



# 國立屏東科技大學 借鏡丹麥先進技術成果分享研討會

## 丹麥養豬的精實管理與職場文化

國立屏東科技大學

動物科學與畜產系

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NATIONAL PINGTUNG UNIVERSITY OF SCIENCE AND TECHNOLOGY



# 大綱

- 何謂精實管理
- 管理:丹麥養豬成功的關鍵因素
- 精確記錄對豬隻生產的重要性
- 領導帶領團隊順利達標

# 精實管理

- 美國麻省理工學院兩位研究教授 Jim Womack 與 Daniel Jones，在研究以日本豐田汽車為首的少數日本企業管理模式後，於**1990**年出版{改變世界的機器}(The Machine That Changed the World)一書，書中首次出現[精實生產](Lean Production)，將Lean的意涵引用到企業經營。
- Lean在英文中指的是[緊實、沒有多餘脂肪]的意思，對應到企業的經營上，則是沒有任何資源浪費的現象，流程運作順暢，以**最小的投入創造最多利潤**。該書出版之際，豐田汽車的規模還不到美國通用汽車的一半，但是兩位作者預測：豐田模式將會改變世界的生產與管理方式。

- 1996年，兩位作者出版另一本書{精實思想}(Lean Thinking)，進一步闡述更為完整的精實概念。精實思想更成為全球企業學習與取經的目標。精實(Lean)的意涵為何？Jim Womack 強調，[精實不只是改善的工具，更是一套完整的企業管理思維。精實思想是一個企業如何追求以最小的投資，為顧客創造最大價值的思維方式。
- 精實的思維及運用雖始於汽車產業，但不是只有製造業、生產端才需要推動精實，追求精實生產，現今各行各業皆競相導入精實的概念及工具。服務業也紛紛將精實思維與做法導入服務流程。

<https://mymkc.com/article/content/21019>

**30%** of the succes is **genetic**  
the last **70%** is in the  
**management!!**

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We can only do **better**,  
if we **know**,  
**accept**  
and act  
on what we do **wrong!!**

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**Be honest!!**

# What is LEAN ???

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- Lean is about creating more value by using fewer resources.
- Lean means "slim" and aims to increase productivity through efficiency improvement.
- You can say that Lean is organized common sense.

# Before and after



# Why Lean ?

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- People have limited conscious, rational capacity.
- We are only rationally combined about a 1/2 hour a day.
- The rest of the time "we're running on the routine."
- Here we are left to our knowledge, experiences, habits, feelings and instincts.

# Why LEAN ?

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- Our willpower is limited and get easy tired by use.
- And it works best in the morning and when we are not under pressure.

## Structure of the weekly stand-up meeting

- Short meetings
- 15-20 min. every week
- Optionally, 3 min. every day
- Stand-up meetings
- Everyone stands around the board
- Agenda
- Permanent and well known

# Weekly production meeting

All staff has to know what is "going on" in other units

Action can be taken "up front" instead of waiting for  
Efficiency-reports with "old" numbers

Increases the team-spirit

Decreases the risk of major mistakes due to "many  
eyes watching"





# A typical agenda

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1. Comments from the manager since last week (the first and the last one HAS to be positive!)
2. Planning of the upcoming week
3. Comments on the newest numbers on the management board. Staffmembers should be allowed to present their own numbers
4. Optionally

# Great ideas, improvement suggestions

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- Everybody must contribute
- All suggestions must be taken seriously
- Use yellow stickers with suggestions
- Prioritization
- Division of responsibility
- Follow-up

# Inspiration



# How to get your employees to bring about change in your agricultural business

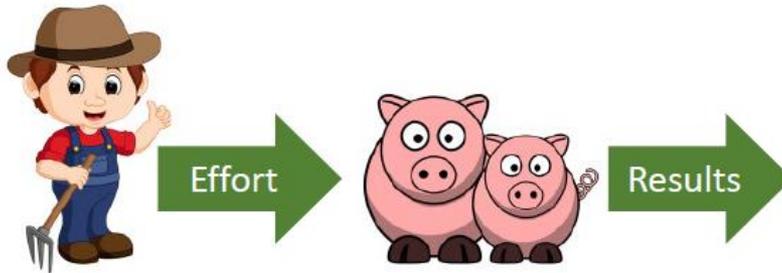
- Only expose your employees to small changes at a time
- 
- Low changes that make it intuitively more obvious to do the task
- 
- If necessary, remove the obstacles and difficulties, making the changes easy for employees to carry out

# Benefits

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- Positive dialogue
- Inclusion of the staff
- Visible goals and results
- Improvement culture
- Visible management
- Team spirit

# Pictures show the difference!



This is the farmer!



This is the leader!

