

母豬生產週期 飼餉策略

Sow feeding advantages with



JYGA Technologies



波克生醫
台灣經銷商



Part I: 母豬懷孕期與分娩期 餵飼策略與採食影響因子

The Intake of Gestation and Lactation sows

懷孕母豬與泌乳母豬隻採食

懷孕母豬 → 限制性餵食

Gestation Sow → Restriction feeding

泌乳母豬 → 類任食或是任食餵食

Lactation → Semi Ad Libitum or Ad Libitum

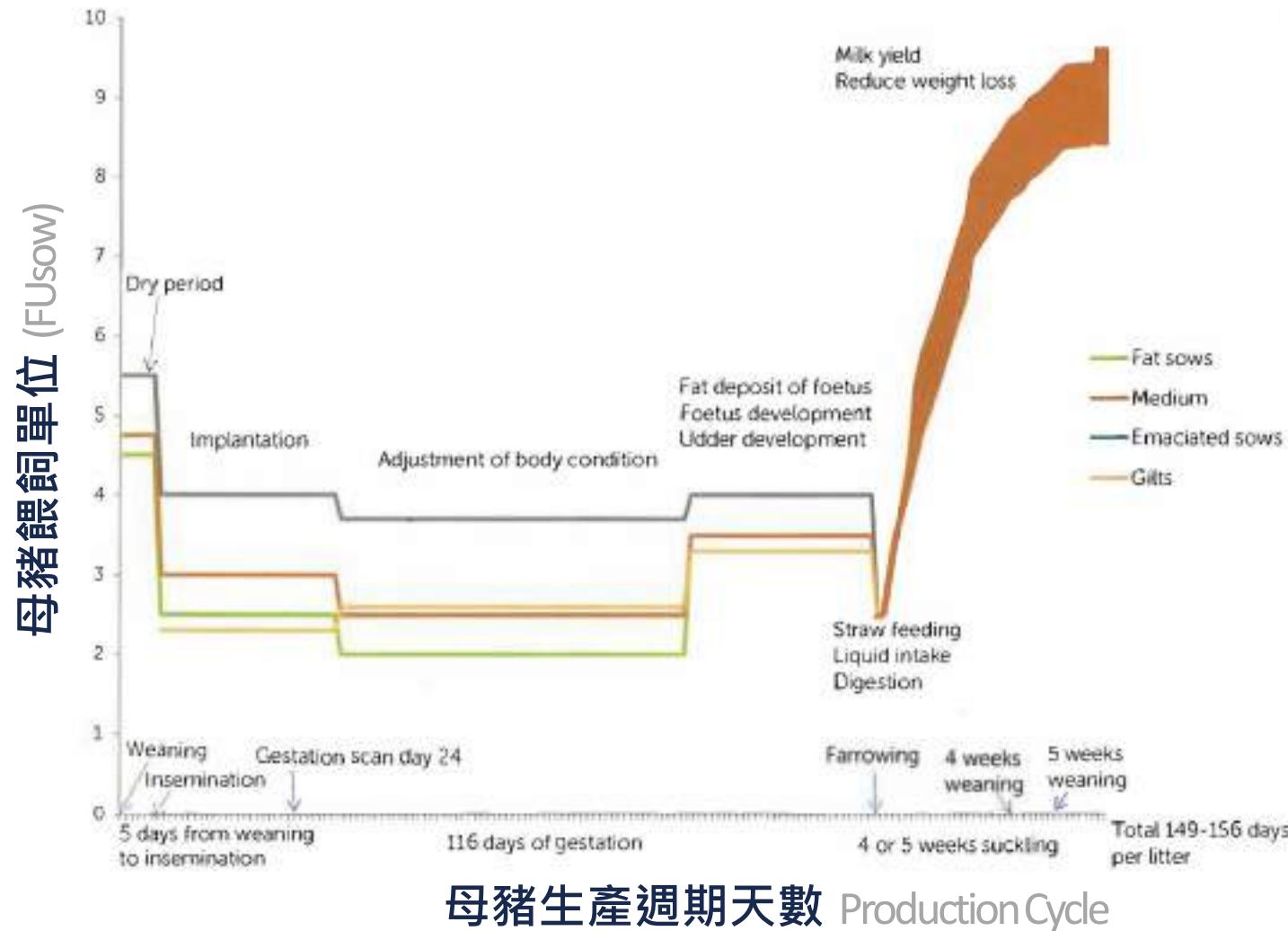
母豬過胖可能產生問題

What is the impact of a too fat sow as parturition?

- **懷孕期 → 限制性餵飼以達到控制體態的目的**
Gestation → Fed Restrictedly to control body score
- **避免分娩時過胖 (背脂厚度超過25mm)**
To avoid too fat as parturition
 - 貧乳症 Agalactia
 - 乳房炎 Mastitis
 - 難產 Dystocia
 - 子宮炎 Metritis
- **同時要注意必須在懷孕 60-80天開始提供足夠營養供應胚胎高速成長所需**

母豬餵飼策略

Feeding strategy



SOW	母豬餵飼單位
	FUsow
泌乳期 SOWS-Lactating	200
懷孕期 SOWS-Gestant	250
乾乳期 SOWS-Dry period	25
母豬每年 Year Sow	1400
戶外母豬 Outdoor year sow	1500-1800

$$1 \text{ FUp} = 7,375 \text{ kJ}$$

$$1 \text{ FUsow} = 7,700 \text{ kJ}$$

Ref: PIG PRODUCTION, MARIA ESKILDSEN etc. 2016

欄位與餵飼系統影響(I)

Effect of Housing and feeding system

- 2013年1月開始,歐盟規定母豬於配種後與分娩前,至少要有4周時間在群養欄

In the European Union, all non-lactating sows must be housed loose from four weeks post-mating from January 2013.

- 群養減少母豬在夾欄的限制性導致異常行為,並提高母豬互動,改善動物福祉

Group-housing reduces the behavioural problems associated with confinement and this is of course an improvement of animal welfare.

- 但同時也增加不熟悉動物之間的攻擊機會,特別是在爭取有限活動空間與食物時

If not respecting certain guidelines or rules, group housing can cause aggressions we need to know these rules!

欄位與餵飼系統影響(II)

Effect of Housing and feeding system

三種常見餵飼方式：

The three common feeding method:

- 電子母豬個別餵飼
Electronic sow feeding (ESF).
- 個別採食區餵飼
Feeding in individual eating-spaces.
- 地板或餵飼槽群飼
Group-feeding on the floor or in troughs.



群養電子母豬個別餵飼

Electronic sow feeding (ESF)

- 首次使用ESF新母豬的採食訓練

The training of the first introduction sow into the pen.

- 使用電子耳標識別

RFID identification.

- 監控個別母豬採食狀況

Monitor feed intake.

- 個別母豬體態控制

Control body score.

- 疾病監控

Monitor disease.

- 非24小時開放,有安靜時間

Not 24 hours feeding, with silence time in a day.

- 每日最佳開始餵飼時間為半夜10點~凌晨1點,優勢母豬會首先在夜間完成採食,零下更多時間給低階母豬在當天其他時間採食

The best time to start feeding after the closed period is between 22.00 and 01.00, because the dominant sows then will start eating during the night leaving more time for low-ranking sows to eat during the day.

- 欄內母豬全部完成當天採食時,系統應該關閉,以避免母豬進入玩耍

As all sow finishing feeding in a day, EFS system should close to avoid sow entering without intake.

群養電子母豬個別餵飼 的攻擊行為管理

Aggression management of group Electronic sow feeding (ESF)

- 餵飼站在欄中擺放位置
Suitable position of the feeding stations
- 每個餵飼站餵飼母豬頭數
Number of sows per feeding station
- 餵飼時間設定
Program of feeding time
- 地板放一些稻草可以降低攻擊行為
Straw bedding may decrease aggression because of rooting & playing toys



群養電子母豬個別餵飼 的攻擊行為管理

COMPETITION FOR FOOD
BRINGS LOTS OF STRESS!



STANCHIONS...

懷孕期餵飼帶入泌乳期影響

Carry-over effects from gestation to lactation

- 餵懷孕期採食量高 → 泌乳期採食量降低

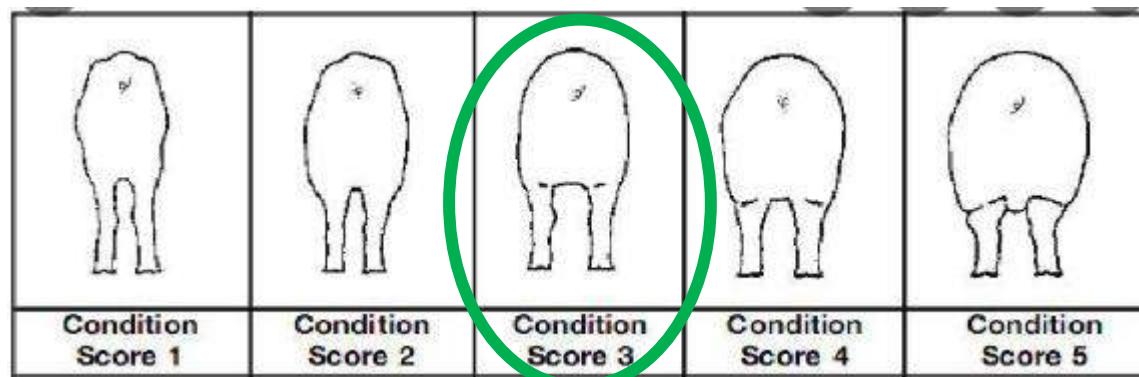
High feed intake over sow body requirement during gestation → Low intake during lactation

- 懷孕期體脂肪累積 → 泌乳期採食量降低

High back fat accumulation → Low intake during lactation

- 母豬分娩時越胖 → 泌乳期採食量越低

A too fat sow at parturition → Lower intake during lactation



母豬分娩時期體態 對泌乳期採食量影響

The effect of body score on feed intake of lactation sow

- 分娩時,較胖的母豬相較較瘦的豬,泌乳期自發性總採食量低30%

The sows in the fat group had a 30% lower feed intake than the lean sows during lactation.

- 胖的豬飢餓感較瘦的豬低,因為其胰島素受體較少

Fat sows were less sensitive to insulin or had fewer insulin receptors than the lean sows.

- 胖豬與瘦豬體脂肪損耗差異在分娩第一,二週最大,之後差異漸漸縮小

The differences in loss of body tissues between the fat and the lean group were largest in the first and second weeks of lactation and decreased throughout lactation.

- 結論：

分娩前兩週採食量差異來自母豬胖瘦,兩週後的差異,主要來自於蛋白質攝取量

Conclusion:

during the first two weeks of lactation the intake mainly depended on body fatness and not the protein content of the diet. Later in lactation, the intake was more affected by the protein intake

母豬泌乳期的 餵飼策略與採食影響因子

母豬泌乳期採食量極其重要,因為要確保母豬最高性能表現(泌乳量與仔豬成長),同時也要避免母豬過度體態流失

The feed intake is very important during lactation to ensure maximal performance of the sow (milk production/piglet growth) and to avoid excessive weight loss.

丹麥建議 分娩期母豬採食量曲線

Danish recommendations for feed allowance

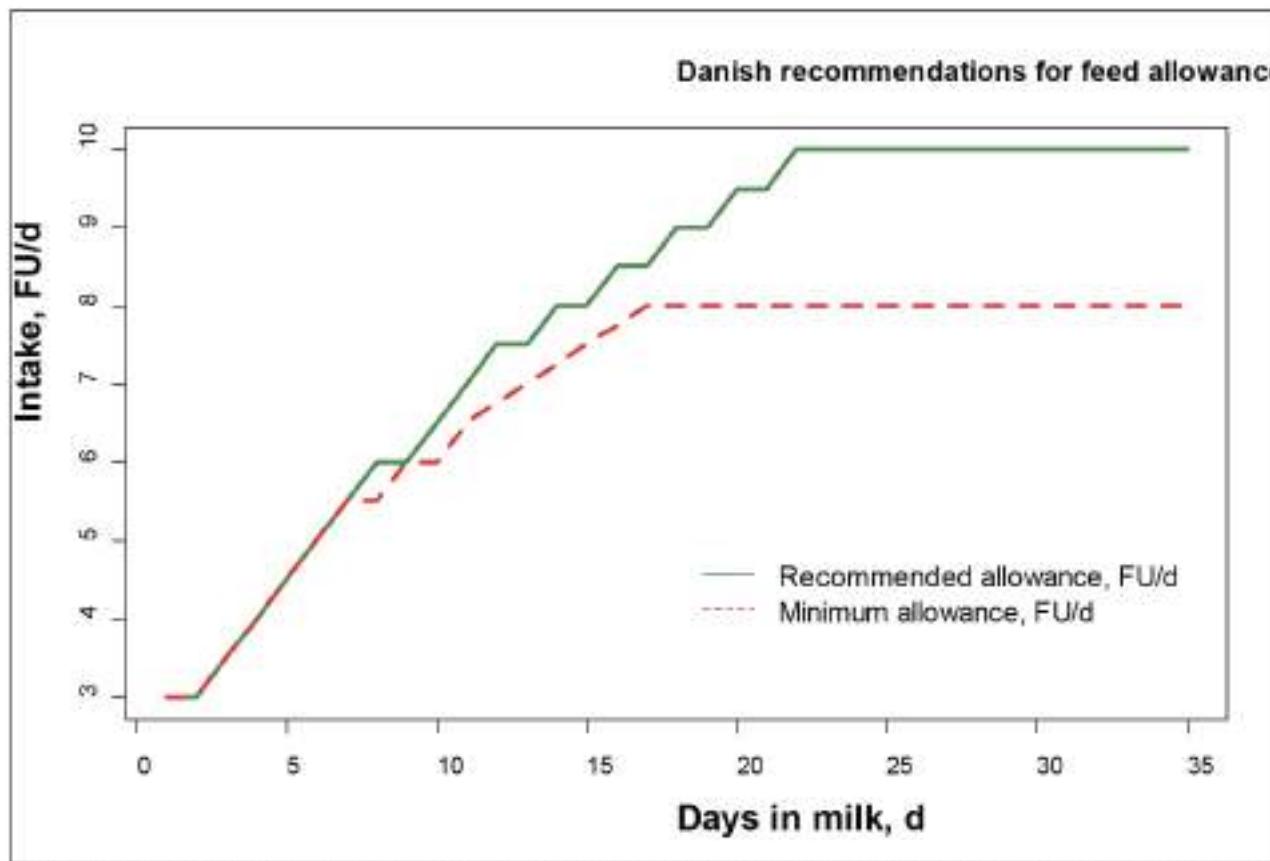
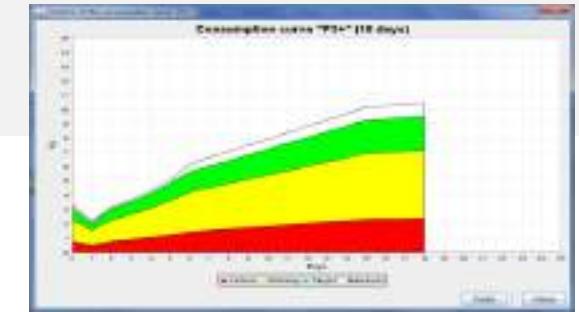


Figure 18.3. Danish recommendations for feed allowance during lactation (FU = FU_{sow} = Feed unit for sow). The green line indicates the recommended feeding level and the red line the minimum feed level [14].



半任食(非常接近任食)

Semi ad libitum, fed very close to ad libitum

分娩前兩週漸漸提高採食量,兩週後到達高原區到離乳

It is recommended to increase the intake gradually during the first 1-2 weeks post-partum, and hereafter staying on a plateau.

