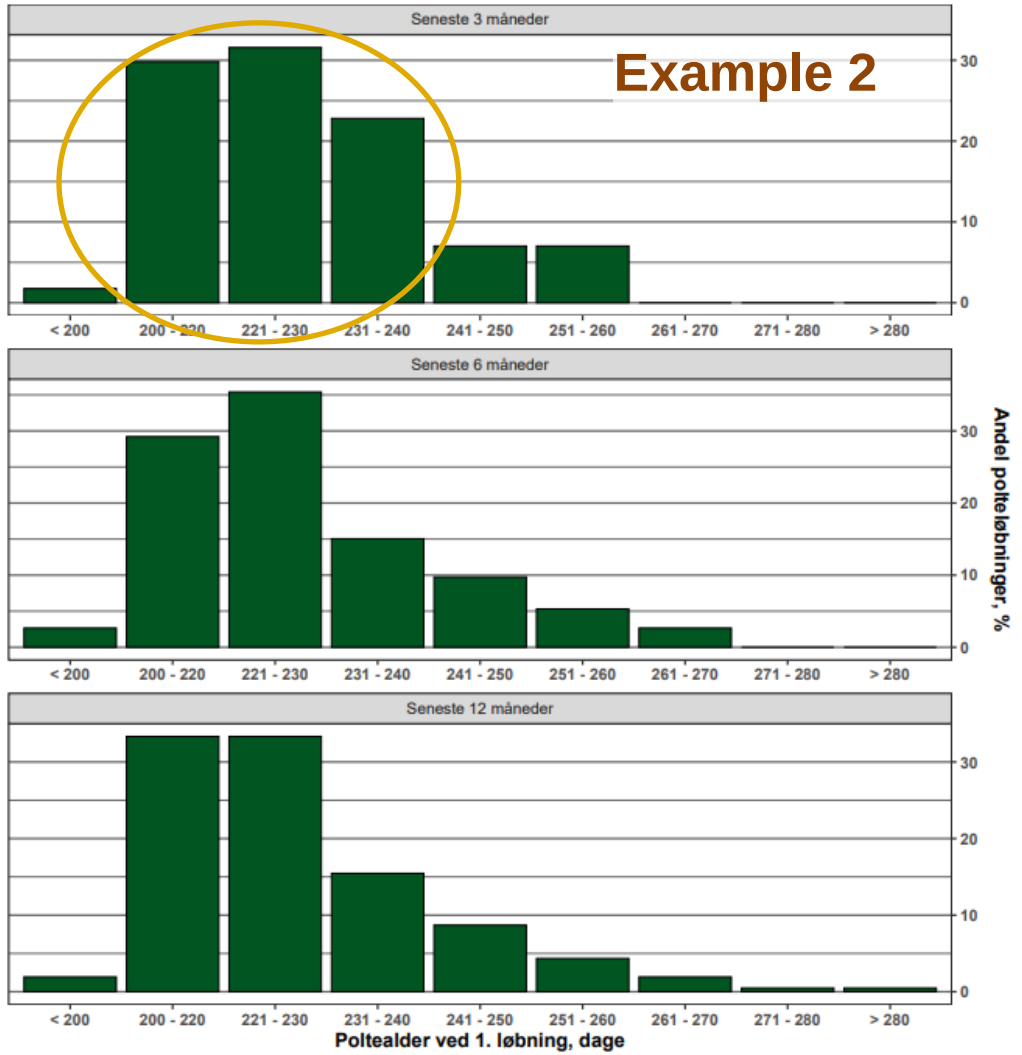
Gilt inseminations – an outline

Do you inseminate at the desired age of 220-240 days?





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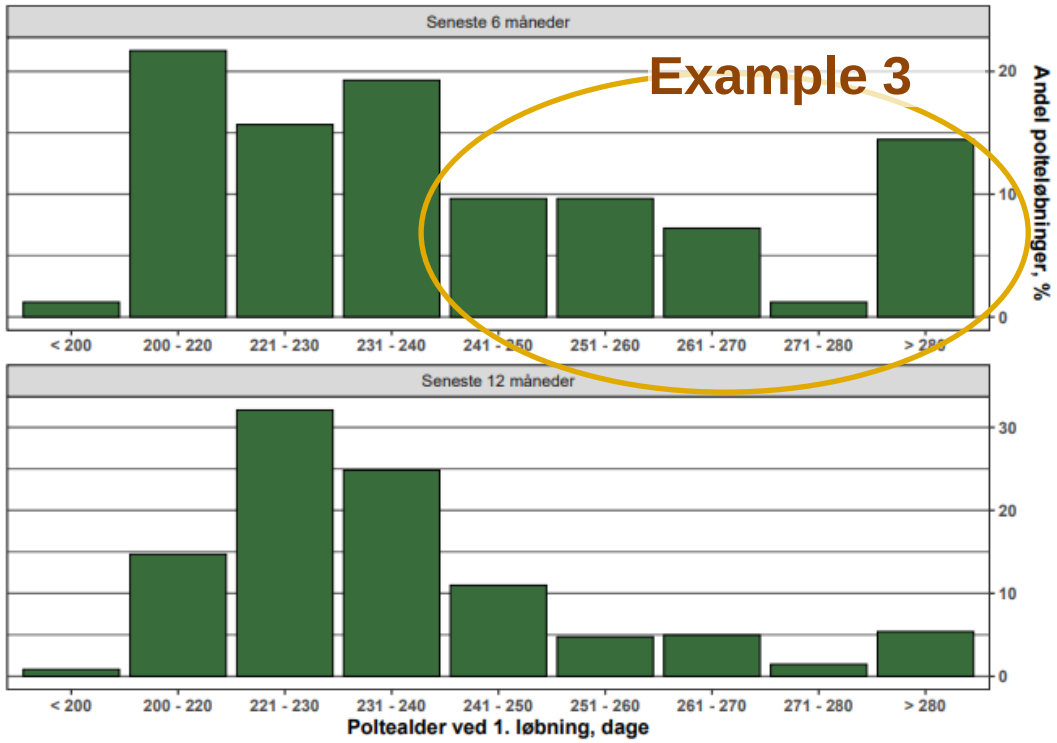
Problems with longevity

Caused by inadequate gilt recruitment og lack of management?



Example 3

Example 3

Excellent turn-around

Gilt unit or nursing home??