# What is leadership?



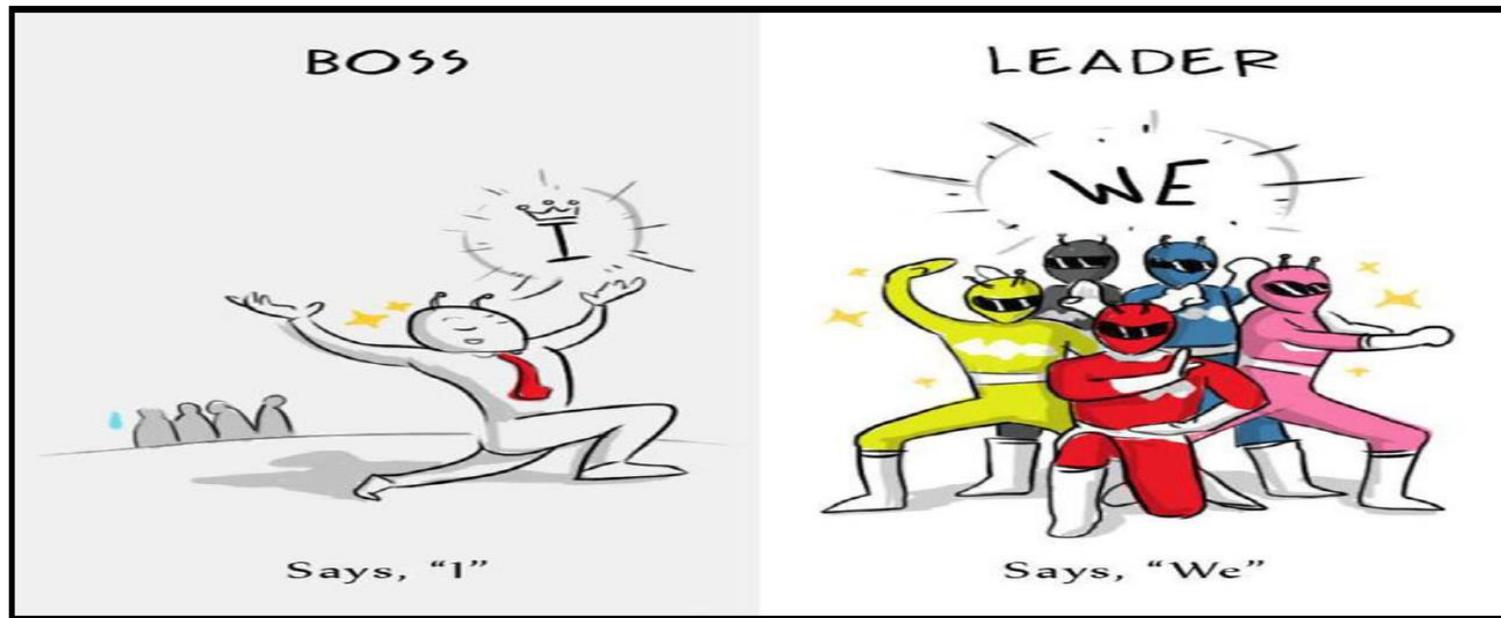
Leadership is a process  
where somebody  
influences someone  
to achieve a common goal!



There is a big difference  
between following a  
leader because you  
**HAVE** to, or because you  
**WANT!** to

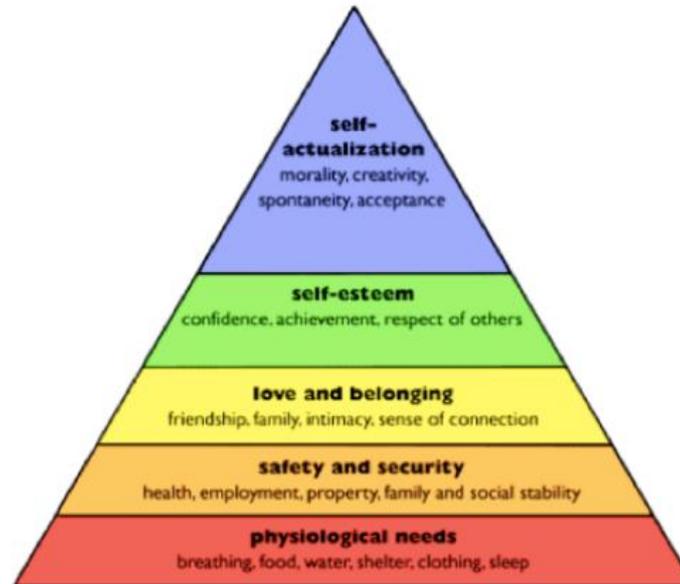


# From micromanagement to leadership



# What motivates?

Why do  
You get out  
of bed in  
the  
morning??