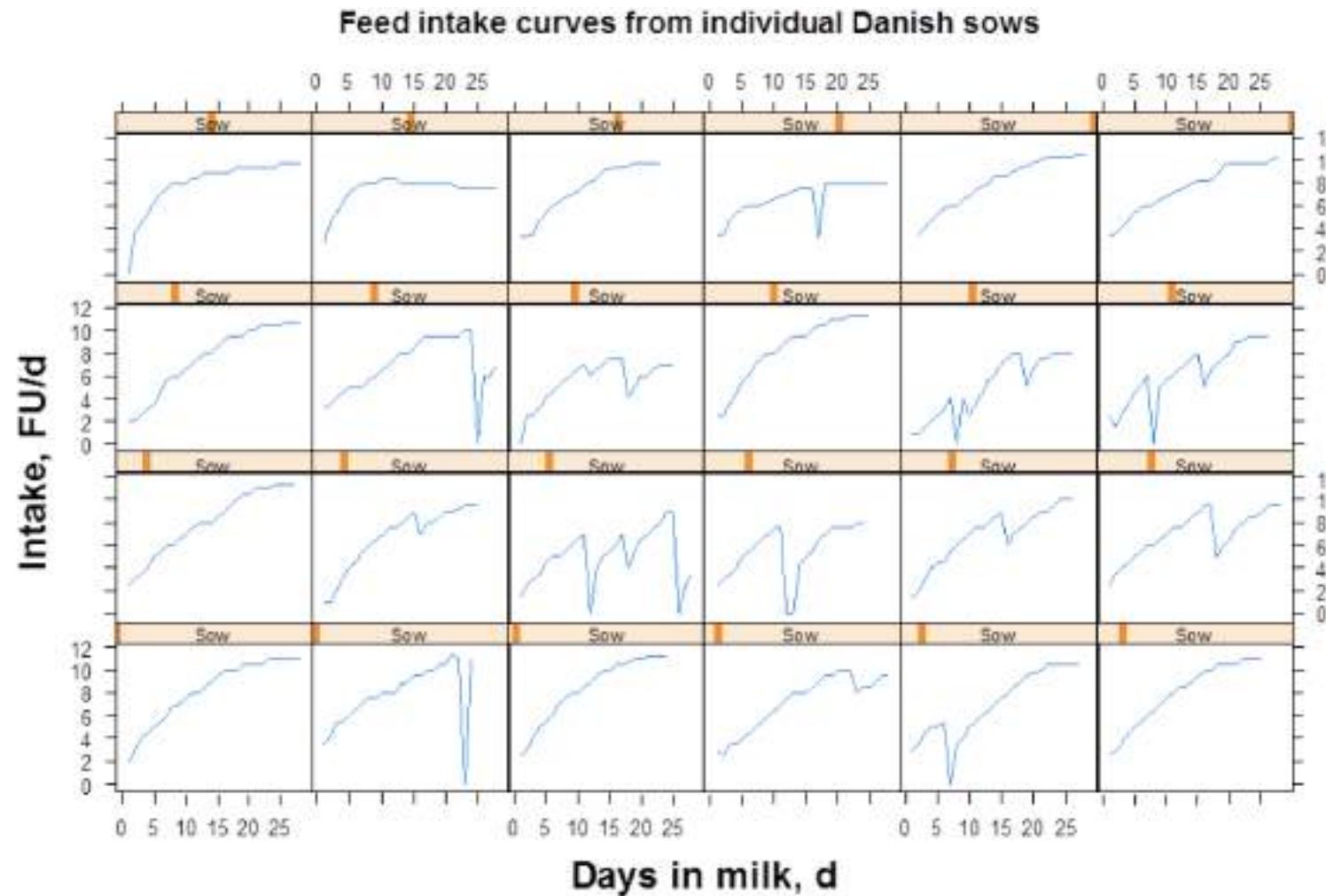


Figure 18.4. Individual feed intake ($FU = FE_{sow}$ = Feed unit for sow) in lactating sows from different Danish herds [14].

統計美國30場商業母豬場
共20000頭母豬的泌乳期採食模式曲線

The feed intake was categorized as follows:

1. RAPID, rapid increase in intake,
2. MAJOR, major drop in intake,
3. MINOR, minor drop in intake,
4. LLL, low intake throughout lactation,
5. LHH, low intake during the first week postpartum and then increase during the rest of the lactation period,
6. GRADUAL, gradual increase in intake.

影響泌乳母豬採食量因子

The factors affecting feed intake of lactation sows

- 哺乳頭數越多,泌乳量越大,採食量越大
Litter size → Pulling effect
- 每日餵食次數增加3次到5至8次 → 總採食量沒有明線增加,
但是肩膀受傷比例降低
Number of daily feeding
- 畫行性採食行為,大部分採食在早上5點~晚上8點之間
Diurnal (DAYLIGHT) pattern of feed intake, and have the highest intake in the interval from
5.00 am in the morning to 8.00 pm.
 - Genetic evolution of sows thru the years has made modern sows having less appetite

今天和過去 母豬表現

Today's Sows Have Changed. These Changes Are Facts



	1970	1975	1980	1985	1990	1995	2001	TODAY
更多胎次 <i>More Litters</i> Litters/sow/year	1.9	2.0	2.18	2.25	2.23	2.25	2.25	<u>2.45</u>
每胎更多仔豬 <i>More Piglets Per Litter</i> Piglets born alive/litter	10.3	10.4	10.3	10.4	10.7	10.8	11.0	<u>16 +</u>
每年更多仔豬 <i>So More Piglets Per Year</i> Piglets reared/sow/year	16.3	17.5	19.8	20.9	21.1	21.6	22.0	<u>37 +</u>
每年更多淘汰母豬 <i>Why Are We Facing This Today?</i> Annual sow disposals(%)	-	33.9	35.9	38.1	40.0	42.6	42.0	<u>60 +</u>
更低母豬背脂厚度 <i>Is It Because Sows Are Leaner?</i> P2 at 100kg (mm)	-	20	19	14.5	13.0	11.5	11.0	<u>9.0</u>
更低食慾 <i>Or Because They Have Less Appetite?</i> FCR in feeding herd (g/g)	3.8	3.4	2.9	2.8	2.7	2.58	2.61	<u>2.5</u>

Source : NUTRITION AND MANAGEMENT STRATEGIES TO OPTIMISE PERFORMANCE OF THE MODERN SOW AND BOAR
 W. H. Close, Close Consultancy, Wokingham, Berkshire
 D.J.A. Cole, Nottingham Nutrition International, East Leake Loughborough, Leics.

提高飼料營養/能量密度

Dietary Effect

Table 18.6. Example of how dietary energy density (MJ ME/kg) changes feed intake (kg/d) using estimates from Dourmad [20].

MJ ME/kg	Intake, kg/d	Total ME intake, MJ/d
13	5.0	65.0
17	4.4	74.8

- 提高能量密度為常用增加泌乳期營養攝取的方法
- 每提高能量密度 1 MJ/kg , 採食量降低 150 g

影響泌乳母豬採食量因子

The factors affecting feed intake of lactation sows

• 環境溫度與熱緊迫

Heat Stress

- 母豬適合溫度為12~22°C,仔豬適合溫度為30~37°C

The suitable temperature of sows are 12-22 °C, piglets are 30-37 °C

- 環境溫度自20°C上升到30°C,採食量降低43%

Feed Intake decreases 43% as ambient temperature increases from 20 °C to 30 °C.
ambient temperature and heat stress

• 耐熱基因豬種選拔

Temperature/humidity resistant sow genetic selection

Meet The Expert webinar series: Heat Stress in Swine

The banner features a portrait of Professor Bruno Silva on the right. On the left, there is text about the webinar series: "MEET THE EXPERT WEBINAR SERIES", "NUTRITIONAL SOLUTIONS FOR LACTATING SOWS UNDER HEAT STRESS", "Your expert Professor Bruno SILVA Universidade Federal de Minas Gerais, Brazil", "Your host David SAORNIL Lallemand Animal Nutrition", and details about the event: "May 26th, 2020 16:00 CEST" and "1 hour". A "WEBINAR Register now" button is also present.



We are pleased to invite you to our first **MEET THE EXPERT** webinar: **Nutritional solutions for lactating sows under heat stress.**

The **EXPERT**: **Bruno SILVA**, researcher and professor in swine nutrition and environmental adaptation, Institute of Agricultural Sciences ICA, Universidade Federal de Minas Gerais, Brazil.

The webinar will be hosted by **David SAORNIL**, DVM, Product Manager, Swine applications, Lallemand Animal Nutrition, France.

What is it about?

Under conditions of heat stress, sows reduce feed intake, resulting in losses of productive and reproductive performance.

• 環境溫度與熱緊迫 Heat Stress

• 環境溫度與熱緊迫 Heat Stress

Figure 1 – Daily feed intake during cool and hot season. Feed intake differed between seasons from d 9 to 18 and from d 20 to 24.

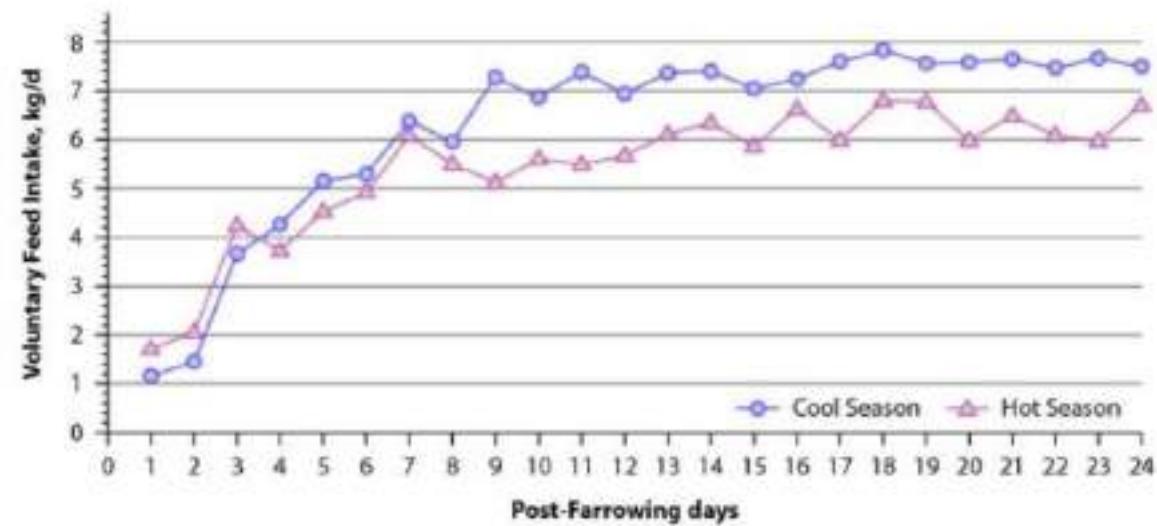
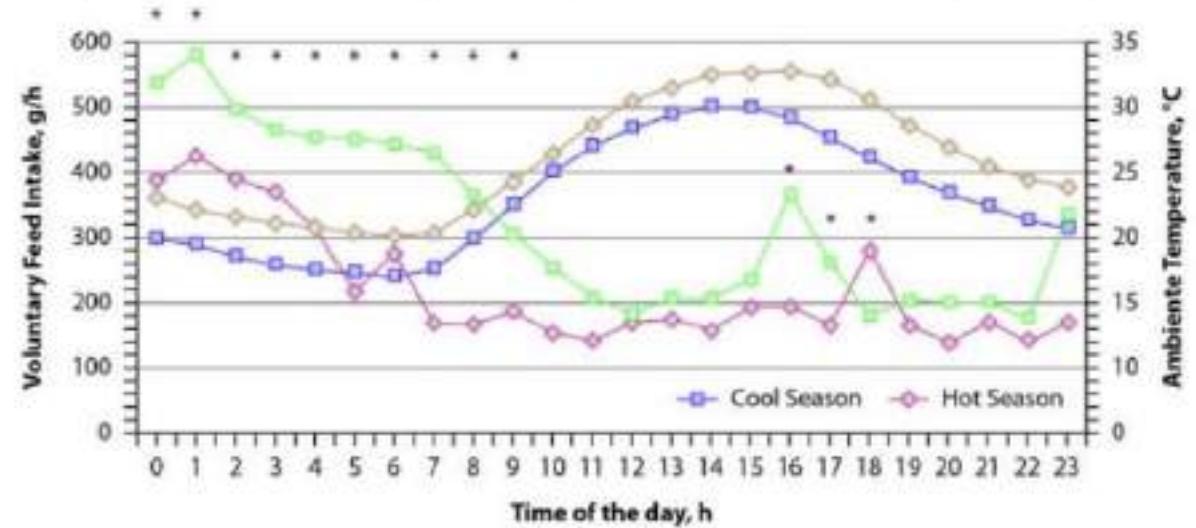


Figure 2 – Effect of season and time of day on the daily fluctuations of ambient temperature (dotted lines) and daily feed intake in lactating sows (solid lines).



<https://www.dairyglobal.net/specials/heat-stress-how-it-impacts-feeding-behaviour-in-lactating-sows/>



Montes Claros, Brazil, September 15th 2021

To whom it may concern,

I Prof. Dr. Bruno Silva, Professor PhD from the Universidade Federal de Minas Gerais (UFMG/ ICA), Brazil, hereby confirm that we are users of the Gestal precision feeding technologies in our research facilities and use this technology to develop our studies for the swine industry since 2018. All our current research with sows is conducted with Gestal Solos and Gestal Quattro in lactation and Gestal 3G and multi in group sow housing in gestation.

We are very pleased with what the Gestal products are providing us in terms of precision feeding and development of feeding strategies and studies. Both units are easy to calibrate for an accurate and precise feed delivery time after time. The Gestal system is also allowing us to get meaningful information thru the system's software which is allowing us to implement what our researches results is bringing to us, allowing us to share with producers in order to improve the productivity of our farms by feeding sows in a better and more efficient way.

The Gestal technology was very easy to install in our farm as all equipment's operate on a wireless communication system, which eliminates the wiring of miles of communication cables. In addition, the equipment's adapt very easily to different farm layouts. Our equipment's have been quite reliable since they were installed.

For the excellent service that JYGA Technologies has provided us before and after sale, and for the above-mentioned reasons, I am confidently recommending the Gestal products to anyone that has an eventual project in a commercial or a research farm!

Best Regards

Prof. Dr. Bruno A. N. Silva

Swine Nutrition and Production & Environmental Adaptation
Director Swine Research Unit (NEPSU/ UFMG) - Portaria nº 169/2014
Office: (+55 38) 2101 7792/ www.ica.ufmg.br/nepsi

• 環境溫度與熱緊迫 Heat Stress



胎次影響

Parity Effect

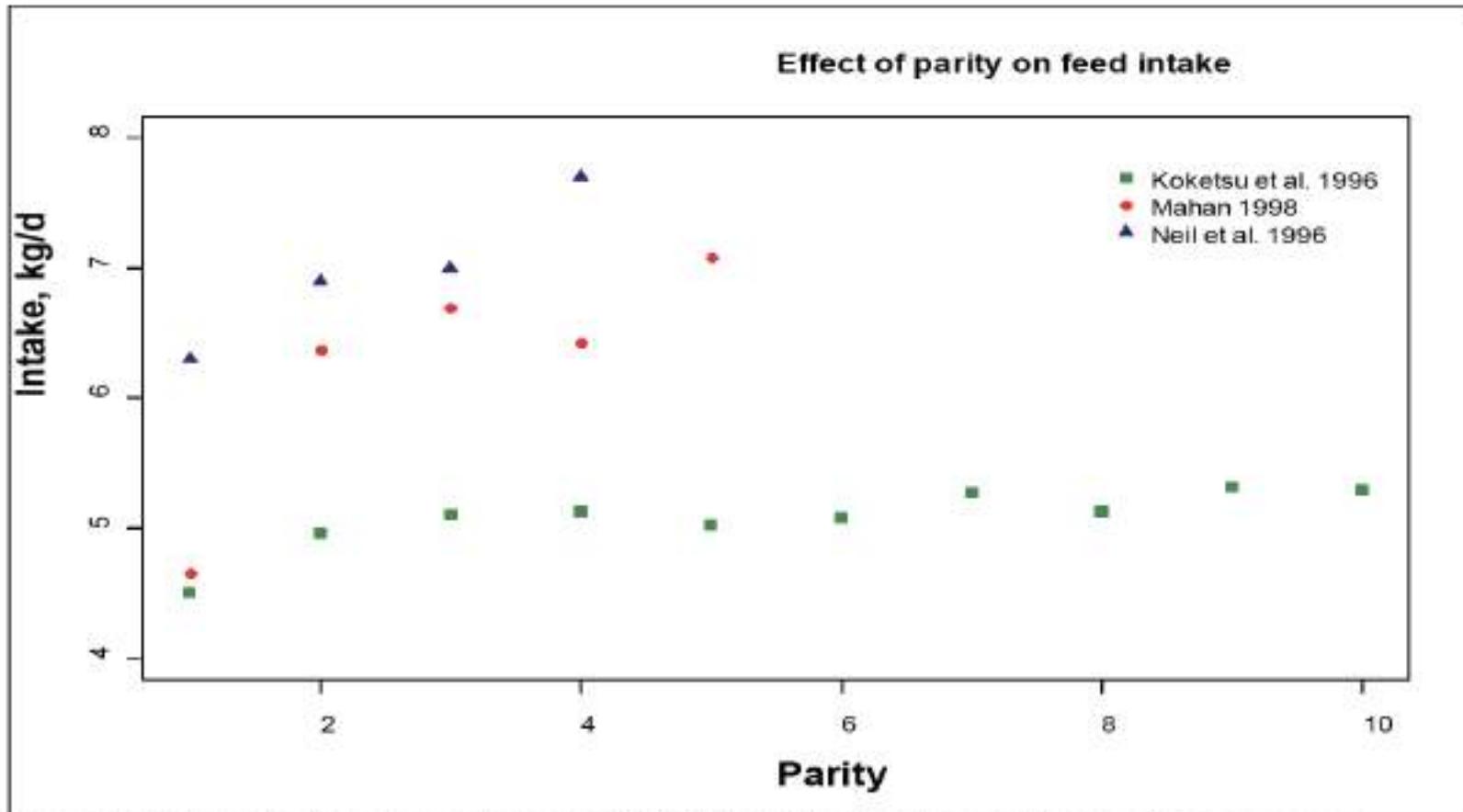


Figure 18.5. Results from three studies [35], [46], [54] showing the effect of parity on average voluntary daily feed intake (kg/d).