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Longevity in relation to age at insemination – gilts

Productive life in months after insemination = gilt pay-back

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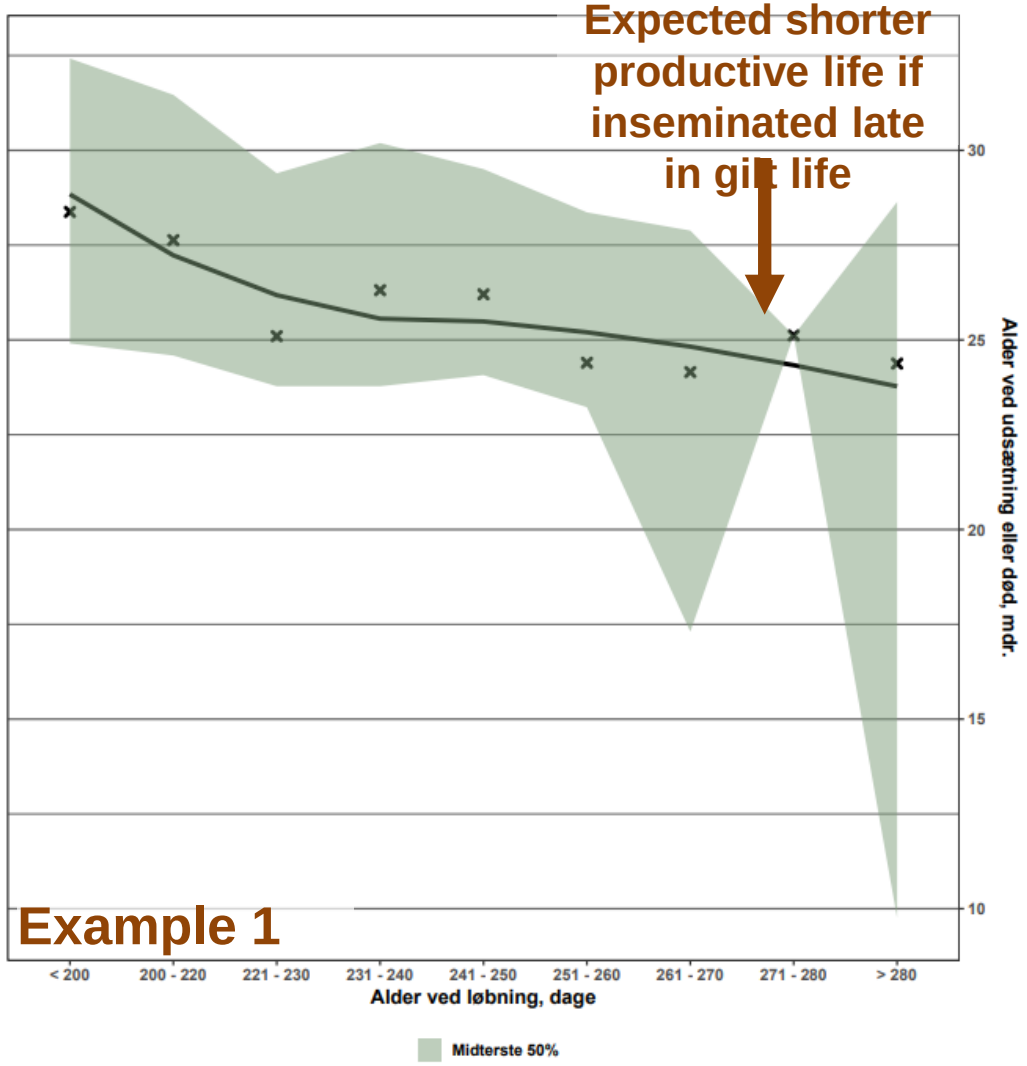
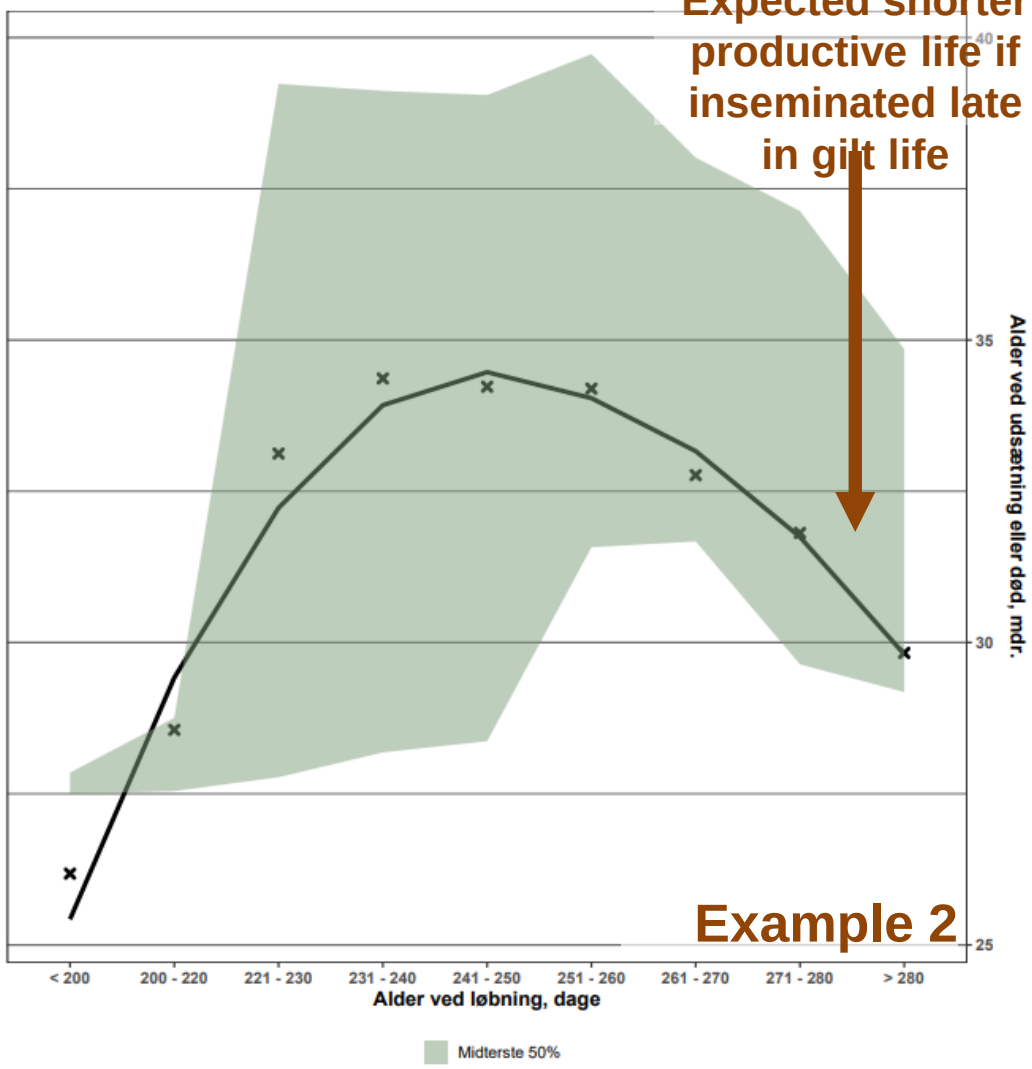
Longevity in relation to age at insemination – gilts