"The Maslow Need Hierarchy"  
Abraham Maslow, Psych. 1943

# 馬斯洛的「人類需求五層次理論」

實現個人理想、抱負，發揮個人的能力到最大程度，完成與自己的能力相稱的一切事情的需要。

穩定的社會地位，要求個人的能力和成就得到社會的承認。

友愛的需要，伙伴、同事之間的關係、友誼和忠誠。歸屬的需要，成為群體的一員，相互關心和照顧。

保障自身安全、擺脫事業和喪失財產威脅、避免職業病的侵襲、接觸嚴酷的監督等方面的需要。

維持自身生存的最基本要求，包括飢、渴、衣、住、性的方面的要求。

自我實現需求  
Self Actualization

尊重需求  
Ego Needs

社會需求  
Social Needs

安全需求  
Security Needs

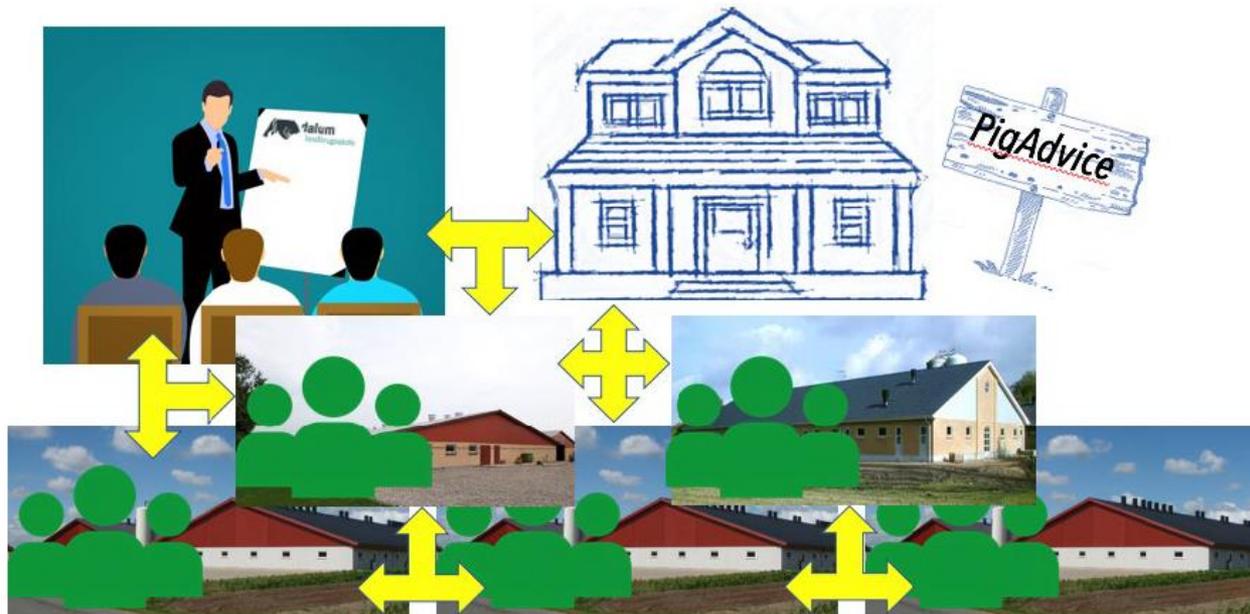
生理需求  
Body Needs

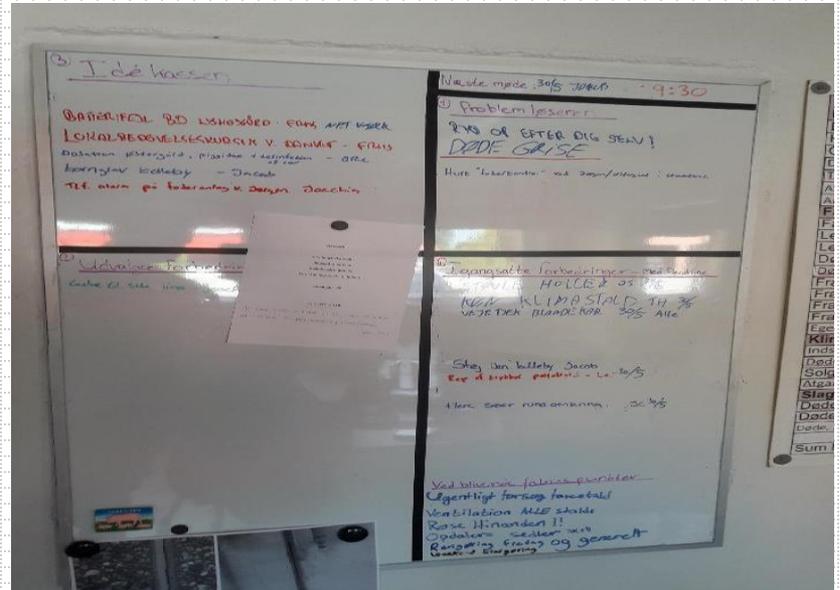
高層次

低層次



# Movement of knowledge?







# Recording

Why is it necessary?



NPUST August 2020

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# The most powerful tools in a pig production...



If we want to improve, we have to know where to put our effort!

- And to know that, we have to learn from what went wrong!

# The weekly production board

總配種數  
新女豬數  
重發情數

分娩母豬數

每窩出生活  
仔數

每窩離乳活  
仔數

Tavlen opdateres mandag før fyraften

nr. 950 888V

Uge nr. 2018

Kvartaler (2018)