結論 Conclusion

- 泌乳期採食量管理是非常複雜的工作，關係到
 - 物理性(腸道空間)
 - 化學性(荷爾蒙, 血液新陳代謝速度)
 - 環境(溫濕度)
 - 飼料成分(能量密度)
- 懷孕期體態控制至關重要
- 提高飼料纖維成分以增加飽足感，是避免分娩時過胖策略之一
- 泌乳期以接近任食的方式，以達到最大採食量

- Intake of lactation sow management is a complex job
 - Physical(Gut fill)
 - Chemistry (Hormone ,Blood Metabolism)
 - Environment (Temperature/humidity)
 - Feed content(Energy density)
- Body score control during gestation is critical.
- Increase fiber content in feed a way to reduce hunger.
- Semi Ad Libitum feeding for Lactation sow to achieve maximum intake.

Part II: 母豬懷孕期與分娩期 精準餵飼解決方案

Precision feeding of Gestation and Lactation Sows

演講目序

This Presentation



公司介紹

Our Company



清楚看到就知道!

Seeing Clearly Is Knowing!



六個投資回收重點

Return On Investment: 6 Main Payback Points



牧場人力的挑戰

Our Industry's Challenge Feeding Sows & Labor Challenges



更多機會

More Opportunity



公司創辦人

The Owners!



M. Alain Lefebvre



M. Donald Lefebvre

Lefebvre 兄弟購買家庭農場（成立於 1963 年）於 1985 年
改制並從 1985 年開始擴大他們的農業經營直到今天。

Lefebvre brothers purchased the family farm (established in 1963)
in 1985 converted and expanded their farming operation from
1985 until today.

以 *Aldo Farm* 名義經營，開始於 2023 年在 *Lefebvre* 家族
土地上耕種 60 年

*Operating under the name Aldo Farm, it will make 60 years of
farming the Lefebvre family land in 2023*

Alain & Donald 於 2004 年收購 *JYGA Technologies*
Alain & Donald have purchased JYGA Technologies in 2004

« ALDO 牧場：作為 JYGA 產品測試牧場 »

« ALDO Farm: JYGA Technologies' products test farm! »





我們的團隊

We're A Team!



- 超過100位員工, 遍布全世界
- Over 100 Employees, Working In Canada, USA, Germany & China
- 創造、製造和銷售精確餵養 GESTAL 品牌產品的多技術團隊！
- Multi-disciplinary Team That Is Creating, Manufacturing & Selling Precision Feeding GESTAL Branded Products!

«Our Family Has Only Got Bigger»!





The Next Generation!



(from left to right)

Sarah-Maude Lefebvre

Human ressources & admin 2021 - today

Roxanne Lefebvre

Assets management, operations & admin
2015-today

Isabelle Lefebvre

Export & logistique, admin 2021-today

Samuel Lefebvre

Sales Director & admin 2018-today



«JYGA Technologies is ready for the future!»



Who
We Are

超過28年智能餵飼經驗

Over 28 years of experience making precision feeding products



1994



1996



2006



波克生醫





Who
We Are

針對不同需求餵飼產品

6 Evolutions Of Our Feeding Products!



NEMA
I - 3R - 4X - I2
AS - T3000 - D3000 - M3000



母豬個體智能餵飼系統 FOCUS



豬隻自動群養給飼系統
(約20頭豬隻使用)



豬隻自動群養給飼系統
(約40頭豬隻使用)



泌乳母豬自動餵飼系統



母豬個體智能餵飼系統
SOLO





Who
We Are

所有 Gestal 產品 在加拿大製造

We're Manufacturing All Our Gestal Units In Canada



Produced Last
3 Years

2019: 12,130 UNITS

2020: 12,385 UNITS

2021: 20,557 UNITS

2022 (SOLD)

13,000 (6 MONTHS)

JYGA
Technologies

Poc
Medical

波克生醫

Gestal



Stéphane Clément

Vice-President, Business Development

2008 - today

- 超過30年銷售與市場開發

- over 30 years of experience in the swine equipment business and market development
- Started the international sales mission
- 在歐洲,美國,亞洲建立 Gestal 強力品牌形象
- Have built Gestal Brand strong reputation of quality and in Europe, USA and Asia



Gratien Theriault

General Manager Europe & Business Development

2014 – today

- 30年育種與豬場經驗

- 30 years of experience in the swine genetic business & sow farm production
- Developed sales in Central and South-America
- 負責歐洲市場
- Responsible of Europe



JYGA Sales territory
(1994-2007)



Dr. Hyatt Frobose, Ph. D.

營養博士專家

USA Managing Director & Gestal Swine
Nutritionist
(2015 – today)

- Graduated *from Kansas-State* University
- Nutrition reference for JYGA worldwide
- Business development USA



營養與生產技能

«Competency & Knowledge»!

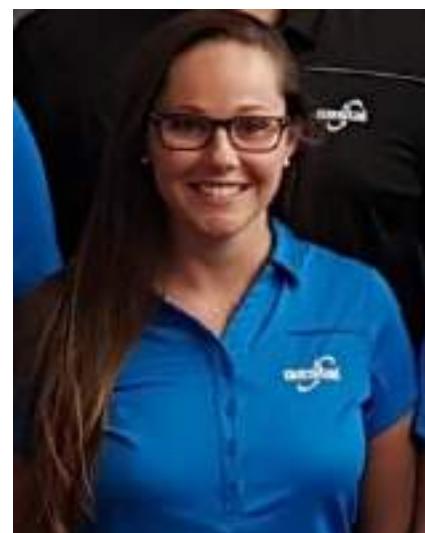


Sylvain Blouin, Agr.

動物福利專家

Animal Welfare Director & Pork Production Specialist
(2017 – today)

- Graduated from Laval University
- Manages barn «conversion to animal welfare standards»
- Prepares and balances pig flows on new projects or retrofits
- Technical support for Canada



Amanda Uitermarkt, M. Sc.

營養與技術專家

Nutritionist & technical support USA
(2018 – today)

- Graduated from Kansas-State University
- Territory representative , central USA





THIS IS
WHAT
WE DO

Who
We Are

For Them...



JYGA
Technologies

Poc
Medical

波克生醫

Gestal



Schwartz Farms

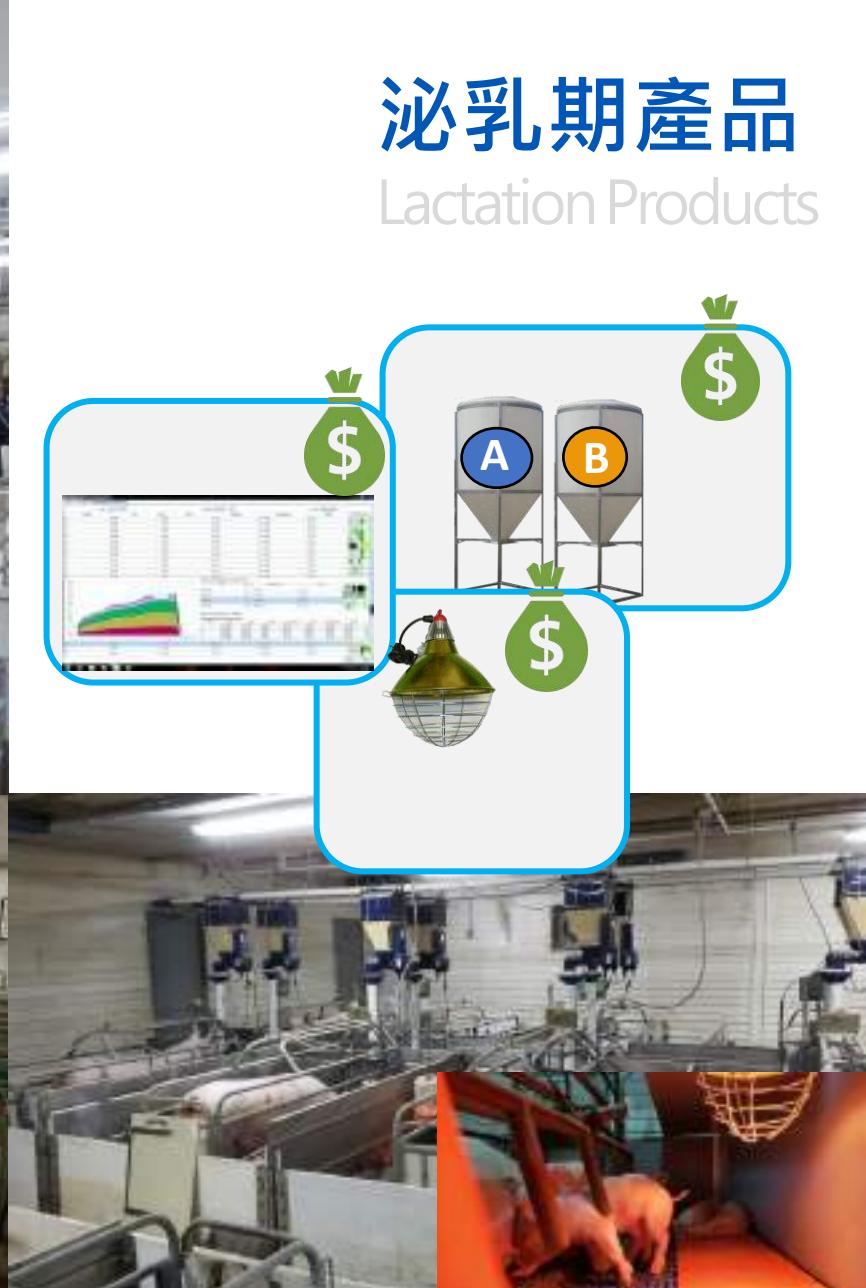


... And For Them Too



SOUTH DAKOTA
STATE UNIVERSITY





泌乳期產品

Lactation Products

- 改善體態分數

Keep Sow In Good Body Condition

- 提高窩重

Improved Litter Weight

- 改善懷孕率

Improved Fertility Rate

- 下一胎次更多仔豬

More Piglets Next Cycle

- 下一懷孕期更低飼料成本

Cost Less Feed Next Gestation

- 增加母豬耐用年限

Improved Sow Longevity

- 節省勞力

Saves Labor

- 降低飼料浪費

Eliminating/reducing Feed Wastage

- 無線資料傳輸,單機運作

Wireless & Standalone

- 可高壓清洗

Can Be Pressure Washed

 JYGA
Technologies

 Poc
Medical
波克生醫

 gestal



妊娠期產品

Gestation Products



- 適應小群到大群

Adapting To Very Small To Larger Group

- 母豬自我訓練採食

Sows Are Self-training

- 適用於舊畜舍修改或新建畜舍

Ideal For Retrofitting And New Construction

- 降低建置成本

lower Cost Of Acquisition

- 無線資料傳輸與單機獨立運作

Wireless & Standalone

- 可高壓清洗

can Be Pressure Washed

我們產業 在母豬泌乳期餵飼 挑戰

Our Industry's Challenges Feeding Sows In Lactation



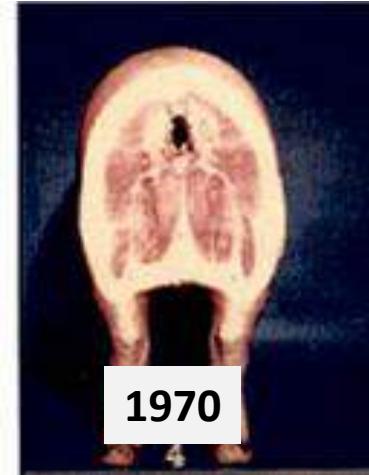
更清楚了解 育種和母豬之改變是關鍵!



Better understanding THE CHANGES is the key!

這50年來育種公司
帶來母豬哪些改變?

What 50 Years Of Sows Genetic Changes
Have Brought To Our Sow Farms!



1970



TODAY



了解母豬改變, 讓生產者朝向
正確方向飼養!

For Producers, It' A Step In The Right
Direction!

今天和過去 母豬表現

Today's Sows Have Changed. These Changes Are Facts



	1970	1975	1980	1985	1990	1995	2001	TODAY
更多胎次 <i>More Litters</i> Litters/sow/year	1.9	2.0	2.18	2.25	2.23	2.25	2.25	<u>2.45</u>
每胎更多仔豬 <i>More Piglets Per Litter</i> Piglets born alive/litter	10.3	10.4	10.3	10.4	10.7	10.8	11.0	<u>16 +</u>
每年更多仔豬 <i>So More Piglets Per Year</i> Piglets reared/sow/year	16.3	17.5	19.8	20.9	21.1	21.6	22.0	<u>37 +</u>
每年更多淘汰母豬 <i>Why Are We Facing This Today?</i> Annual sow disposals(%)	-	33.9	35.9	38.1	40.0	42.6	42.0	<u>60 +</u>
更低母豬背脂厚度 <i>Is It Because Sows Are Leaner?</i> P2 at 100kg (mm)	-	20	19	14.5	13.0	11.5	11.0	<u>9.0</u>
更低食慾 <i>Or Because They Have Less Appetite?</i> FCR in feeding herd (g/g)	3.8	3.4	2.9	2.8	2.7	2.58	2.61	<u>2.5</u>

Source : NUTRITION AND MANAGEMENT STRATEGIES TO OPTIMISE PERFORMANCE OF THE MODERN SOW AND BOAR
W. H. Close, Close Consultancy, Wokingham, Berkshire
D.J.A. Cole, Nottingham Nutrition International, East Leake Loughborough, Leics.



挑戰

The challenges

Gestal 現代母豬

The modern sow

- 更精瘦,成熟體重更重

Leaner and heavier at maturity

- 食慾更低

Less appetit

- 泌乳更多

Improved milk production

- 每胎次更多仔豬 =
對營養、餵飼與採食
造成更大壓力

Larger litter = more pressure for feed and nutrient intake



生產者4大挑戰

4 main challenges for the producers

1. 維持泌乳期體態分數

Maintaining sow body condition through lactation

2. 讓母豬離乳高品質離乳豬

Allowing sow to wean a maximum of high quality pigs with optimum weight

3. 育種女豬的育成階段

Breeding gilts at a younger age (trend)

4. 個體餵飼

Feeding sows as individuals



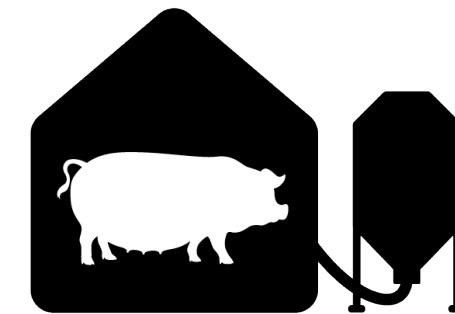
- Dr Frank Aherne, 2001

基因改變

Genetic Changes

... 假設 育種公司資料是正確的!

... if the information about genetic potential was right !