Productive life in months after insemination = gilt pay-back



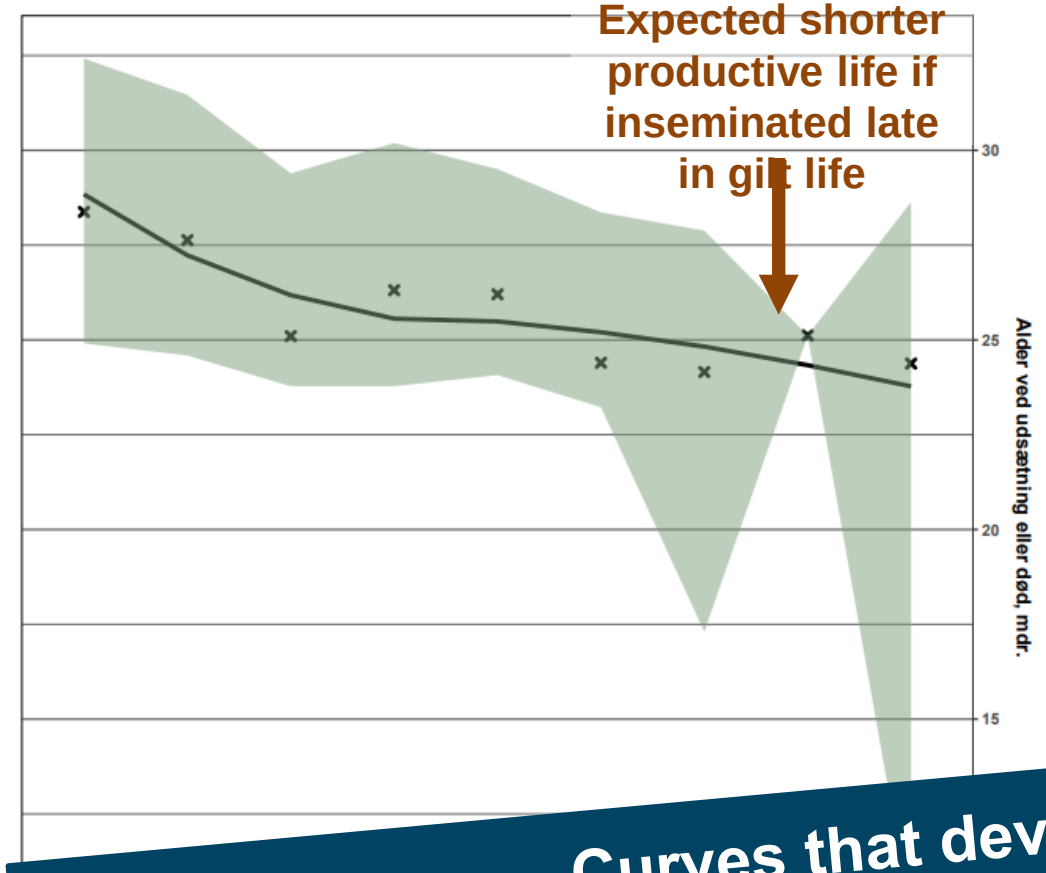


SEGES INNOVATION

Longevity in relation to age at insemination – gilts

Productive life in months after insemination = gilt pay-back

Confirmed:
Expected shorter productive life if inseminated late in gilt life



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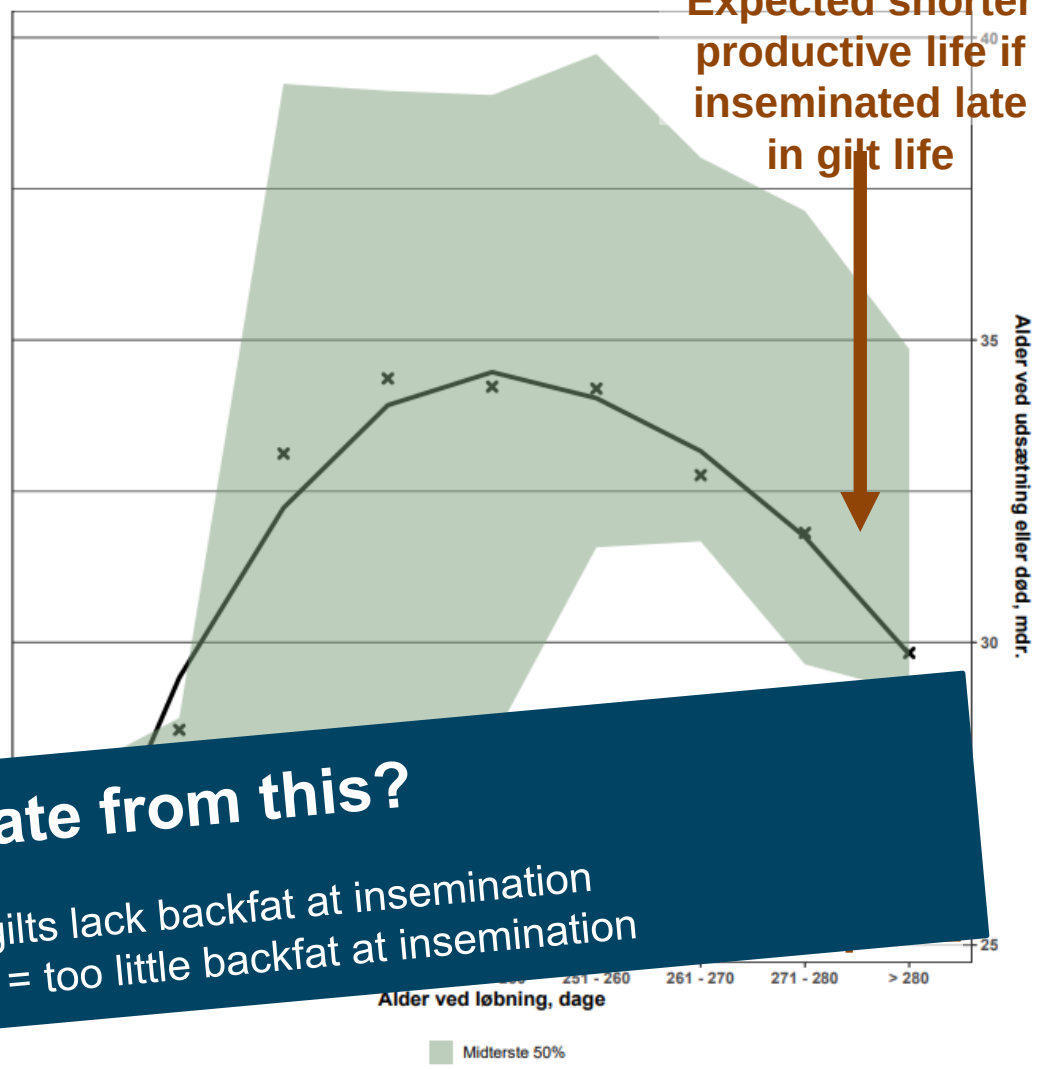


Curves that deviate from this?