Reproduktion	Pla	1	2	3	4	5	6	7	8	9	10	11	12	13	1 kv.	2 kv.	3 kv.	4 kv.	(2017)
Løbninger i alt	54	55	53	52	51	50	49	48	47	46	45	44	43	42					55
Heraf polte	11	11	9	16	8	7	6	20	7	7	19	13	12	15					14
Omløbere i alt	2	1	0	0	0	0	2	0	1	1	0	1	1	2					1
Døde & aflivede søer	2	0	2	2	0	0	0	3	1	3	2	2	4	2					2
Tomme søer ved 2. scan	0	0	0	1	0	0	4	0	0	0	1	2	2	0					0.6
Antal beh. søer i dr.stald	?	9	7	8	4	3	8	5	6	6	2	8	4	14					6
Antal beh. søer i farestald	?	12	11	18	14	13	9	7	5	9	5								(15)
<b>Farestald</b>																			
Faringer i alt	49	53	50	44	51	49	46	47	53	51	46	49	41	50					49
Levendefødte i alt	801	851	849	751	859	785	814	769	911	803	779	821	665	794					819
Levendefødte pr. kuld	16.5	16.1	17.0	17.1	16.8	16.0	17.7	16.4	17.2	15.7	16.9	17.6	16.2	15.9					16.9
Dødfødte pr. kuld	1.5	2.5	3.0	2.3	1.9	1.0	1.8	1.7	1.6	1.5	1.9	2.0	2.3	2.5					1.9
Døde pattegrise pr. faring	2.2	2.4	3.4	3.1	3.2	2.1	2.7	2.4	2.3	2.4	2.2	2.9	3.0	2.5					2.4/2.7
Fravænnede søer i alt	49	49	53	48	48	46	48	53	53	52	41	46	45	46					49
Fravænnede grise i alt	697	681	581	687	733	639	671	737	780	664	660	690	605	585					675
Fravænnede pr. kuld	14.3	13.9	12.9	14.3	15.3	13.9	15.6	13.9	14.9	13.8	16.1	15.0	13.4	13.9					13.9
Fravænningsvægt	6.0	6.3	6.5	5.9	6.7	6.5	6.3	6.3	6.1	6.7	6.3	6.5	6.4	6.8					6.1
Egenfravænnning	11.5	12.2	11.0	11.6	12.6	10.8	11.8	11.7	11.8	11.4	13.2	12.1	11.6	11.9					11.3
<b>Klimastald</b>																			
Indsat Lysøj-/Østergård	677	0/58	0/58	0/58	0/58	0/58	0/58	0/58	0/58	0/58	0/58	0/58	0/58	0/58					660
Døde Lys/Ø (2%)	10/3	0	0	0	0	0	0	0	0	0	0	0	0	0					15/3
Solgt & til slagtesvin	664	0	1082	945	450	730	435	400	1164	858	400	756							651
Afgangsvægt	300	-	32.9	30.2	28.4	30.4	30	33.0	32	26.5	28.9	28.4							28.3
<b>Slagtesvin</b>																			
Døde Kellebygård (2%)	31	5	6	3	9	6	3	5	1	6	5	6	4	4					38
Døde Bøgegård (2%)	29	5	7	0	1	3	3	3	3	1	0	0	0	7					46
Døde Jørgensgård (2%)	23	3	1	1	0	1	1	0	1	0	4	1	3	4					-
Sum lev. svin	4650	25	403	1069	1297	1752	2207	2182	3300	3755	3981	4444	4986						1461

# The weekly production board

Tavlen opdateres mandag før fyraften  
MIL 930 F04V

Reproduktion	Plan
Løbninger i alt	54
Heraf polte	11
Omløbere i alt	2
Døde & aflivede søer	2
Tomme søer ved 2. scan	0
Antal beh. søer i dr.stald	?
Antal beh. søer i farestald	?
<b>Farestald</b>	
Faringer i alt	49
Levendefødte i alt	801
Levendefødte pr. kuld	16,5
Dødfødte pr. kuld	1,5
Døde pøttegrise pr faring	2,2
Fravænnede søer i alt	49
Fravænnede grise i alt	697
Fravænnede pr. kuld	14,3
Fravænningsvægt	6,0
Egenfravænnning	11,5
<b>Klimastald</b>	
Indsat Lyshøj-/Østergård	677
Døde Lys/Ø (2%)	10/3
Solgt & til slagtesvin	664
Afgangsvægt	300
<b>Slagtesvin</b>	
Døde Kellebygård (2%)	3,1
Døde Bøgegård (2%)	2,9
Døde, Iørgensgård (2%)	2,5
Sum lev. svin	4550

Total mated

Of them young females

Total returners

Treated in ges.unit

Treated in far.unit

Total farrowings

Liveborn/litter

Weaned/litter

Departure weight

Dead, on this site

# Divide down to numbers you can manage!

Slagtesvin	
Døde Kellebygård(2%)	3,1

At this site, the plan is 8000 finishers produced  
per year

2% out of 8000 = 160 dead pigs per year

160 dead pigs per year / 52 weeks = 3,1  
dead/week

# Divide down to numbers you can manage!

Planned pre-weaning mortality = 13,5%

Faringer i alt	49
Levendefødte i alt	801
Levendefødte pr. kuld	16,5
Dødfødte pr. kuld	1,5
<u>Døde pøttegrise pr faring</u>	2,2
Fravænnede søer i alt	49
Fravænnede grise i alt	697
Fravænnede pr. kuld	14,3
Fravænningsvægt	6,0