種源：超過37頭仔豬/每年/每頭母豬

Nucleus : + 37 Piglets / Sows

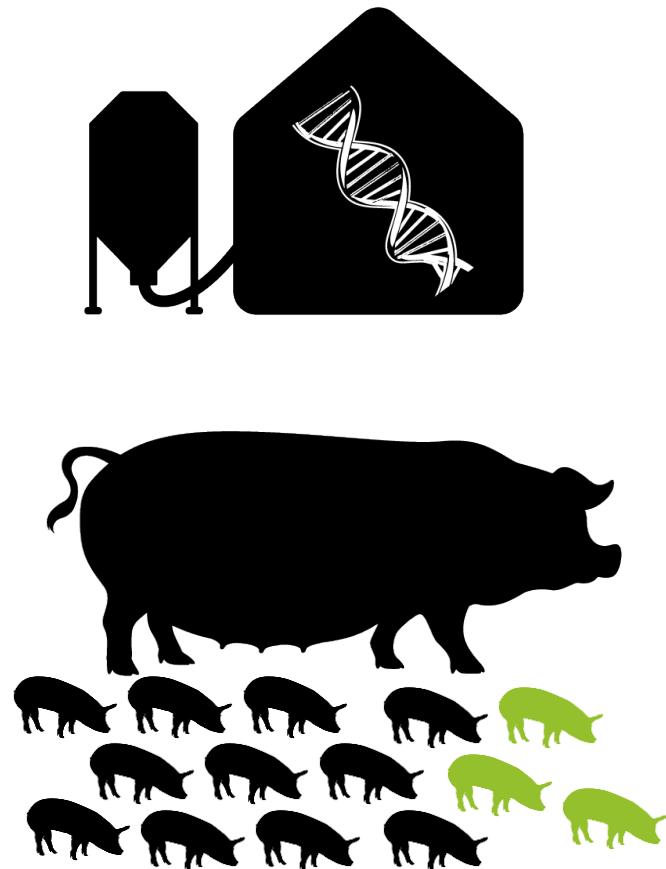
商業牧場：24-28頭仔豬/每年/每頭母豬

ALDO Farm : 24 Piglets To 28 / Sows
(& Most Commercial Farms In 1999)

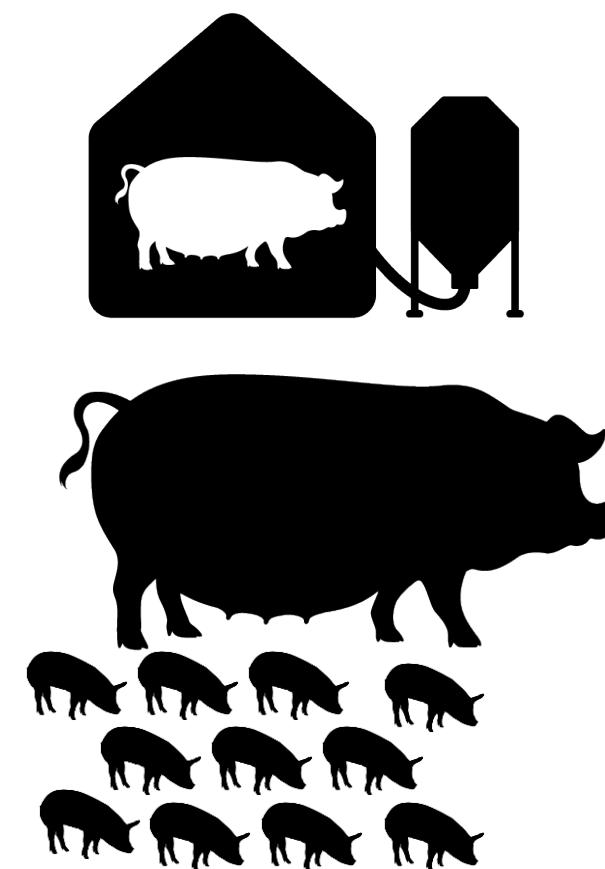
基因潛力在哪裡減損了？

Could it be that the genetic potential was lost along the way?

我們損失了生產力嗎? Do We Loose Productivity?



我們損失了仔豬嗎? Do We Loose Piglets?



我們在哪裡損失了一些豬?

What Is Losing Some Pigs ?

A) 豬在牧場死亡?

Pigs That Dies In Your Barn ?

或是 OR

B) 豬根本沒有出生? Pigs That Never Was Born ?



或
OR



Both are losses! 兩種都是!



平均體態

Average body condition

1975

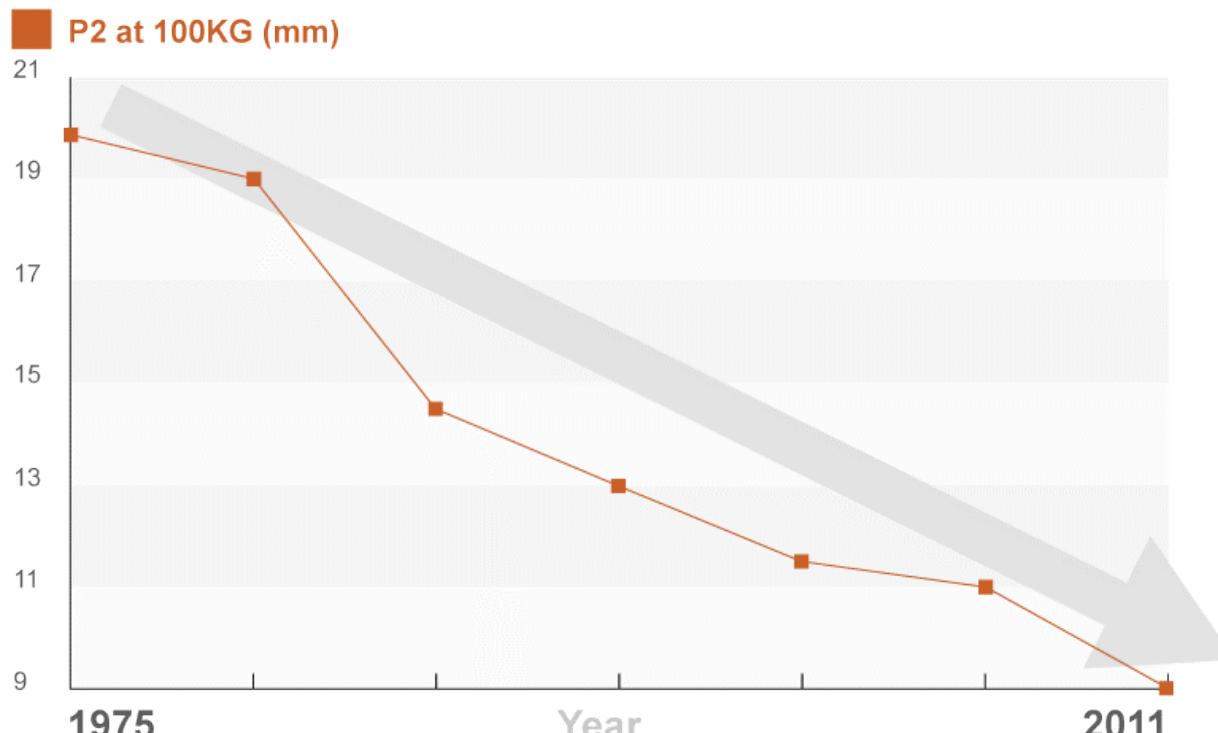


2012



母豬更精瘦

Sows are leaner



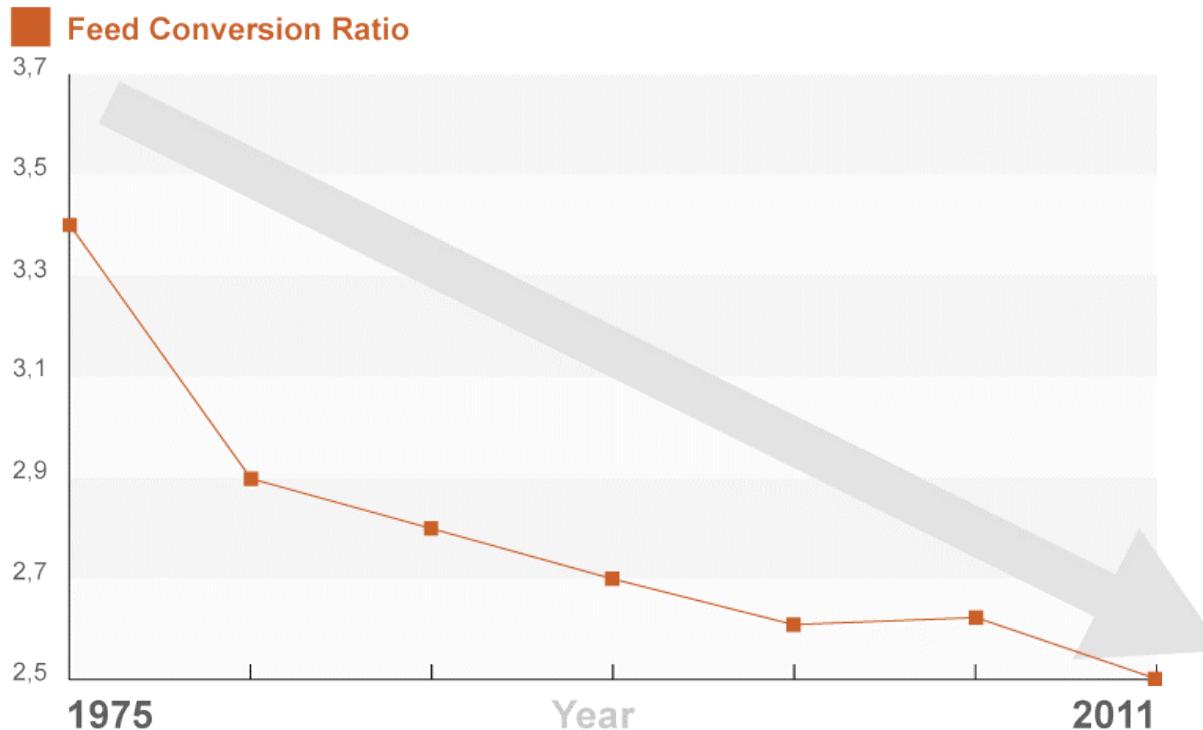
Source: (W.H. Close, Close Consultancy, 2004)

« Also, at the beginning of their breeding career the replacement gilts are put in service with less fatty tissue reserves. »

Source: Aherne, 2001

母豬採食量更低

Today's sows consume less



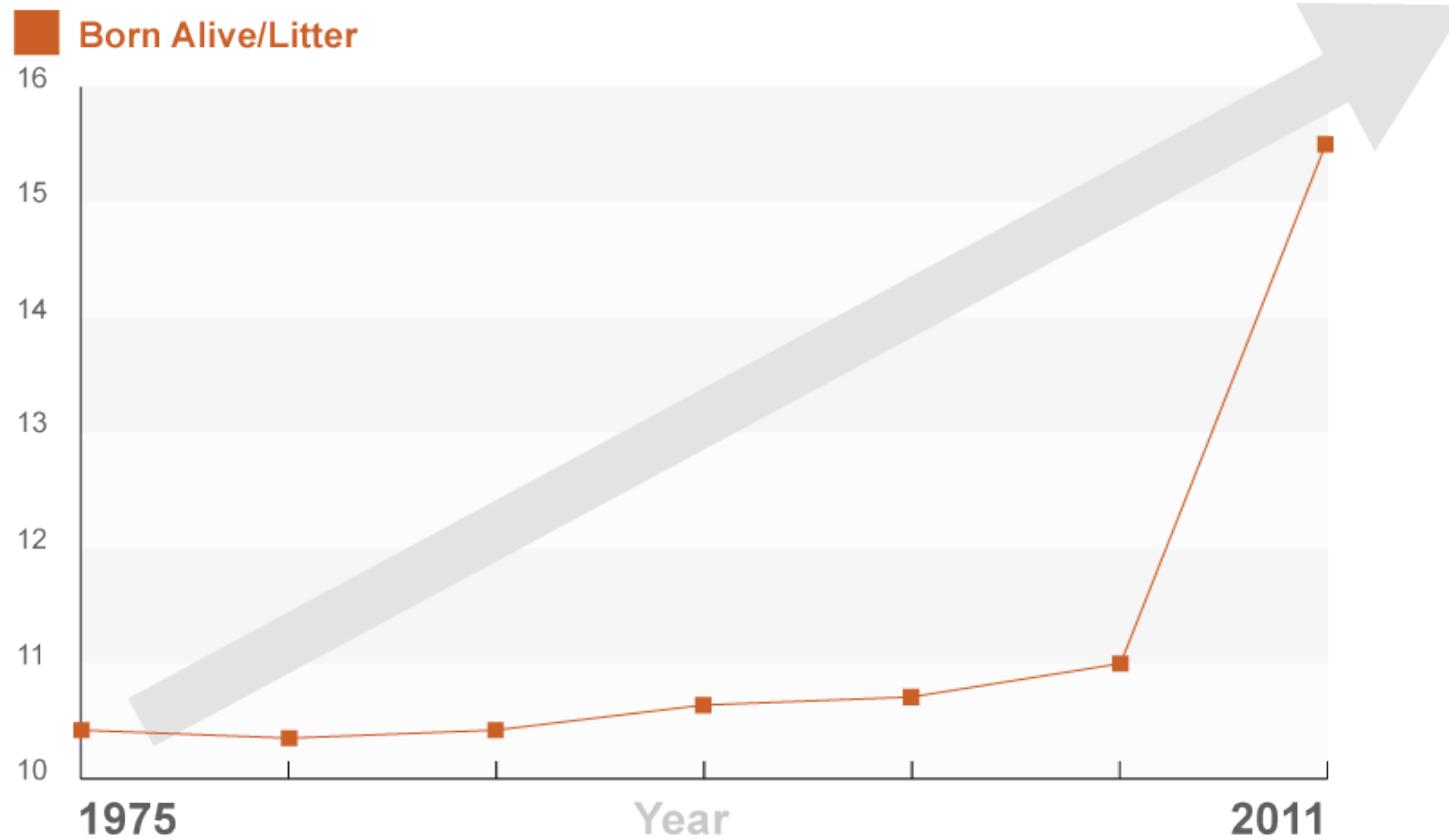
Source: (W.H.Close, Close Consultancy, 2004)

«Genetic improvement for both weight gain and lean has resulted in either a reduction in the sow appetite or intakes have not increased in the same proportion as their energy requirement.»

Source: (Aherne, 2001) and (Noblet and al, 1998)

母豬每胎次生產更多仔豬

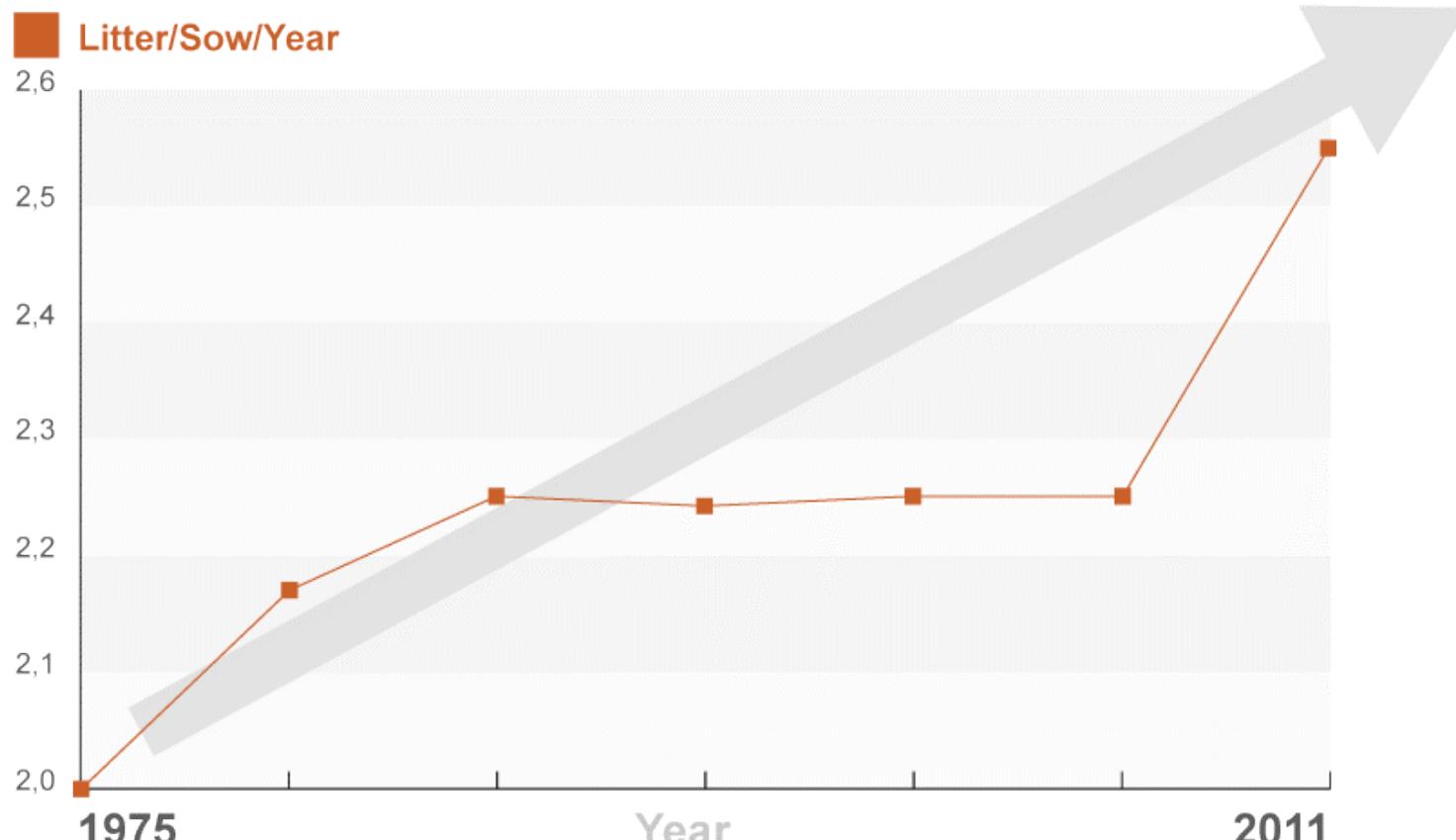
Sows have more piglets per litter



Source: (W.H.Close, Close Consultancy, 2004)