Rising trend with increasing age = gilts lack backfat at insemination
Falling trend with very young animals = too little backfat at insemination

SEGES INNOVATION

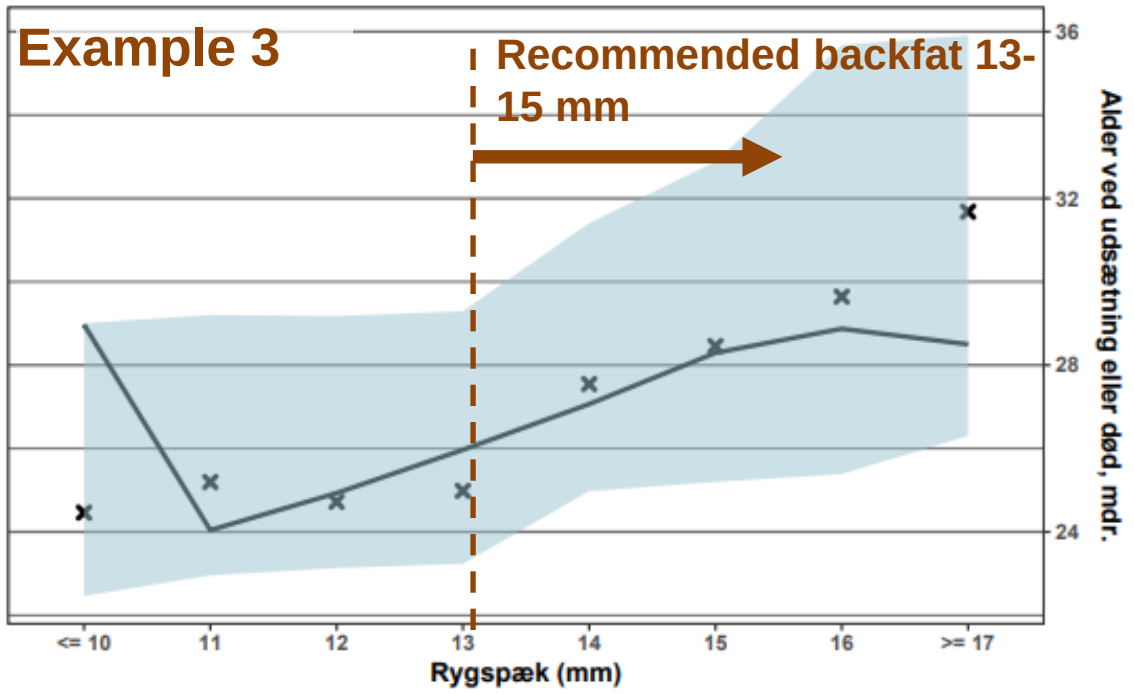
Longevity in relation to backfat at first insemination

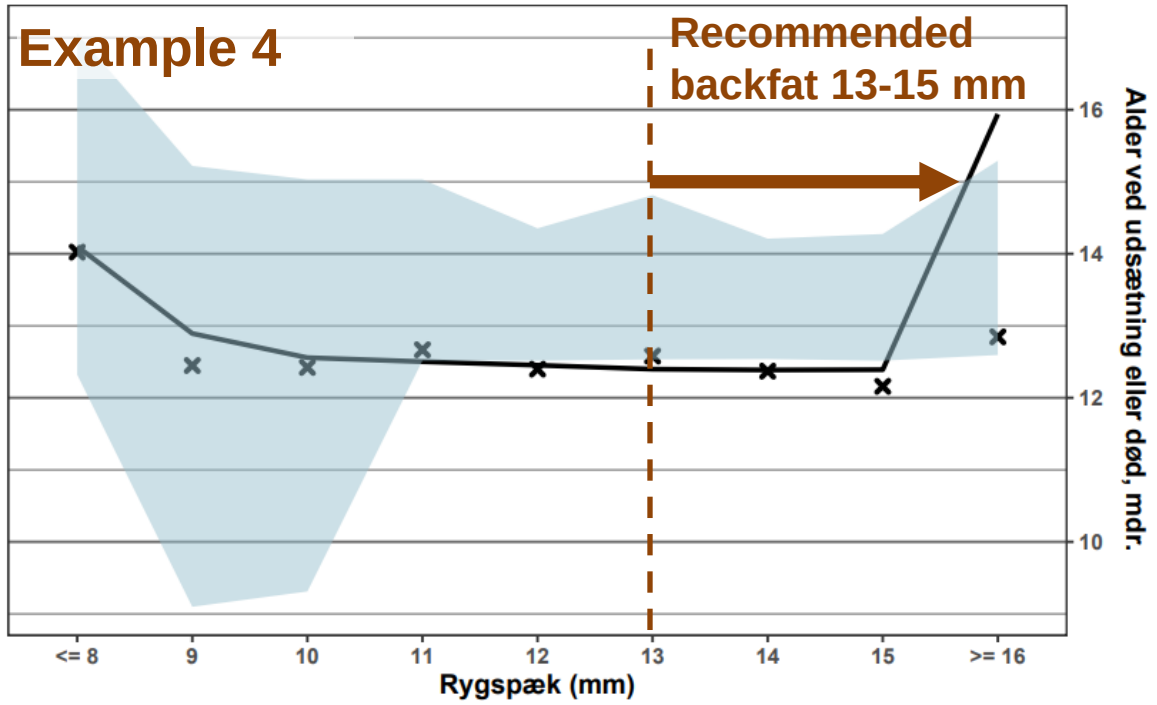
Productive life in months after insemination = growth pay-back