Total farrowings = 49

Total liveborn = 801

Total number of dead piglets per week:  
 $801 \times 13,5\% = 108$

Dead piglets per farrowing  
 $108/49 = 2,2$

# Be sure to adjust!

Tavlen opdateres mandag før fyraften

mål 350 FOMV

Reproduktion	Plan	Uge nr.													Kvartaler				1 år
		1	2	3	4	5	6	7	8	9	10	11	12	13	1.kvt	2.kvt	3.kvt	4.kvt	
Løbninger i alt	54	54	54	58	51	52	46	57	51	46	65	57	55	57					55
Heraf polte	11	11	9	16	8	7	6	20	7	7	14	13	12	15					14
Omløbere i alt	2	1	0	0	0	0	0	2	0	1	0	1	1	2					1
Døde & aflivede søer	2	0	2	2	0	0	0	3	1	3	2	2	4	2					2
Tomme søer ved 2. scan	0	0	0	1	0	0	4	0	0	0	1	2	2	0					0,6
Antal beh. søer i dr.stald	?	9	7	8	4	3	8	5	6	6	2	8	4	14					6
Antal beh. søer i farestald	?	12	11	18	16	13	9	7	5	9	6								(15)
<b>Farestald</b>																			
Faringer i alt																			
Levendefødte i alt	801																		814
Levendefødte pr.	14,5																		16,9
Dødfødte pr. kuld	1,6																		1,0
Døde pattegrise pr far																			
Fravænnede søer i alt	49																		
Fravænnede grise i alt	697	681	581	687	733	639	671	737	790	664	660	696	605	595					675
Fravænnede pr. kuld	14,3	13,9	12,9	14,3	13,3	13,9	15,6	13,9	14,9	11,8	16,1	15,0	13,4	13,9					13,9
Fravænningsvægt	6,0	6,3	6,5	5,9	6,7	6,5	6,3	6,3	6,1	6,9	6,3	6,5	6,4	6,8					6,1
Egenfravæning	11,5	12,2	11,0	11,6	12,6	10,8	11,8	11,7	11,8	11,4	12,2	12,1	11,6	11,9					11,3
<b>Klimastald</b>																			
Indsat Lyshøj-/Østergård	677	0/57	0/62	410/0	826/0	53/0	859/0	40/0	329/0	20/536	0/718	320/0	597/0					660	
Døde Lys/Ø (2%)	10/3	0/0	13/4	14/4	2/20	6/0	9/9	2/9	55/0	9/23	55/73	10/34	13/0	27/9					13/3
Solgt & til slagtesvin	664	0	1087	943	450	730	435	400	1164	858	400	756							631
Afgangsvægt	30,0	-	32,9	30,2	28,4	30,4	30	33,6	32	26,5	28,9	28,4							29,3
<b>Slagtesvin</b>																			
Døde Kellebygård (2%)	3,1	3	6	3	9	6	3	5	1	6	5	6	4	4					3,8
Døde Bøgegård (2%)	2,9	3	7	0	1	3	3	3	3	1	0	0	0	7					4,6
Døde, Jørgensgård (2%)	2,3	3	1	1	0	1	1	0	1	0	4	1	3	4					-
Sum lev. svin	4550	26	043	1069	1247	1752	2207	2836	3300	5735	3991	4444	4876					1461	

Adjust the plan if it becomes unreal!

# Sow Cycle, theoretical

4-weeks weaning,  
theory

Dry 5 days  
(NPD)

Gestation  
116 days

Lactation  
26 days

=

Farrowing cycle:  
147 days

=

Litter per sow per  
year: 2,48

5-weeks weaning,  
theory

Dry 5 days  
(NPD)

Gestation  
116 days

Lactation  
33 days

=

Farrowing cycle  
154 days

=

Litter per sow per  
year: 2,37

# Sow Cycle, real world

4-weeks weaning,  
theory

Dry 5 days  
(NPD)

Gestation  
116 days

Lactation  
26 days

=

Farrowing cycle:  
147 days

=

Litter per sow per  
year: 2,48

Danish Average  
2017

Dry 12  
days(NPD)