母豬每年生產胎次更高

Sows have more litters



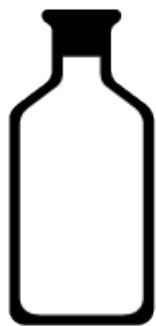
Source: (W.H.Close, Close Consultancy, 2004)

母豬需要產生更多母奶

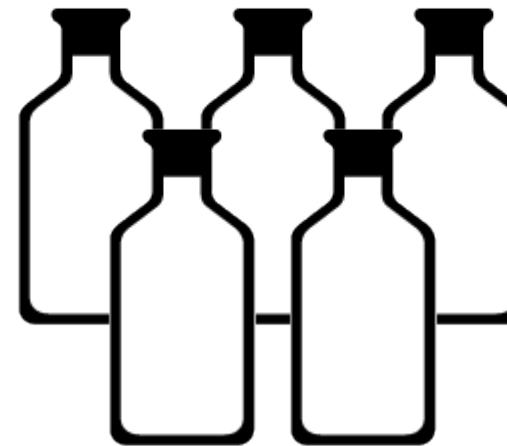
Sows need to produce more milk

每天8-12公斤奶

They produce currently 8 to 12 kg/day.



1975

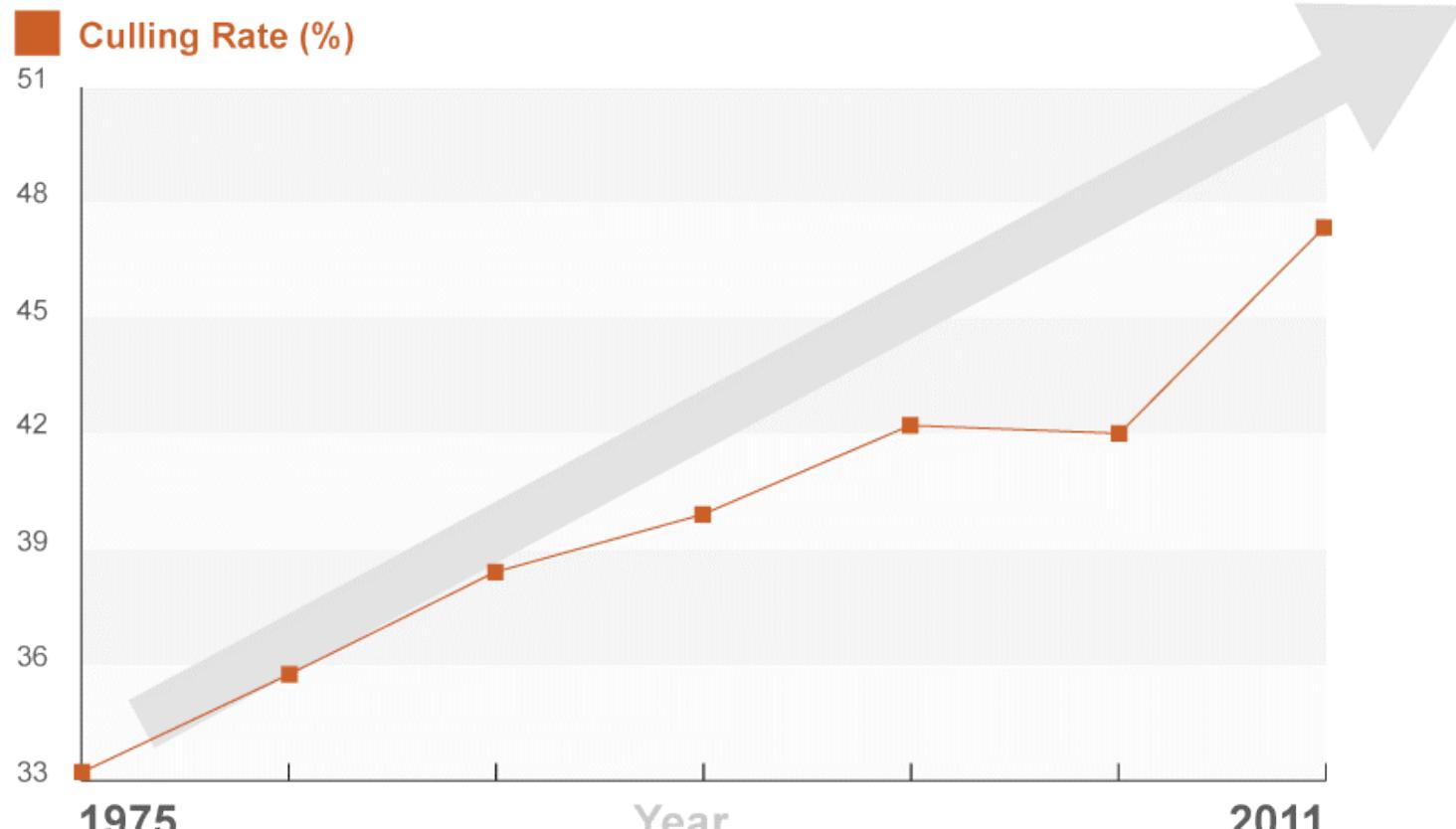


Today

Source:(Noblet and al., 1998)

母豬淘汰率提高

They have a shorter productive life



Source: (W.H. Close, Close Consultancy, 2004)

如果我們消耗母豬的體態來產生母奶

If Sows Are Using Their Body Reserves

導致結果：

- 母豬體重流失
- 降低窩重
- 下一胎次頭數降低
- 增加離乳到發情間隔
- 降低分娩率
- 更高淘汰率
- 降低仔豬在肥育期表現

To milk their litters :

Consequences :

- Significant weight loss for the sow,
- Decrease in litter weight (less milk produced)
- Smaller litters at next farrowing
- Longer weaning-to-oestrus interval
- Lower farrowing rate
- Higher culling rate
- Lower performance of piglets and pork in feeding herd

Source: (Aherne, 2001), (Goodband et al., 2006) and (Brian Andries, 2003)

現代母豬選育基礎

- 更大的每窩仔豬數
- 更大產奶量

現代牧場觀察到以下現象

- 總產仔數
- 每胎次更大離乳窩重
- 更重的仔豬

The modern white line sow has been selected

- for larger litters
- milk production

And the evidence is clear on sow farms:
Many sow farms have been increasing

- total born
- weaning larger litters
- with heavier pigs

« With litter size continuing to improve and lactation length increasing to around 21 days, the demand for milk production must continue to increase to meet the demand for heavier pigs »

Source: (Casey Neill et Noel Williams, PIC North America, 2010)



...But Lots Of Farms, Are Still
Serving Feed To Sows Like 40
Years Ago!

但是 仍有許多牧場，
仍使用40年前餵飼方式！



投資報酬率：6個主要回報點

Return On Investment: 6 Main Payback Points



我如何得到回報？

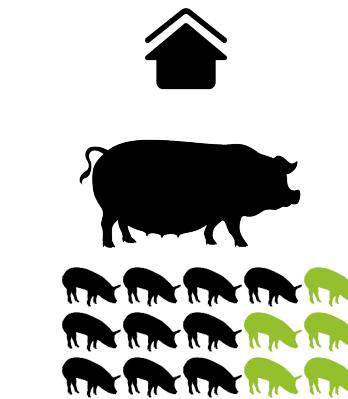
How do I get my money back ?

生產者必須 盡其所能 提高泌乳母豬採食量

Producers Must Maximize Feed Intake In Lactation



Maximizing sow feed intake:
in lactation
**最大化泌乳期母豬
採食量**



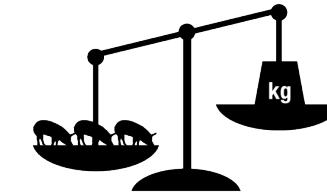
More piglets at next litter
下一胎次更多仔豬



To maximize sow
milk production
最大化產乳量



To reduce Weaning-to-oestrus
interval and increasing fertility rate
**縮短離乳-發情間隔，
提高懷孕率**



To produce heavier litters
更大窩重



To keep sows in optimal body condition
維持母豬體態



更大窩重 = 縮短上市時間!

Heavier Litters = Pigs Faster To Market Weight!



1 LACTATION

INCREASED FEED INTAKE = MORE MILK
= HEAVIER PIGLETS AT WEANING

(EFFECT OF AN ADDITIONAL 1 KG OF FEED INTAKE PER DAY)

Source	kg/day/litter
Clowes, E.J. et al. 1998 J. Animal Sc. 76	0,230
Whitemore, C. T., The Science and Practice of Pig Production 1996	0,350
Metzat, P. T., et al. 1990. Michigan State	0,300
Pig International 2001. Mavromichalis, I.	0,250
Pig International 2001. Provimi U.S.A. (graphique 3)	0,370
Average	0,300 kg/day/litter

* The piglet growth rate is dependent on the milk yield and its composition. It takes approximately 4 grams of milk to produce 1 gram of weight gain. The required milk yield is therefore 10 kg/day to achieve a litter weight gain of 2.25 kg/day (10 pigs growing at 250 g/day). *

Source: Dr. Brian Hardy - NutriVision Inc.



To maximizesow
milk production
最大化產乳量

維持體態 = 縮短離乳-發情間隔!

Keep Body Score = Shorter W To Oe Interval!



2

INTERVAL

INCREASED FEED INTAKE IN LACTATION MEANS SHORTER
WEAN-TO-OESTRUS INTERVAL

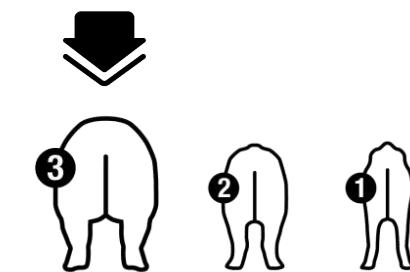
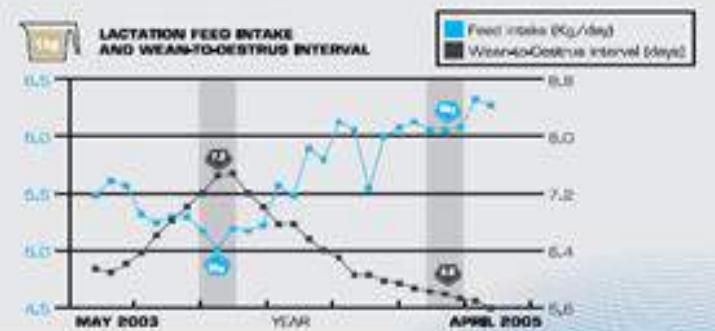


+

Successful feeding management of sows during lactation could be summarized as «maximize feed intake». Positive consequences of maximizing lactation intakes on lean and prolific genotype, including improved wean to service interval, farrowing rate and subsequent litter size, have been observed in numerous research and commercial production systems.

1kg

Source: Goodband R. al., 2006



維持體態 = 節省下一懷孕期飼料

Less Body Loss = Less Feed To Rebuilt Body Condition!

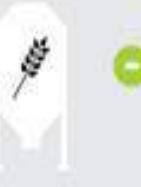


3

GESTATION

REBUILTING YOUR SOWS BODY CONDITION
IN GESTATION CAN BE QUITE COSTLY!

It costs a third as expensive to keep a sow
in good body condition during lactation



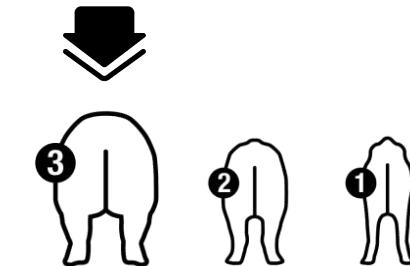
... than it costs to bring her back in good
condition during gestation.



1kg



Source: W. H. Close, Close Consultancy, 2004



提高採食量 = 更高懷孕率

Good Intake In Lactation= Better Fertility Rate Next Cycle!

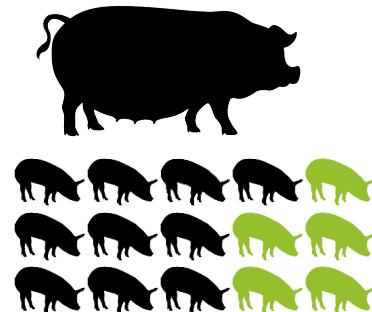


4

FERTILITY RATE

THERE IS A DIRECT RELATION BETWEEN
SOWS FEED INTAKE IN LACTATION & FERTILITY RATE!

%



提高採食量 = 下一胎次更多仔豬

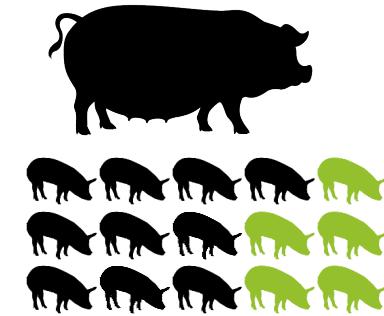
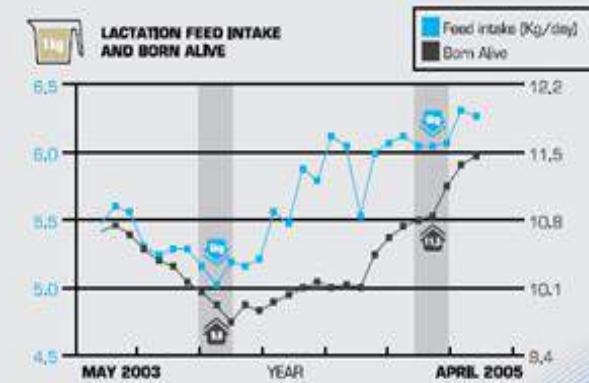
High Fertility Rate = More Piglets Next Parity



5

NEXT FARROWING

AN INCREASE OF FEED IN LACTATION MEANS
MORE PIGLETS NEXT PARITY.



提高採食量 = 提高母豬耐用年限

Better Sow Feeding = Sow Producing Longer!



6

SOW'S LIFETIME

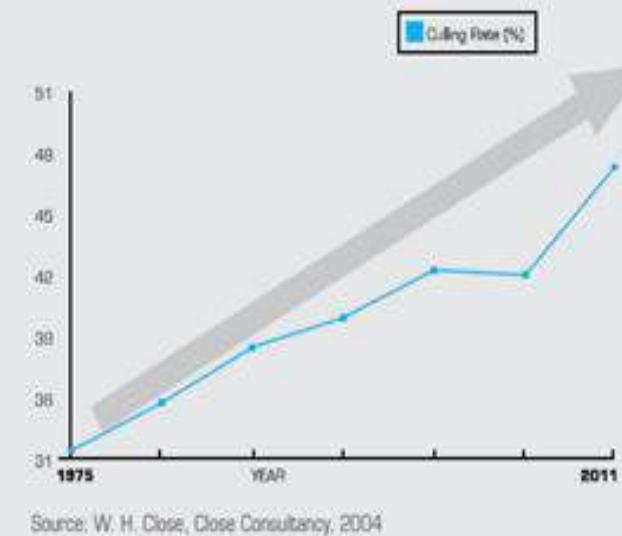
YOUR CULLING RATE HAS INCREASED? SOWS LIFETIME CAN BE INCREASED BY A SUPERIOR FEED INTAKE IN LACTATION!