SEGES INNOVATION

Longevity in relation to backfat at first insemination

Productive life in months after insemination = growth pay-back



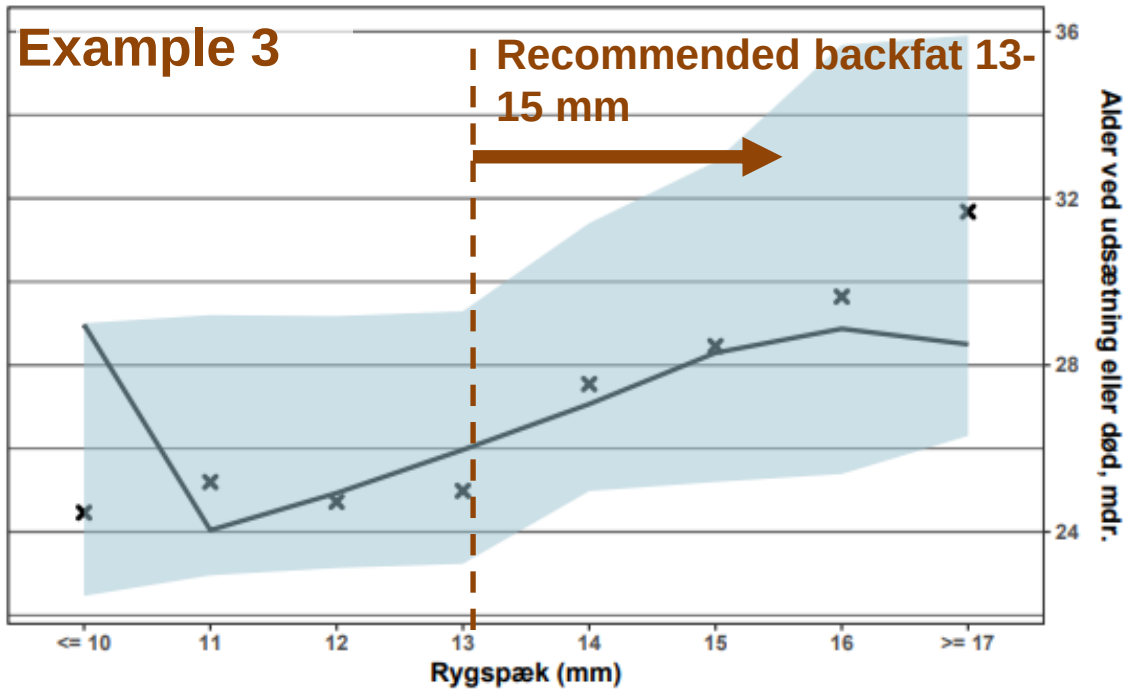


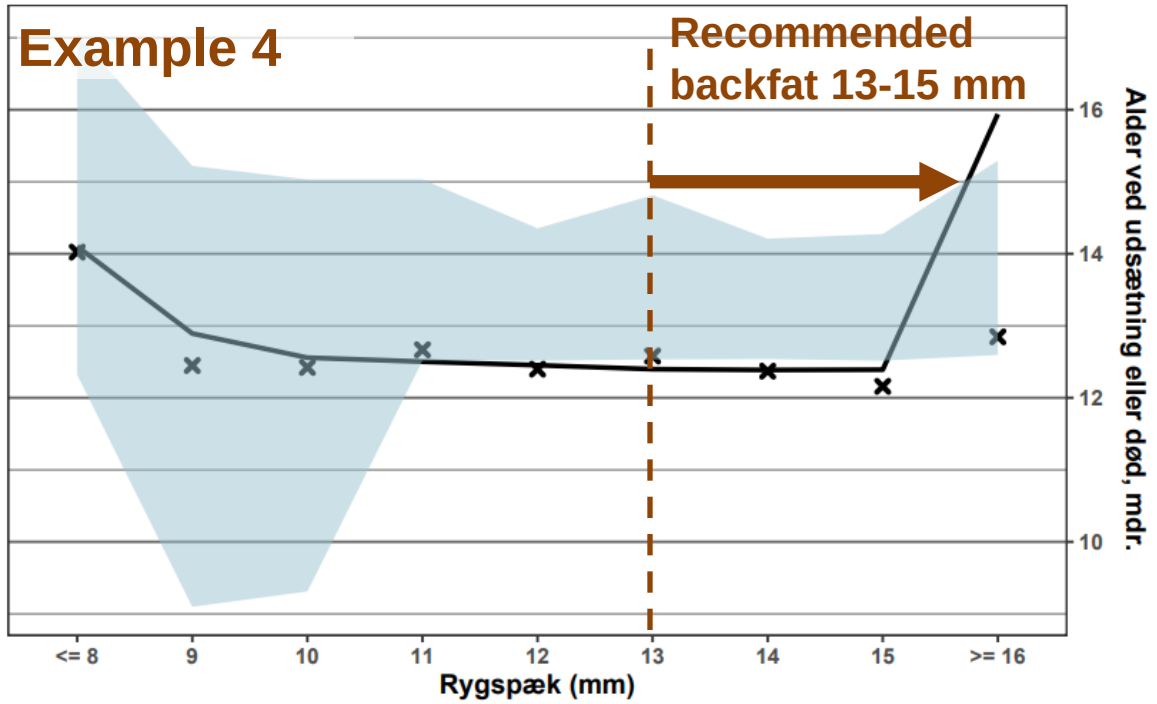
Midterste 50%

SEGES INNOVATION

Longevity in relation to backfat at first insemination

Productive life in months after insemination = growth pay-back





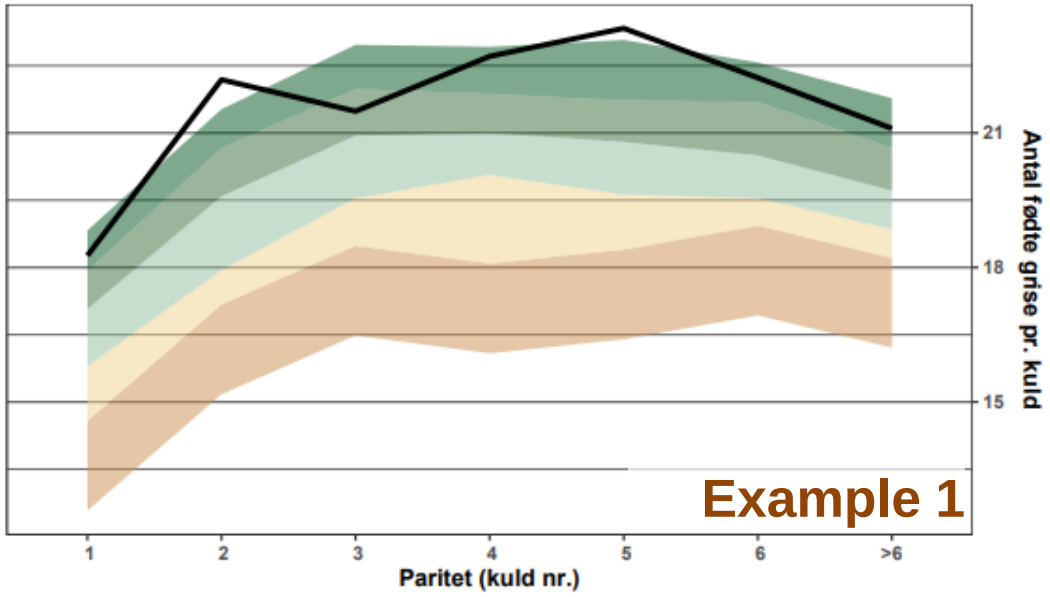
Midterste 50%

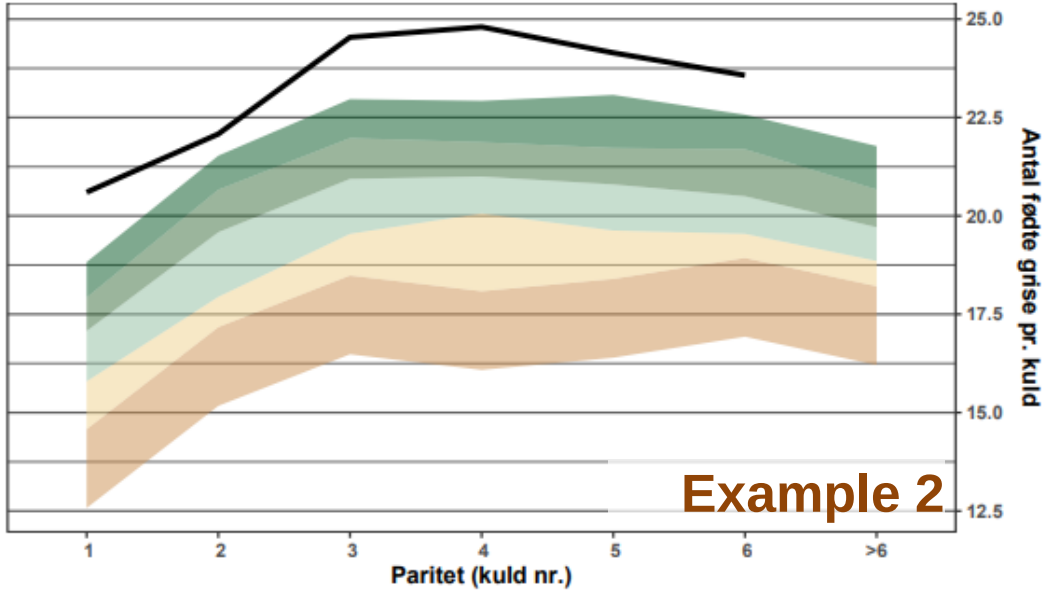
Trials and literature indicate that backfat and life span are positively correlated