Gestation  
117 days

Lactation  
31 days

=

Farrowing cycle:  
160 days

=

Litter per sow per  
year: 2,28

# Non Productive Days

4-weeks weaning,  
theory

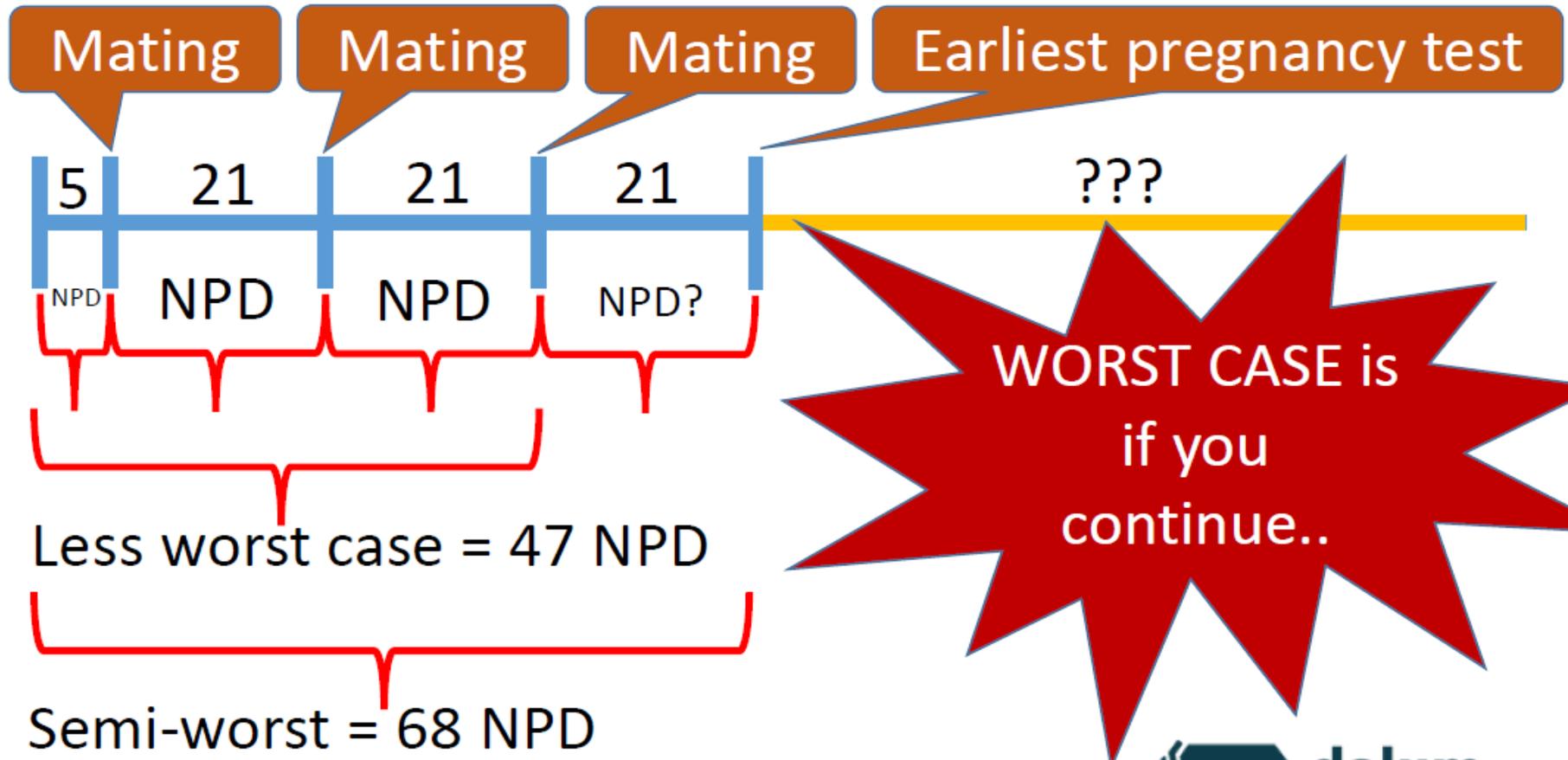


Single returner,  
after 3 weeks



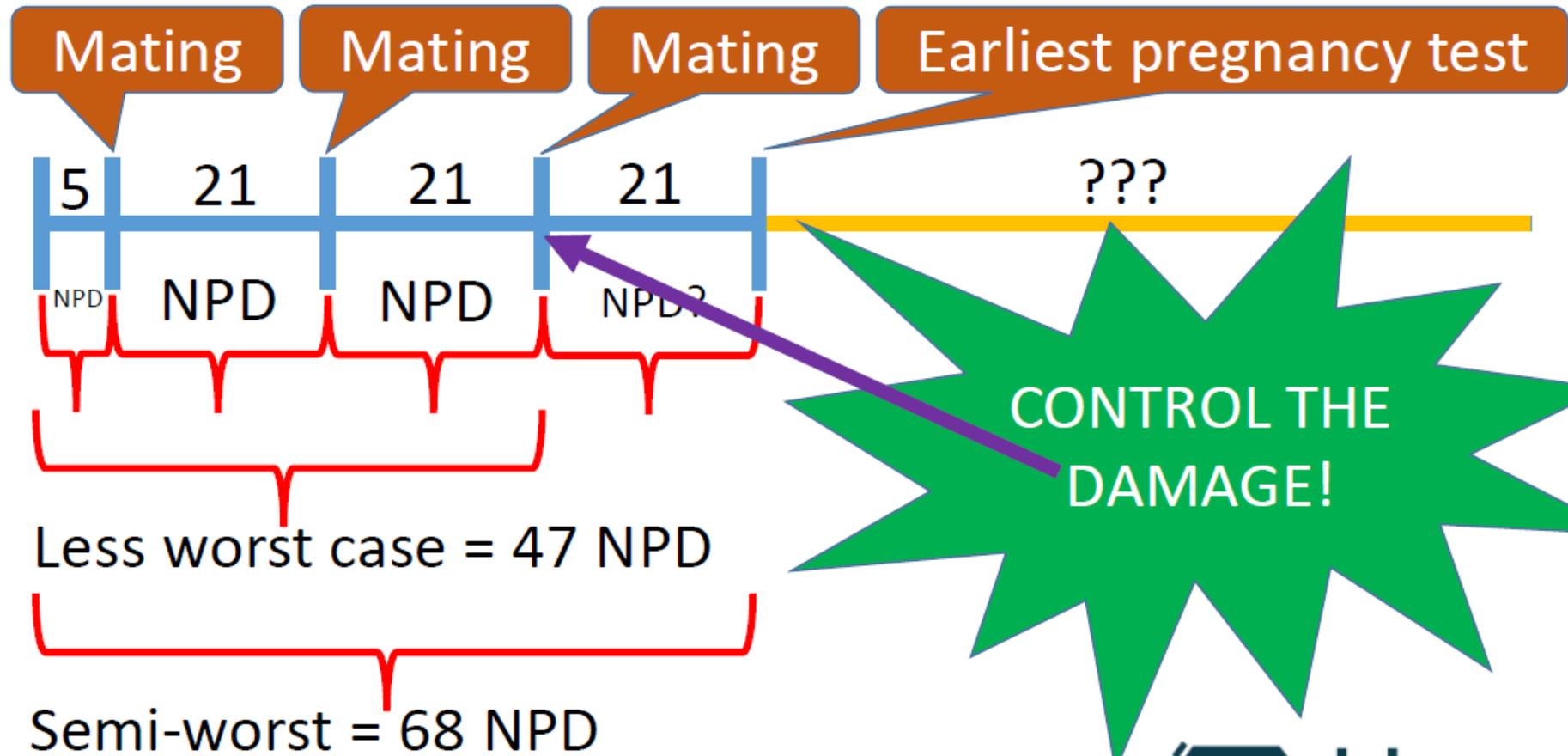
# Re-service or cull?