« To maximize the longevity of these sows, management must use a feeding strategy that maximizes feed intake during lactation and minimize the loss of body stores of energy and protein. »

Source: Dritz, Tokach, Goodband, Nelissen, KSU

« A decreased removal rate of sows reduces the costs for replacement gilts and thereby increases net income. Studies have shown that it takes at least three litters before a sow provides a positive cash flow for the producer. »

Source: Lucia et al., 2000; Stalder et al., 2003

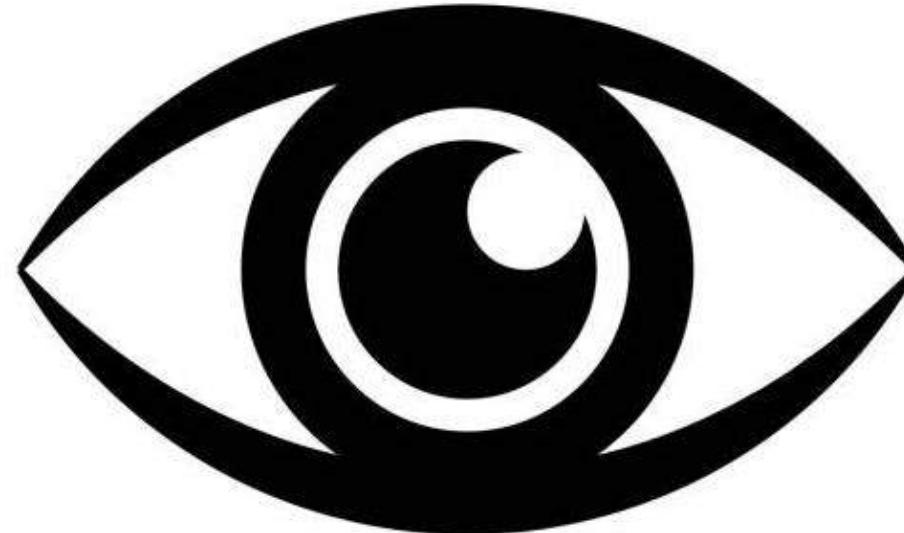


Source: W. H. Close, Close Consultancy, 2004



若沒有數據,我們如何知道母豬表現?

How Do We Know Without Data?



Seeing Clearly Means Knowing!



生產者每天問自己的問題：

Producers Have These Questions Daily:

1. 我給動物吃高品質飼料嗎?

Do I Have Quality Feed?

2. 我餵動物足夠食物/或太多?

Did I Give Enough /too Much?

3. 我今天下班前有時間回來看這頭母豬嗎?

Do I Have Time To Come Back At The End Of The Day?

4. 我有足夠數量及品質的工作人員嗎?

Do I Have The Right Staff (quantity/quality)?

5. 我明天或週末有時間可以調整日糧嗎?

Will I Have The Time To Adjust The Portion Tomorrow/weekend?

6. 母豬是否感覺良好?

Wondering If Sows Are Feeling Good?

7. 飼料配方是否適合我的動物?

Wondering If Feed Formulations Are Working ?

How Do We Know Without Data?





例1：飼料配方價格

Example #1: Feed Formulation Pricing



配方A Feed Formulation A

- XXXXX
- XXXXXX
- XX
- XXXXXXXXXXXX
- XXXXXX
- XXXXXXXX
- XXXXXXXX

100% nutritionnal needs

PRICE: \$ 400.00/TON



你選A或B?
Your Choice: A or B ?



配方B Feed Formulation B

- XXXXX
- XXXXXX
- XX
- XXXXXXXXXXXX
- OOOOOO
- XXXXXXXX
- DDDDDDDD

100% nutritionnal needs

PRICE: \$ 390.00/TON

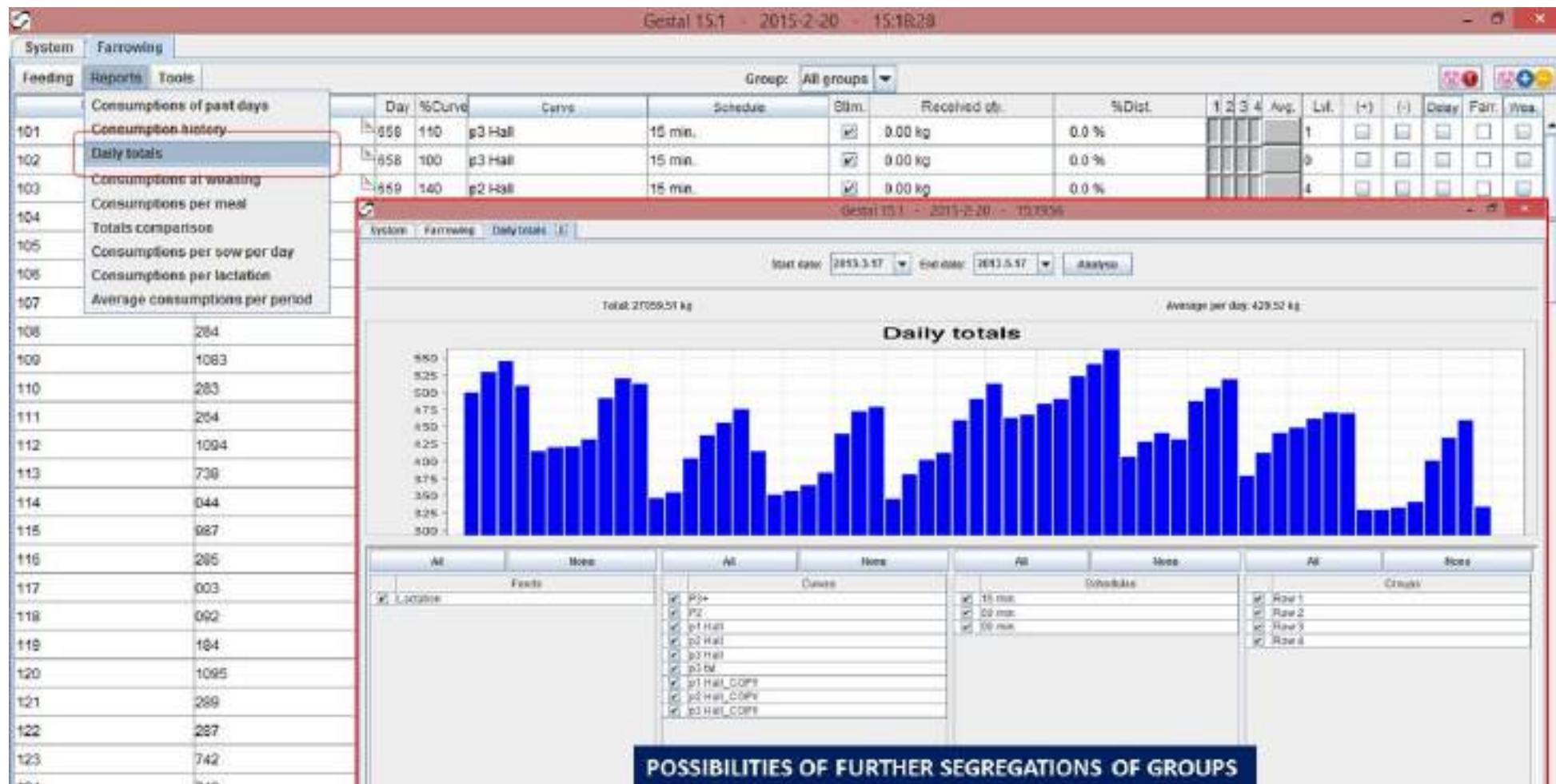
配方B 採食量減少9%
-9% Consumption With B

How Do We Know Without Data?



例1：飼料配方價格

Example #1: Feed Formulation Pricing



How Do We Know Without Data?



例2：假設每天有2%泌乳母豬生病

Example #2: Having 2% Of Sick Sow (20) Every Day

(based On A 5000 Sow Farm, With 1000 Farrowing Crates, 10 Rooms Of 100 Crates)

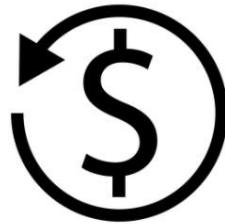
牧場 A Farm A

Time Action

- 5H00 **DROP 0.030 KG STIMULATION To 20 Sick Sows = 0.600 KG**
- 5H15 No Feed Drop (WARNING DATA = RED LIGHT ON UNITS)
- 7H00 **Producer In: Sick Sows In Room #7, #8, #10, UPON DATA**
- 7H15 Producer At Room #7, #8 & #10,
- 8H00 Producer Calls A Vet

$$\text{TOTAL FEED USED} = 20 \text{ SICK SOWS} \times 0.030 \text{ KG/SOW} = \underline{\underline{0.600 \text{ KG}}}$$

per year : **219 KG**



牧場 B Farm B

Time Action

- 5H00 **DROP 1 KG To 20 Sick Sows = 20 KG**
- 6H00 **DROP 1 KG To 20 Sick Sows = 20 KG**
- 7H00 **Producer In: DROP 1 KG To 20 Sick Sows = 20 KG**
- 7H15 Producer At Room #1,
- 8H00 **DROP 1 KG To 20 Sick Sows = 20 KG**
- 9H00 Producer In Room #7... May Not See The Sick Sow!
- 9H00 **DROP 1KG Of Feed To 20 Sick Sows = 20KG**

$$\text{TOTAL FEED USED} = 20 \text{ SICK SOWS} \times 5 \text{ KG/SOW} = \underline{\underline{100 \text{ KG}}}$$

- 11h00 Producer Call The Vet (vet Is At A, Will Not Go Today)
- 11h15 Employee Clean The Feed Bucket

per year: **36,5 METRIC TONS**
(+ LABOR FOR CLEANING)



How Do We Know Without Data?



例2：假設每天有2%泌乳母豬生病

Example #2: Having 2% Of Sick Sow (20) Every Day

(based On A 5000 Sow Farm, With 1000 Farrowing Crates, 10 Rooms Of 100 Crates)



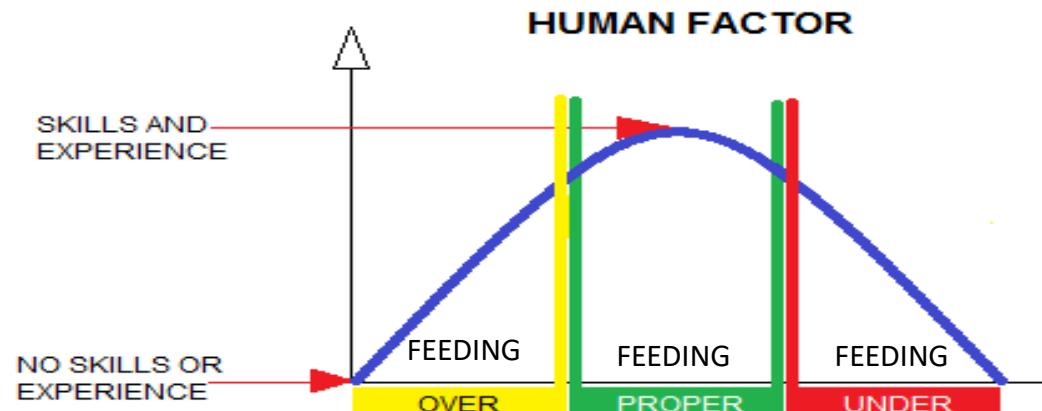
How Do We Know Without Data?



例3：多場飼養

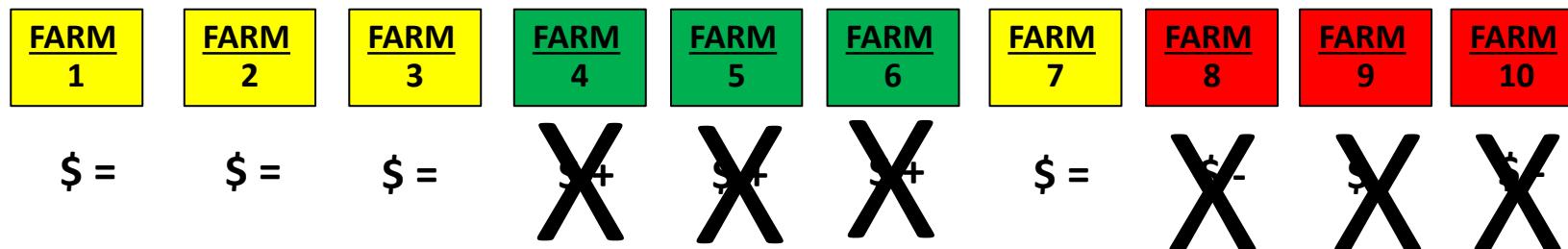
Example #3: In A Large Farm Network

(based On A Network Of 10 Farms Of 5000 Sow Farm)

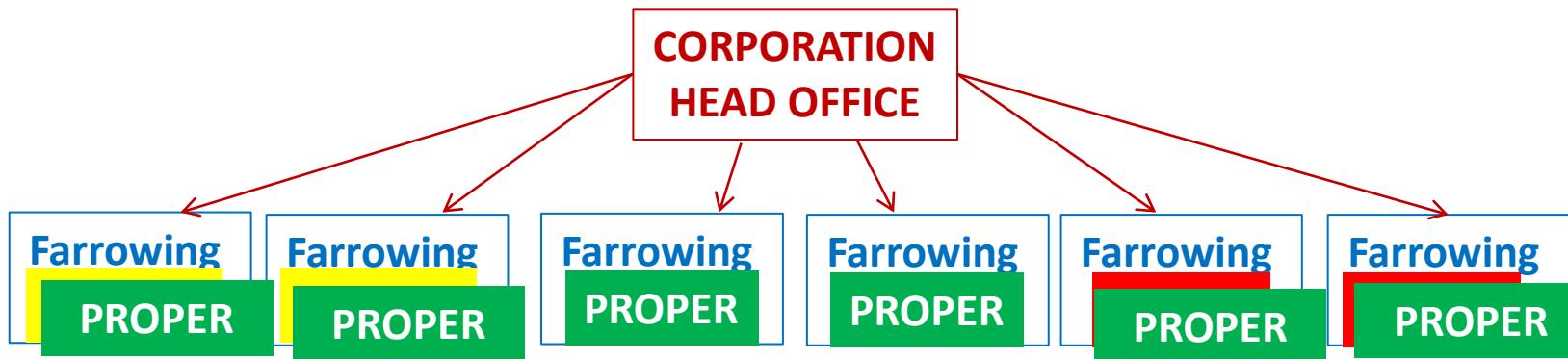


■ : RESULTS

Breaking Even?!



How Do We Know Without Data?



運用 GESTAL, 你可做到

With GESTAL, You Can:

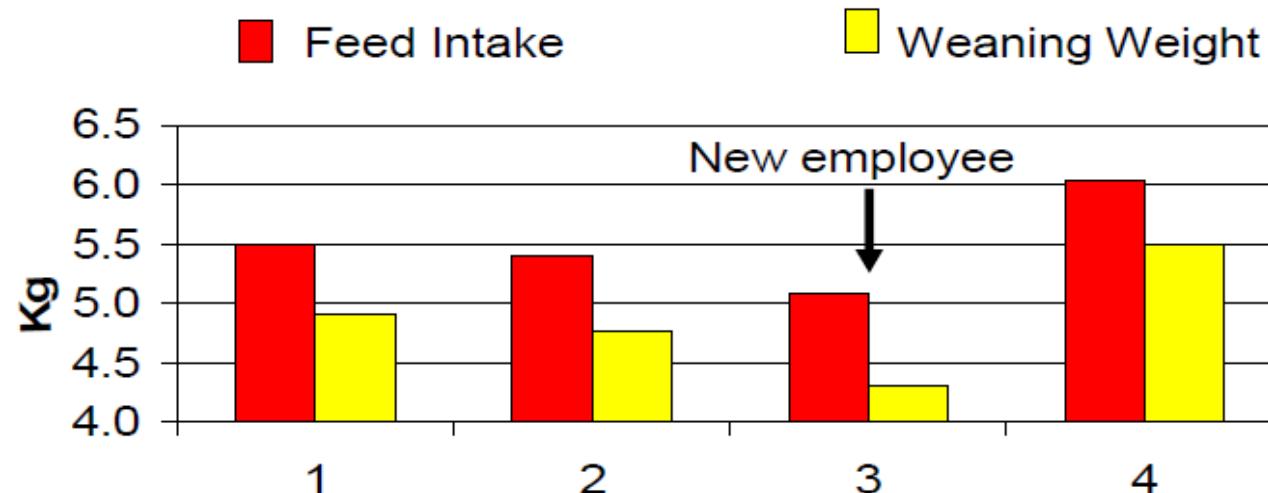
- 標準化所有分娩舍餵飼
 - Standardized The Operations Of All Your Farrowing Barns
 - * 飼飼曲線, 飼飼時程, 飼飼策略
 - * Implementing Feed Curves, Feeding Schedules And Feeding Strategies
- 要求「合適的」分娩舍管理者來設定全部各場餵飼方式
 - Ask The «Proper» Managers To Set Up Strategies Feeding Sows In Other Farms In The Network
- 管理者獲得大量母豬採食行為與採食資料, 作為最佳化餵飼策略之依據
 - Managers Will Have Numerous Data About Sows Eating Behaviors And Quality Of Feed They Are Offering To Their Sows.