SEGES INNOVATION

Development in litter size

Contribution from young and old sows?





SEGES INNOVATION

Development in litter size

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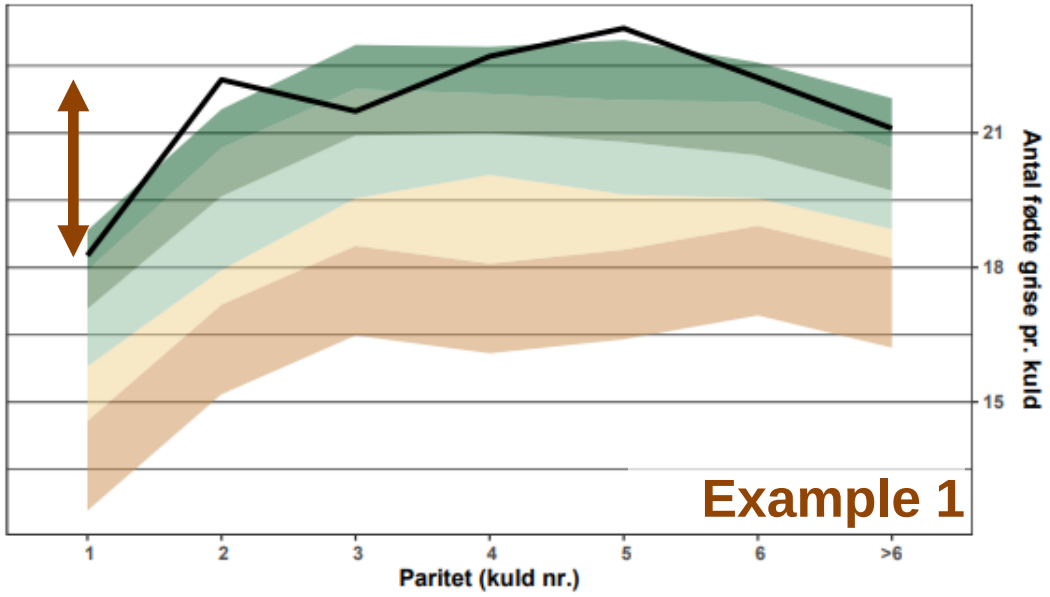

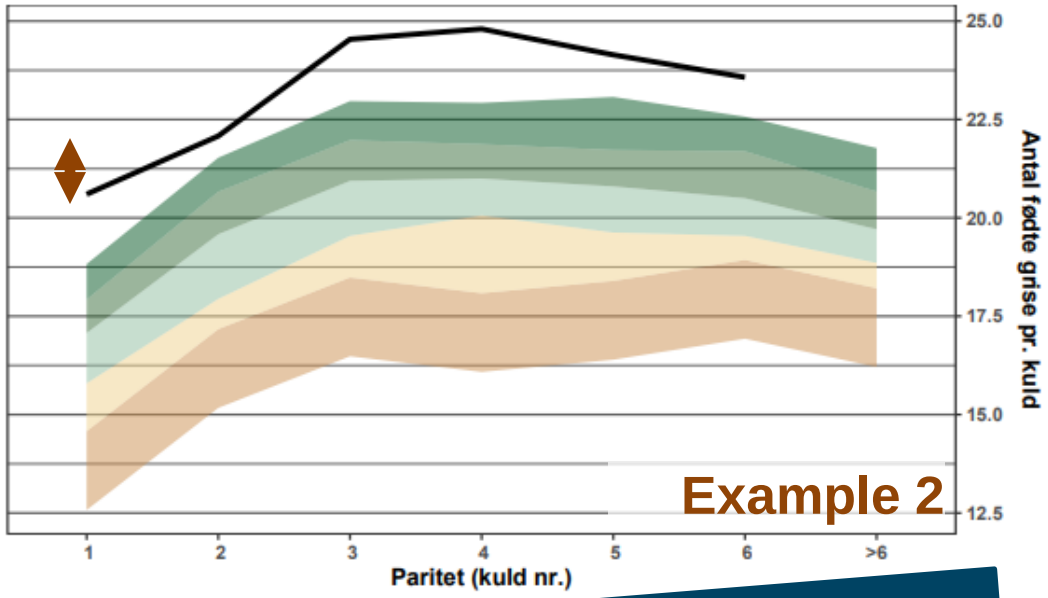

Note the leap from 1st to 2nd litter

Difference ≥ 2 pigs = too little backfat or incorrect management of gilts at insemination

Difference ≤ 1 pig = either super gilts or/and poor body condition in weaned gilts

SEGES INNOVATION

Nursing capacity
Is the majority of sows productive +/- milk system?