*"Double" returner*



# Re-service or cull?

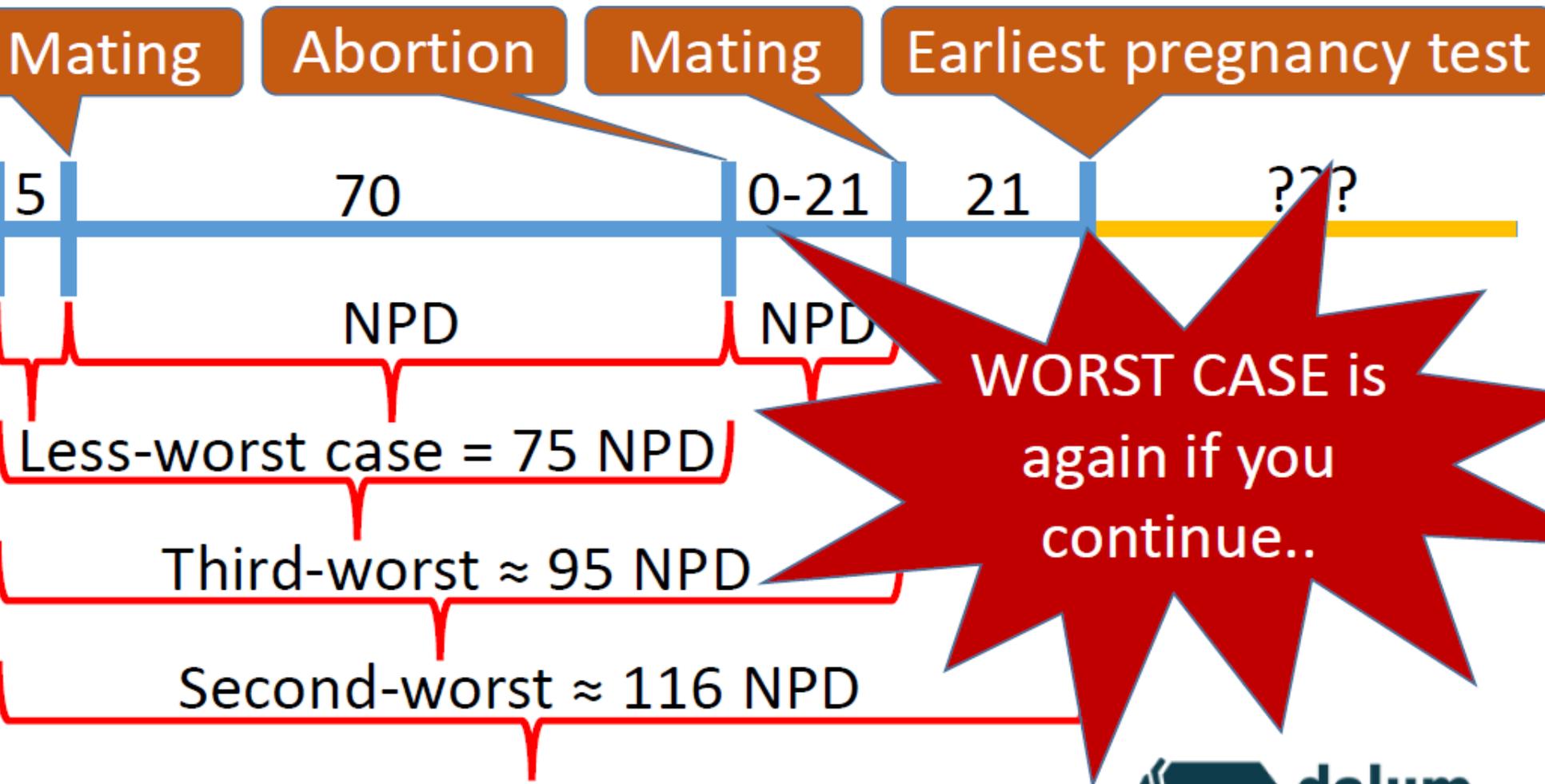
*"Double" returner*



# Re-service or cull?

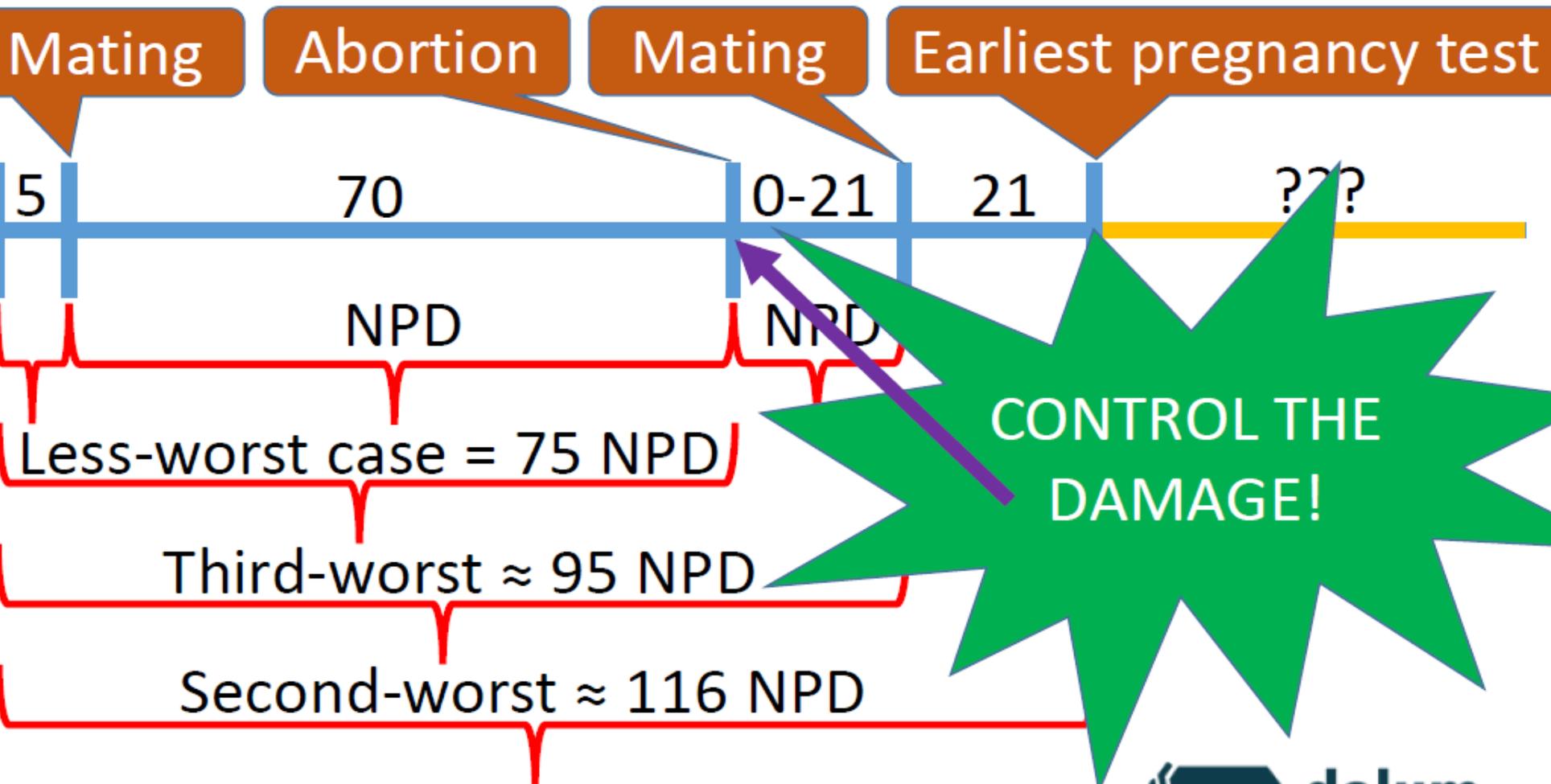


*Abortion after 10 weeks*



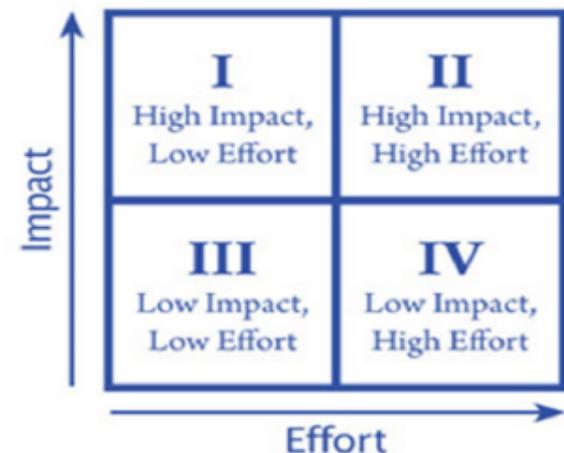
# Re-service or cull?

*abortion after 10 weeks*



# Conclusion, recording

- It's essential to keep tracking the sows "histories"
- Start optimizing on the most profitable points – and the way you locate these, is by proper recording!



謝謝聆聽  
敬請指正