How Do We Know Without Data?

當然，人員變動會造成生產成績差異

Of Course, People Can Make Quite A Difference!

People make the difference!!!!



Quarter

SOURCE:(Feeding Management During Sow Lactation, Kansas State University, by Steve S. Dritz, DVM, PhD ,Mike D. Tokach, PhD, Robert D. Goodband, PhD, Jim L. Nelssen, PhD)

How Do We Know Without Data?

Parameters Options

Feed at day zero: Use feed "Gestation"

Maximum quantity per meal: kg (between 0,25 and 1,5)

Quantity of the stimulation portion: kg (between 0,03 and 0,1)

Stimulation frequency:

Low consumption keypad warning delay:

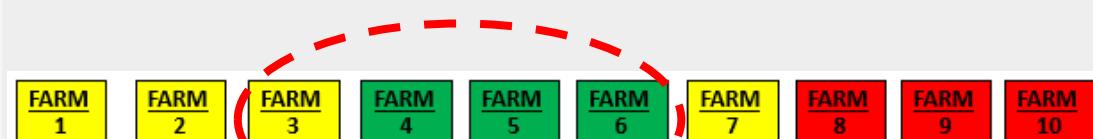
Feeding card for sows entered by keypad

Stimulation Curve: P3+ Percentage: Schedule:

This sector is to adjust the size of your portions
And the frequency of stimulation of the sows

Accept Cancel

LET THE PROPER PEOPLE ESTABLISH
FARM SETTINGS





如果您現在不投資於精準餵飼...

If You Are Not Investing In Precision Feeding...



如何知道，
您與育種公司帶給母豬潛能差距有多遠？

«...YOU ARE PRECISION FEEDING»!
How far is this from today's reality?



牧場人力的挑戰

2- Our Industry's Labor Challenges



10 年後人力供給狀況 會變成如何？

Q : Do We Know What Our Labour Will Be Looking Like In 10 Years From Now ?





工作也在我們眼前發生變化！

Jobs Are Also Changing Before Our Eyes !





我們已經開始將未來勞工
不喜歡的工作以自動化取代!

... As We Have Already Started To Automize Jobs They
Don't Like To Do anymore!

PIPESTONE®

VETERINARY SERVICES



GORDON D. SPRONK
Pipestone
Chairman Of Board



OR



OCT
19

Leman China Swine Conference 2019



TO A QUESTION ASKED TO DR SPRONK, ABOUT THE ARTIFICIAL INTELLIGENCE...

ANSWER: (quote) «*Before looking at artificial intelligence, we're looking at better training our people & find solution to automate the important tasks our staff do not like to execute, like washing and feeding.*».

清洗畜舍, 飼飼動物以自動化取代!



這些沒有吸引力的工作
不代表世界未來的樣態

No Wonder Why This Is Not Attractive...
...it Does Not Represent What The World
As Become!



豬場管理者需為未來職缺類型計畫! 運用管理,照護動物!

Pig Farm Jobs Will Have To Become A Lot More Like This,
to Get Next Gen To Look At Our Job Offers!

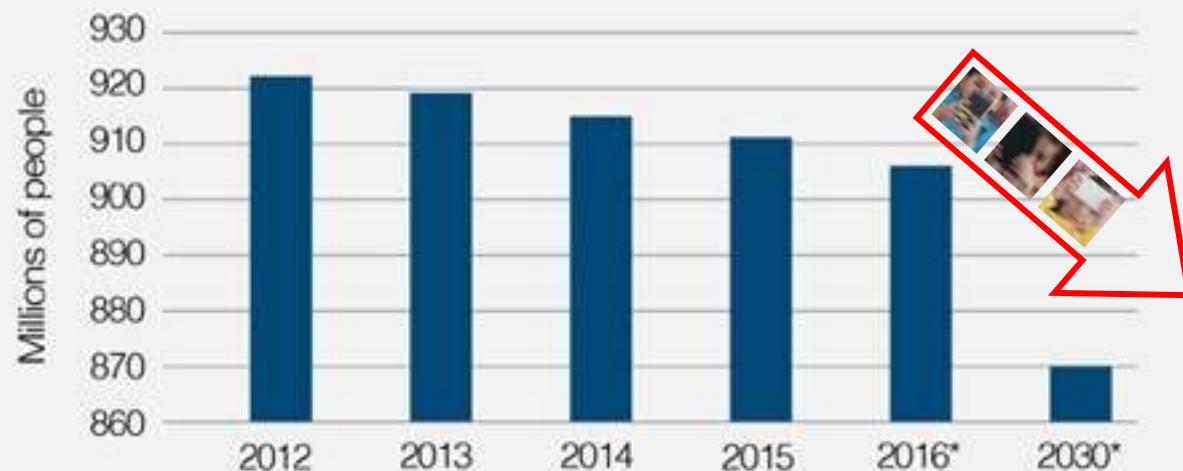
中國的勞工正在減少! China labor force is in decline!

勞力減縮

Shrinking Labor Force

中國工作人口(16-59歲)從2012年開始逐漸下降

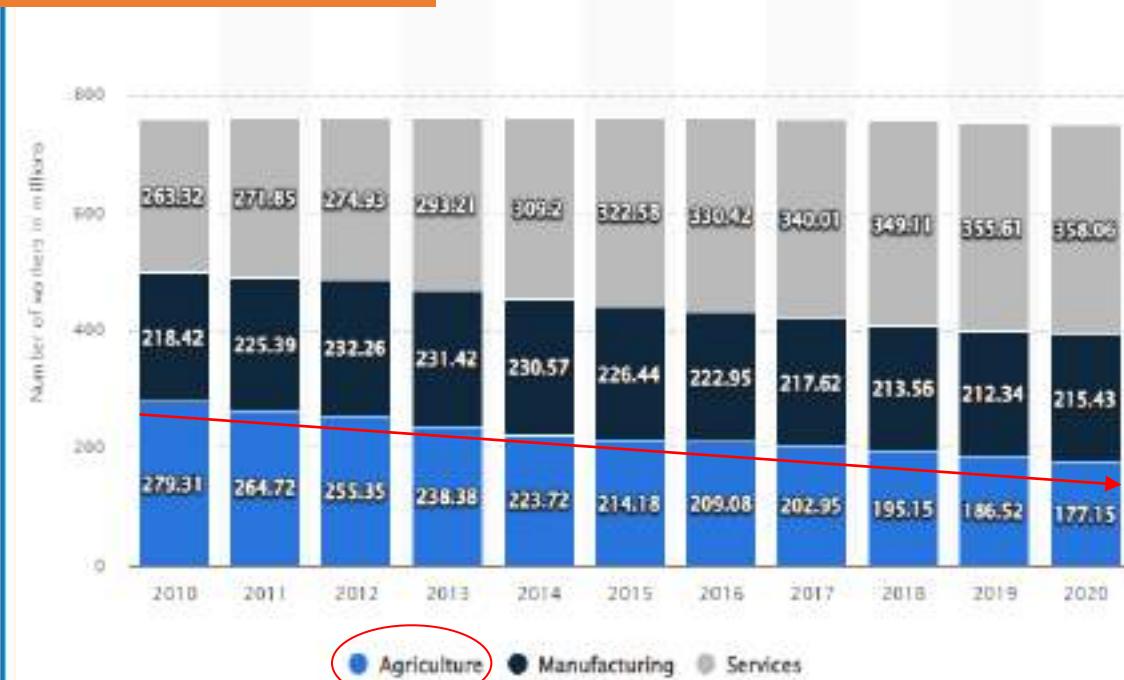
China's working-age population, aged 16-59, has declined since 2012, a trend that is expected to continue.



*Estimates

Sources: National Bureau of Statistics; Ministry of Human Resources and Social Security

Caixin

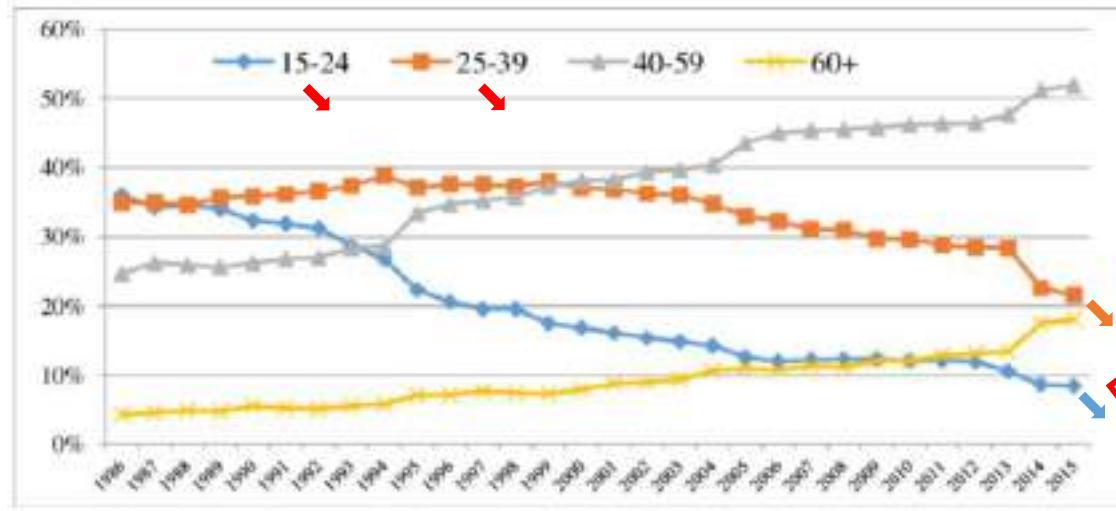


<https://www.statista.com/statistics/278346/economic-sector-distribution-of-the-workforce-in-china/>

<https://fbkfinanzwirtschaft.wordpress.com/2016/11/24/chinas-shrinking-workforce-affects-economic-transition-expert-says/>

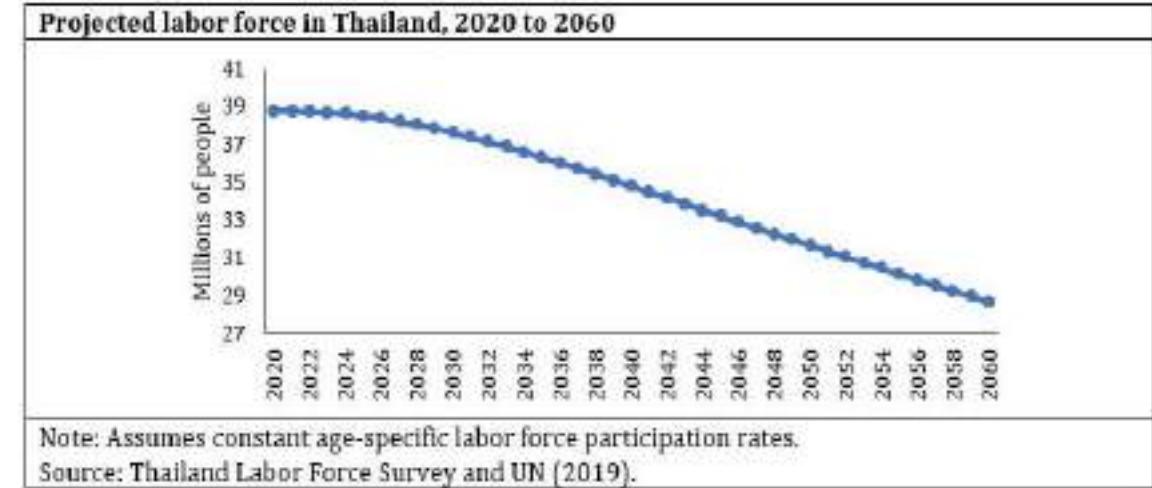
泰國的勞工問題 – 能工作的青年逐漸減少

Projected labor force in THAILAND



Agricultural Labor Force Classified by Age Group Source: Thai Labor Force Survey, National Statistical Office

https://www.researchgate.net/figure/Agricultural-Labor-Force-Classified-by-Age-Group-Source-Thai-Labor-Force-Survey_fig4_303788782



<https://blogs.worldbank.org/eastasiapacific/aging-and-labor-market-thailand>



我們對勞工的挑戰是否也來自
於缺乏遠見以及缺乏對下一代
牧場員工工作的想像？

COULD OUR LABOR CHALLENGES ARE ALSO
COMING FROM A LACK OF VISION &
UNDERSTANDING OF WHAT NEXT
GENERATIONS OF FARM WORKERS WILL LOOK
LIKE ?



世代的定義

如果我們的挑戰只是世代現象的一部分呢？

HOW ABOUT IF A PART
OF OUR CHALLENGES IS JUST A
GENERATIONAL PHENOMENA?

- 後千禧世代
6-21歲
出生於：1997-2012年
- 千禧世代
22-37歲
出生於：1981-1996年
- X世代
38-53歲
出生於：1965-1980年
- 嬰兒潮世代
54-72歲
出生於：1946-1964年

DEFINING THE GENERATIONS



POST-MILLENNIAL
6 TO 21 YEARS
BORN: 1997-2012



MILLENNIAL
22 TO 37 YEARS
BORN: 1981-1996



GENERATION X
38 TO 53 YEARS
BORN: 1965-1980



BABY BOOM
54 TO 72 YEARS
BORN: 1946-1964



後千禧世代：數位原住民

(從小就生長在有各式數位產品環境的世代)

-他們正在並在未來幾年內尋找工作

post millennials : the DIGITAL NATIVES:

- THEY ARE AND WILL BE LOOKING FOR WORK IN THE YEARS TO COME .

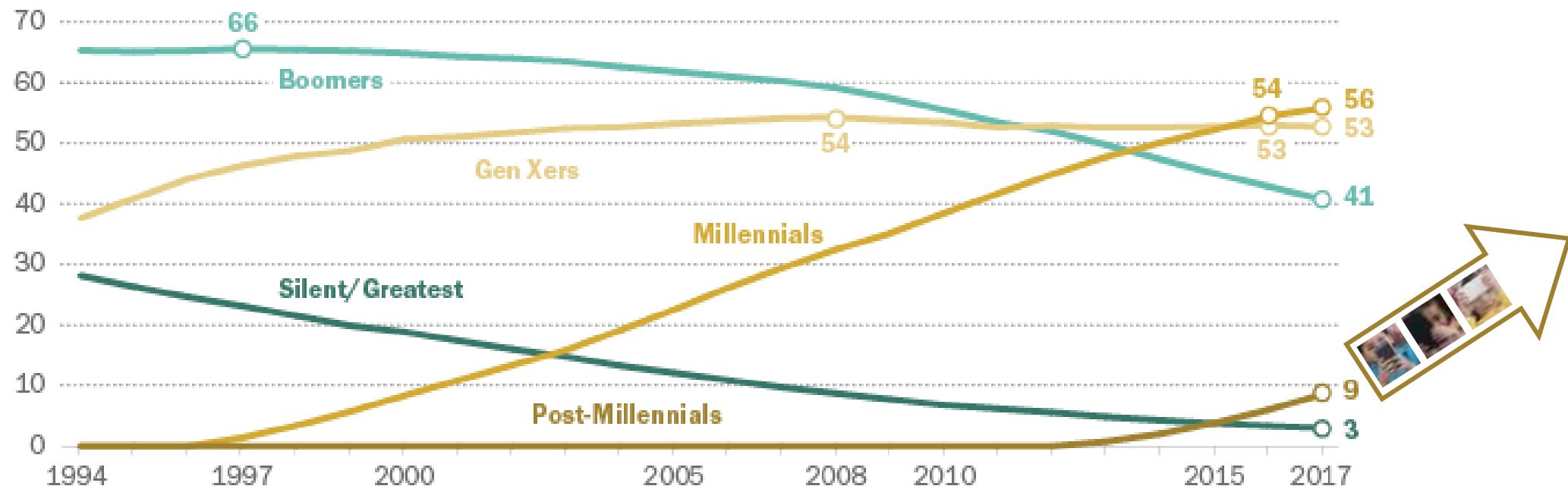
千禧世代的青年目前正是主要勞力來源

Millennials are now the majority of the work force!