	Kuldnummer							Fravænninger		
Frav. grise pr. kuld	**1**	**2**	**3**	**4**	**5**	**6**	**>6**	**Sum**	**%**	**Samlet %**
0	3	6	7	3	3	1	3	26	1,8	1,8
1 - 9	0	0	0	2	0	0	0	2	0,1	1,9
10	0	0	0	1	0	0	3	4	0,3	2,2
11	0	1	2	0	1	0	3	7	0,5	2,7
12	5	8	3	2	4	0	1	23	1,6	4,3
13	20	15	9	8	4	3	9	68	4,8	9,1
14	50	59	27	27	21	17	40	241	16,9	26,0
15	182	131	127	62	59	44	78	683	47,9	73,9
16	85	55	38	37	28	18	42	303	21,2	95,1
17 +	19	14	11	6	8	4	8	70	4,9	100,0
Sum	364	289	224	148	128	87	187	1427	100,0	
Gns. fravænnede grise pr. fravænning	**14,9**	**14,6**	**14,5**	**14,6**	**14,6**	**14,9**	**14,6**			

	Kuldnummer							Fravænninger		
Frav. Grise - Kuld	**1**	**2**	**3**	**4**	**5**	**6**	**>6**	**Sum**	**%**	**Akk. %**
0	6	5	7	4	3	2	3	30	2,3	2,3
1 - 9	5	9	11	14	9	7	11	66	5,0	7,3
10	29	35	45	58	25	25	42	259	19,8	27,1
11	74	79	66	61	37	28	28	373	28,5	55,6
12	123	83	52	26	12	11	12	319	24,4	80,0
13	110	31	13	7	4	2	4	171	13,1	93,1
14	46	9	6	2	0	1	0	64	4,9	98,0
16	0	0	1	0	0	0	0	1	0,1	98,1
17 +	8	4	3	2	2	3	2	24	1,8	99,9
Sum	401	255	204	174	92	79	102	1307	99,9	
Gns. fravænnede grise pr. frav.	**12,3**	**11,4**	**11**	**11**	**10,6**	**11,1**	**10,7**			

SEGES INNOVATION

Corresponding analysis (minus benchmark) available in Cloudfarms (⇨ Beta-funktioner ⇨ Kuldfordelingsanalyse) and AgroVision (Analyse søer ⇨ Effektanalyse ⇨ PigVision ⇨ Fordelingskurver)

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Sows weaned per weaning

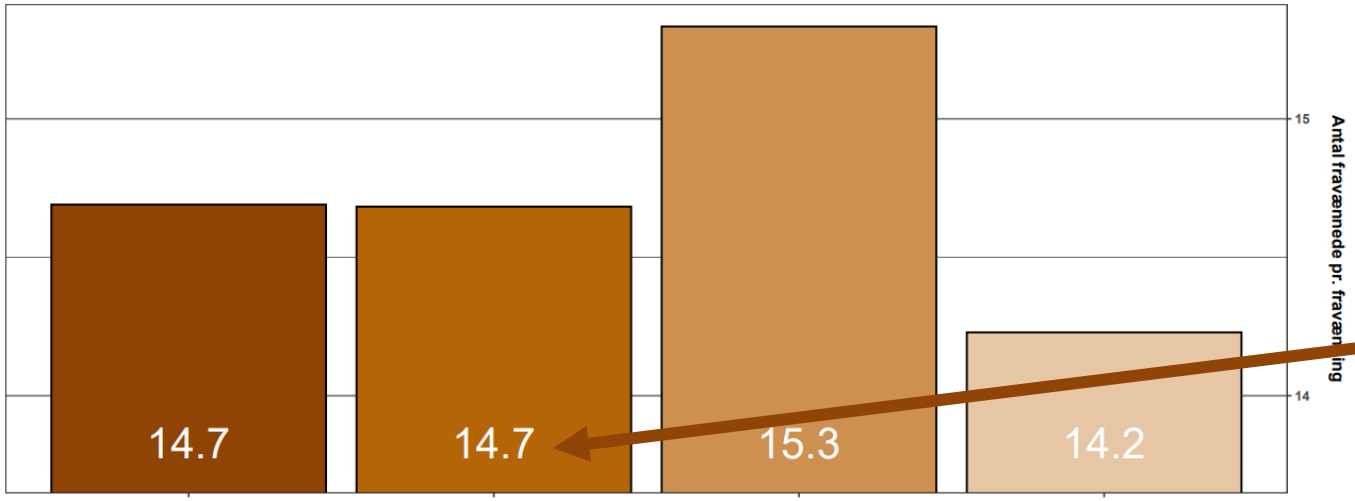
Decreasing own weaning with age = Natural
Is focus on colostrum intake efficient = Does weaned per weaning increase?
Effect of milk system/'mini liquid feed' = Does weaned per weaning increase?

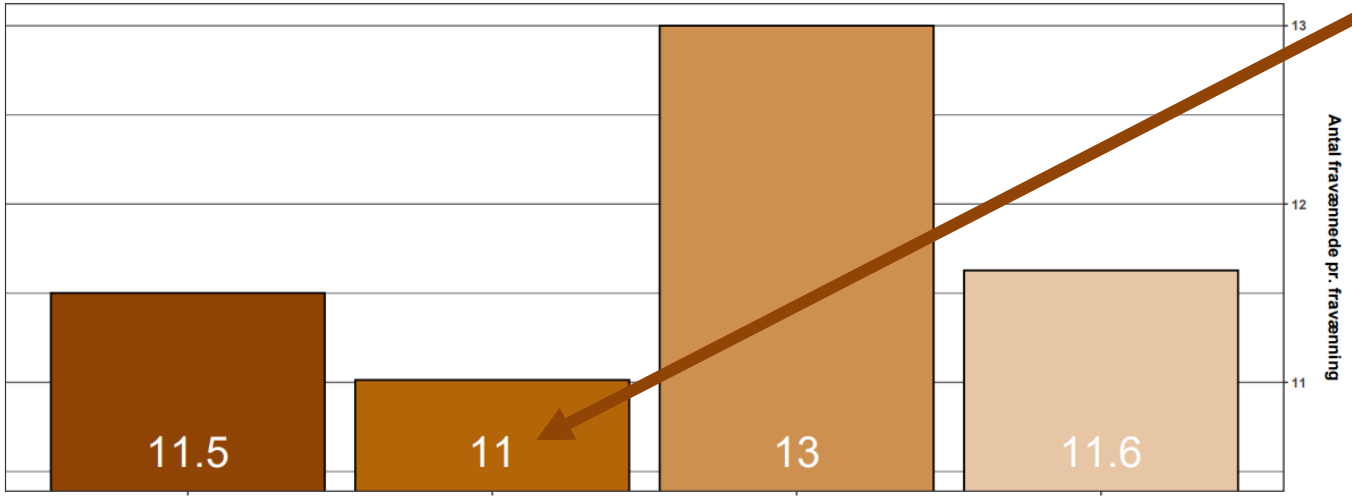
SEGES INNOVATION

Corresponding analysis (minus benchmark) available in Cloudfarms (⇨ Beta-funktioner ⇨ Kuldfordelingsanalyse) and AgroVision (Analyse søer ⇨ Effektanalyse ⇨ PigVision ⇨ Fordelingskurver)

Which sows wean the piglets?

Nurse sow selection process / are sows sufficiently pushed?





Are you drowning in nurse sows?

Gennemsnit af alle fravænninger

Søer med kun ÉN fravænning

Ammesøer - 1. fravænning

Ammesøer - 2.+ fravænning

SEGES INNOVATION

Agenda

Case: Problems with heat and return rates

Real-life example

SEGES InSight

Sow survival // Piglet survival // SoOptimeter

Get an overview of your production

Outline // Variations // Batch composition // Utilization of housing capacity

Reproduction & performance

Heat // Gilts // Backfat // Longevity // Litter size // Rearing ability

The way forward from here

Photo: Rasmus Bendix, Bendix Production

SEGES INNOVATION

The way forward from here
Start by focusing on the quality of your recordings

- **Gilt age at insemination**
  - Focus on minimising variations (weight + backfat + age)
  - Do old gilts have a short productive life (inseminate earlier)
  - Implement phase feeding using new nutrient standards for gilts
  - Remember the feed curve must support the gain of backfat
- **Efficient heat**
  - Daily heat check
  - Know the sows' sacrifces in the lactation period (0-15 kg + 2-3 mm backfat)

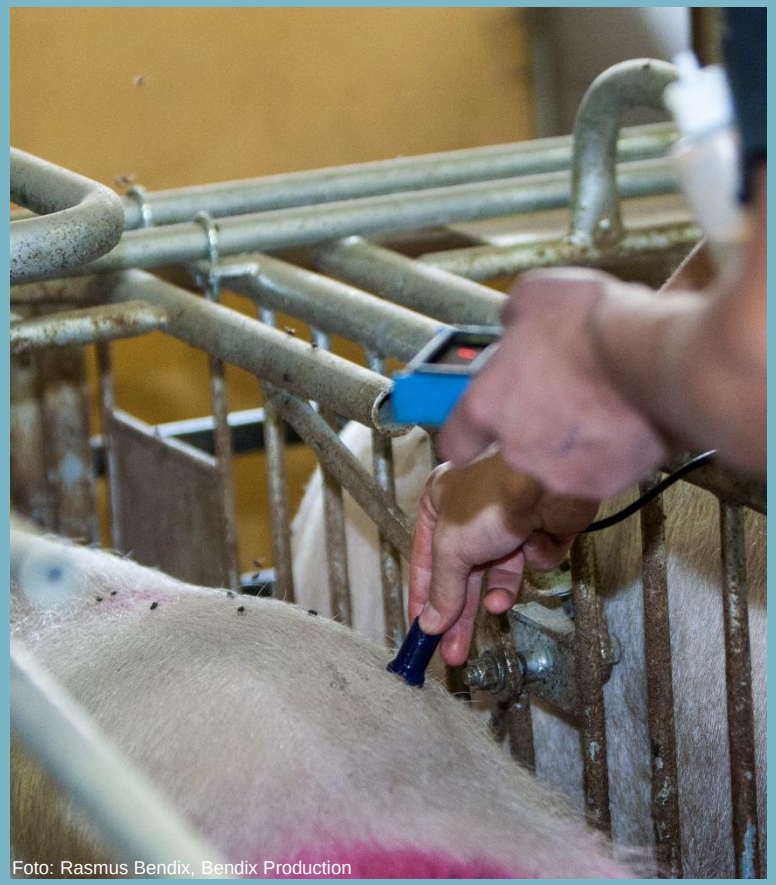


Foto: Rasmus Bendix, Bendix Production

SEGES INNOVATION

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  - Remember the feed curve must support backfat increase
- **Efficient heat**
  - Daily heat check
  - Know the sows' sacrifces in the lactation period (0-15 kg + 2-3 mm backfat)
- **Utilization of housing capacity**
  - As many days as possible with sow milk in the farrrowing pen
  - Remember: Move sows to the farrowing unit in time
- **Weaned per weaning**
  - Does supplementary feeding pay off?
  - Does each sow perform as expected or is it necessary to finetune management?

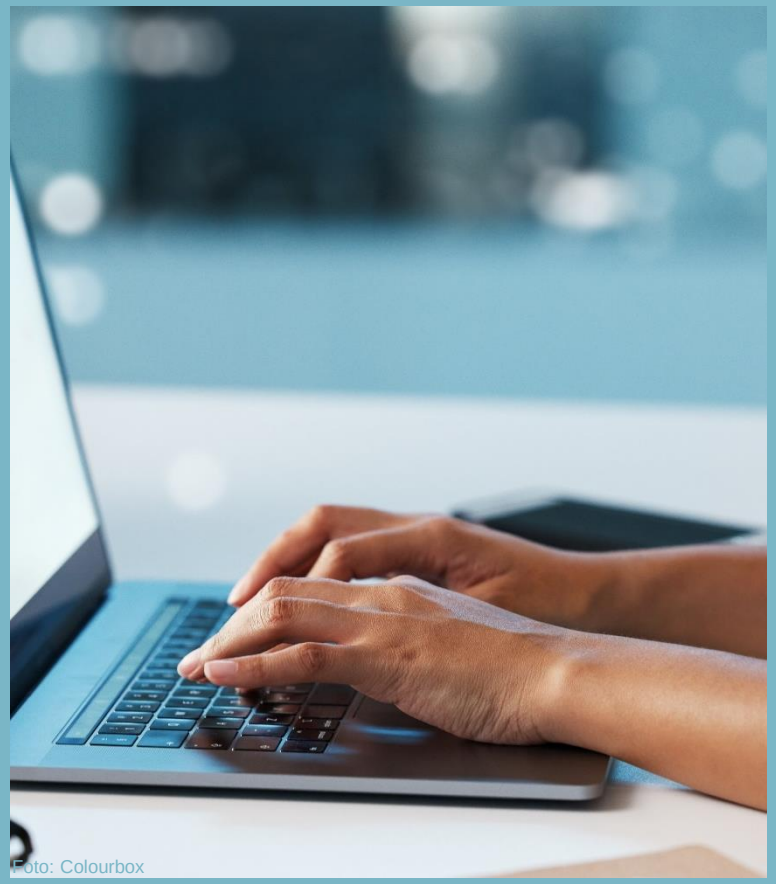
Foto: Colourbox

SEGES INNOVATION