千禧世代的青年在2016已成為主要勞力來源

Millennials became the largest generation in the labor force in 2016

U.S. labor force, in millions



Note: Labor force includes those ages 16 and older who are working or looking for work. Annual averages shown.

Source: Pew Research Center analysis of monthly 1994-2017 Current Population Survey (IPUMS).



SAVING AN AGEING INDUSTRY BY EMPLOYING MIGRANT WORKERS: THE LEGALISATION OF AGRICULTURAL MIGRANT WORKERS IN TAIWAN^[68]

24 January 2022 • Agriculture, Demography, industry, Isabelle Cheng, Migration • One comment

Graph 1. The use of agriculture lands in Taiwan in 2018 (Agricultural Statistics Visualized Query Network, 2020a)

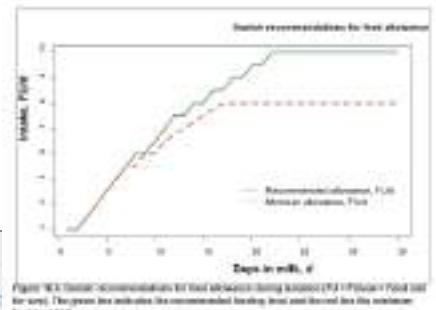
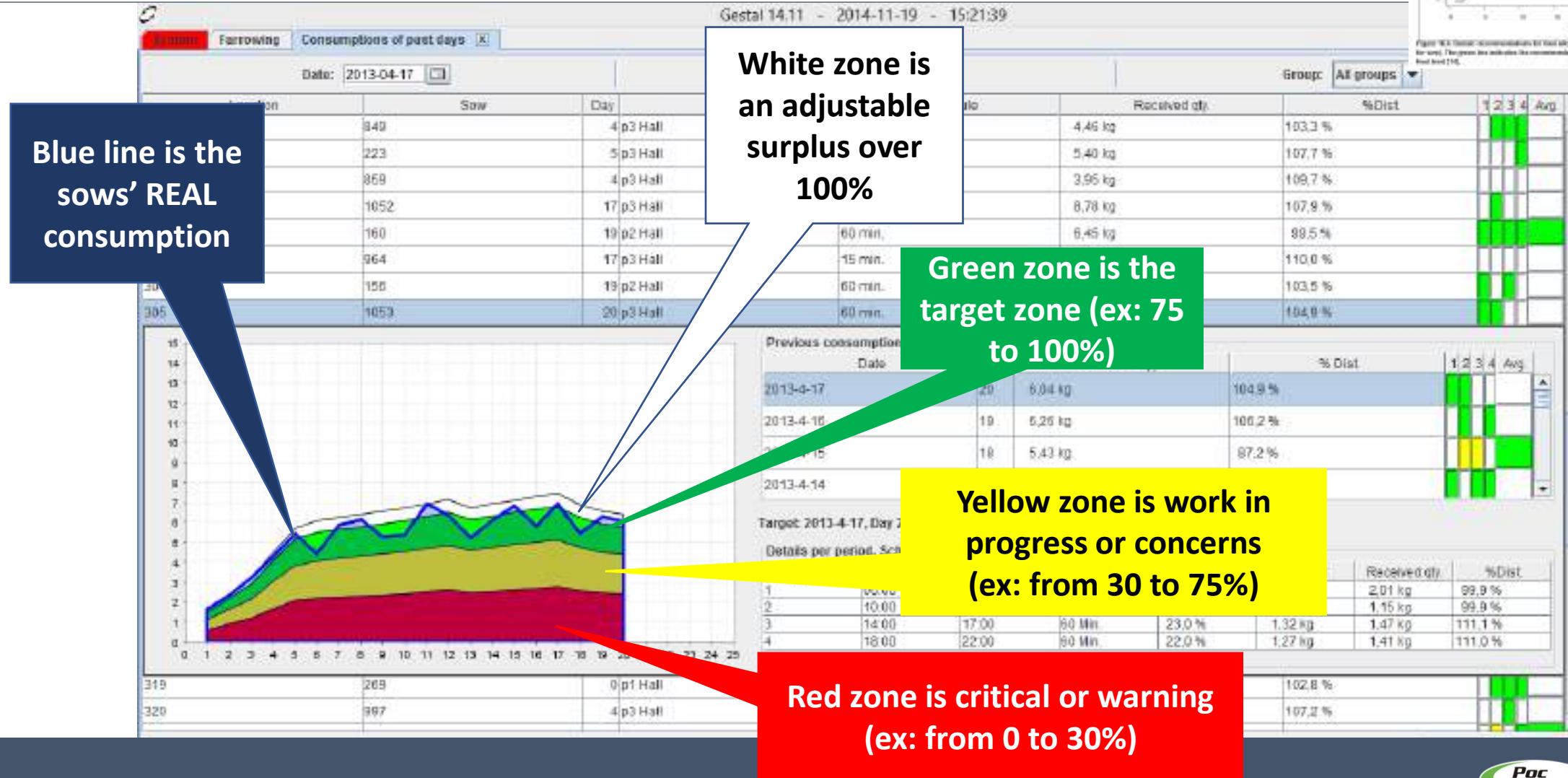
Graph 1 illustrates the agricultural land use of Taiwan in 2018. Total land use for agriculture is around 800,000 hectares, and agricultural land for food production is only 520,000 hectares. Taiwan is targeting 740,000 to 810,000 hectares, so the current condition is still far from the target. This graph shows the weak investments in agricultural production in line with the low number of farm laborers (Graph 2).



從上圖可以得知，台灣勞工目前的狀況：農業勞工的人數（橘線）佔總勞工人口（藍色柱狀圖）的比例相當低。

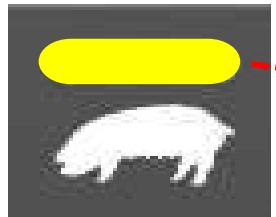
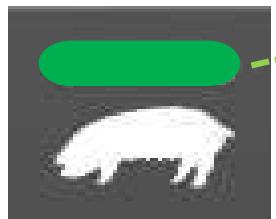
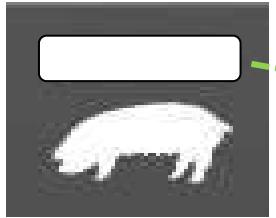
母豬自己產生資料

Sows Are Generating The Data!



母豬自己產生資料

Sows Are Generating The Data!





System Farrowing

Feeding Reports Tools

Group: All groups



Consumptions of past days

Consumption history

Daily totals

Consumptions at weaning

Consumptions per meal

Totals comparison

Consumptions per sow per day

Consumptions per lactation

Average consumptions per period

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

117

118

119

120

121

122

123

124

284

1083

283

264

1094

738

044

987

285

003

092

184

1095

289

287

742

749

883

	Day	%Curve	Curve	Schedule	Stim.	Received qty.	%Dist.	1	2	3	4	Avg.	Lvl.	(+)	(-)	Delay	Farr.	Wea.
658	110	p3 Hall		15 min.	<input checked="" type="checkbox"/>	0.00 kg	0.0 %						1					
658	100	p3 Hall		15 min.	<input checked="" type="checkbox"/>	0.00 kg	0.0 %						0					
650	110	p3 Hall		15 min.	<input checked="" type="checkbox"/>	0.00 kg	0.0 %						1					

Gestal 15.1 - 2015-2-20 - 15:35:45

Consumptions per lactation																	
Start date: 2013-4-17 End date: 2013-5-17 Analyse Sort by: Location																	
Location	Name	Curve	Schedule	Feed	Group	Nbr. days	Farrowing	1	2	3	4	5	6	7	8	9	10
101	1054	p3 Hall	15 min.	Lactation	Row 1	8	2013-3-30										
101	085	p3 Hall	15 min.	Lactation	Row 1	14	2013-5-5	1.04 kg	1.56 kg	2.83 kg	4.35 kg	4.84 kg	5.26 kg	5.35 kg	5.01 kg	5.83 kg	5.65 kg
102	999	p3 Hall	15 min.	Lactation	Row 1	14	2013-5-5	1.53 kg	2.32 kg	3.08 kg	4.08 kg	4.80 kg	4.71 kg	5.54 kg	5.38 kg	5.59 kg	5.85 kg
102	1039	p3 Hall	15 min.	Lactation	Row 1	8	2013-3-30										
103	963	p3 Hall	15 min.	Lactation	Row 1	8	2013-3-30										
103	169	p2 Hall	15 min.	Lactation	Row 1	15	2013-5-4	2.39 kg	3.29 kg	4.09 kg	4.86 kg	5.00 kg	5.75 kg	6.59 kg	6.89 kg	7.58 kg	8.12 kg
104	074	p3 Hall	15 min.	Lactation	Row 1	14	2013-5-5	1.64 kg	2.57 kg	3.50 kg	4.35 kg	4.78 kg	4.21 kg	5.26 kg	4.73 kg	5.94 kg	5.97 kg
104	060	p3 Hall	15 min.	Lactation	Row 1	8	2013-3-30										
105	185	p2 Hall	15 min.	Lactation	Row 1	15	2013-5-4	2.39 kg	3.17 kg	3.85 kg	4.04 kg	4.17 kg	4.63 kg	5.49 kg	4.99 kg	4.78 kg	5.33 kg
105	258	p1 Hall	60 min.	Lactation	Row 1	8	2013-4-1										
106	913	p3 Hall	15 min.	Lactation	Row 1	14	2013-5-5	1.64 kg	2.57 kg	3.50 kg	4.35 kg	5.29 kg	6.47 kg	6.65 kg	6.95 kg	6.87 kg	6.60 kg
106	260	p1 Hall	90 min.	Lactation	Row 1	8	2013-3-30										
107	262	p1 Hall	60 min.	Lactation	Row 1	8	2013-3-31										
107	1090	p3 Hall	15 min.	Lactation	Row 1	15	2013-5-4	1.64 kg	2.41 kg	3.39 kg	4.61 kg	5.56 kg	6.05 kg	4.20 kg	5.09 kg	4.37 kg	4.27 kg
108	9998	p3 Hall	15 min.	Lactation	Row 1	16	2013-5-3	1.23 kg	2.21 kg	3.18 kg	3.86 kg	3.70 kg	1.52 kg	4.11 kg	4.48 kg	5.06 kg	5.25 kg
108	246	p1 Hall	60 min.	Lactation	Row 1	8	2013-3-29										
108	284	p1 Hall	15 min.	Lactation	Row 1	12	2013-5-7	0.92 kg	2.02 kg	2.75 kg	3.43 kg	4.20 kg	4.49 kg	4.86 kg	5.07 kg	5.67 kg	5.94 kg
109	1083	p3 Hall	15 min.	Lactation	Row 1	14	2013-5-5	1.61 kg	2.41 kg	3.18 kg	4.21 kg	4.89 kg	6.04 kg	4.82 kg	4.18 kg	5.50 kg	5.50 kg
109	163	p2 Hall	15 min.	Lactation	Row 1	8	2013-4-5										
110	836	p3 Hall	15 min.	Lactation	Row 1	8	2013-4-5										
110	283	p1 Hall	15 min.	Lactation	Row 1	8	2013-5-11	1.40 kg	2.07 kg	2.75 kg	3.43 kg	3.88 kg	3.99 kg	2.56 kg	2.17 kg		
111	847	p3 Hall	15 min.	Lactation	Row 1	8	2013-4-5										

All	None	All	None	All	None	All	None
Feeds		Curves		Schedules		Groups	
<input checked="" type="checkbox"/> Lactation		<input checked="" type="checkbox"/> P3+		<input checked="" type="checkbox"/> 15 min.		<input checked="" type="checkbox"/> Row 1	
		<input checked="" type="checkbox"/> P2		<input checked="" type="checkbox"/> 60 min.		<input checked="" type="checkbox"/> Row 2	
		<input checked="" type="checkbox"/> p1 Hall		<input checked="" type="checkbox"/> 90 min.		<input checked="" type="checkbox"/> Row 3	
		<input checked="" type="checkbox"/> p2 Hall				<input checked="" type="checkbox"/> Row 4	
		<input checked="" type="checkbox"/> p3 Hall					
		<input checked="" type="checkbox"/> p3 fat					
		<input checked="" type="checkbox"/> p1 Hall_COPY					
		<input checked="" type="checkbox"/> p2 Hall_COPY					

POSSIBILITIES OF FURTHER SEGREGATIONS OF GROUPS

混合日糧餵飼

Feed Blending



New Oportunity:



飼料混合 Feed Blending



Nursery

OPPORTUNITY
LOADING ...



Gilts Development



Finishing

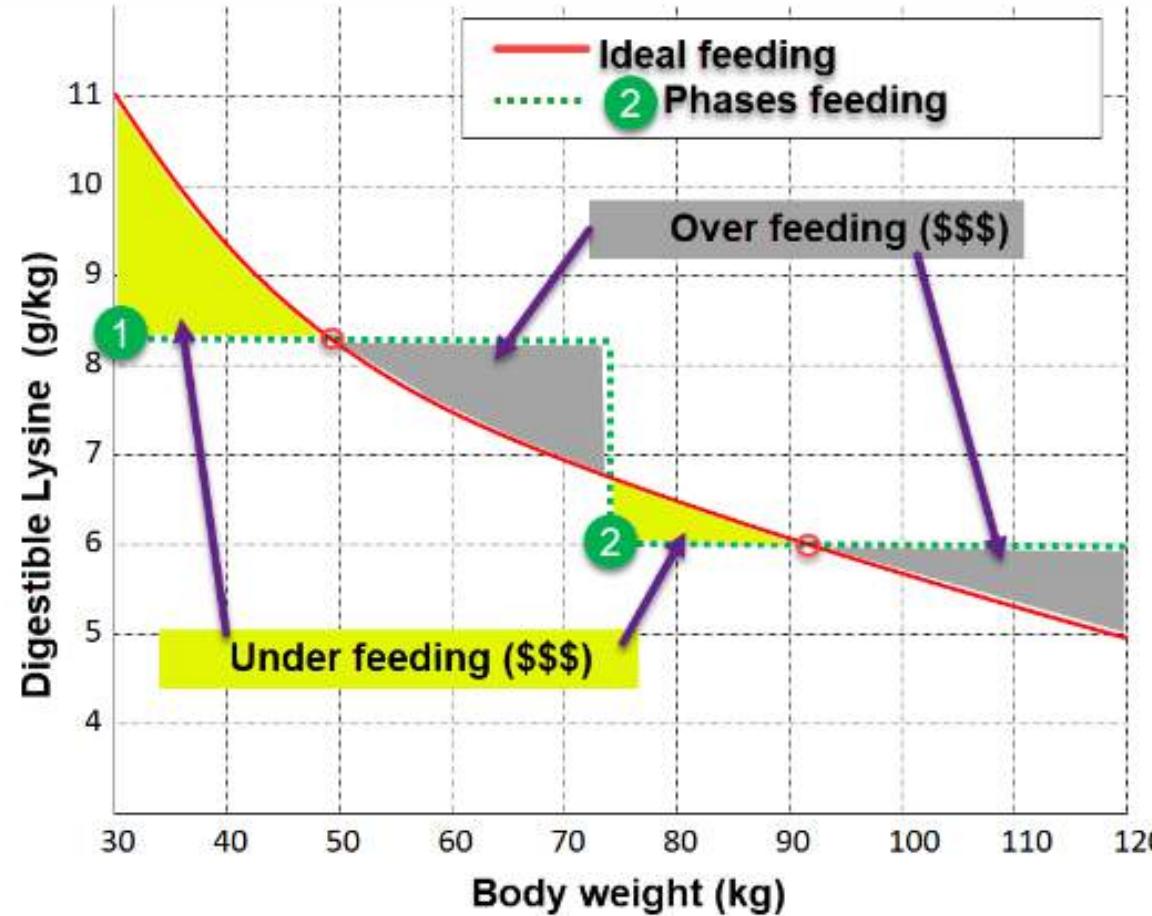


- 根據體重調整日糧
According To Weight
- 根據性別調整日量
According To Gender
- 根據日齡調整日量
According To Age
- 根據仔豬頭數調整日量
According To Number Of Piglets
- 每日多相餵飼
Feeding On A «per Day» Phase
- 最佳化餵飼效率
To Optimize Feed Efficiency
- Wireless & Standalone
- Can Be Pressure Washed

生產更多,花費更少!

Producing more while spending less!

1.1.2-Common feeding phases (without Evo)

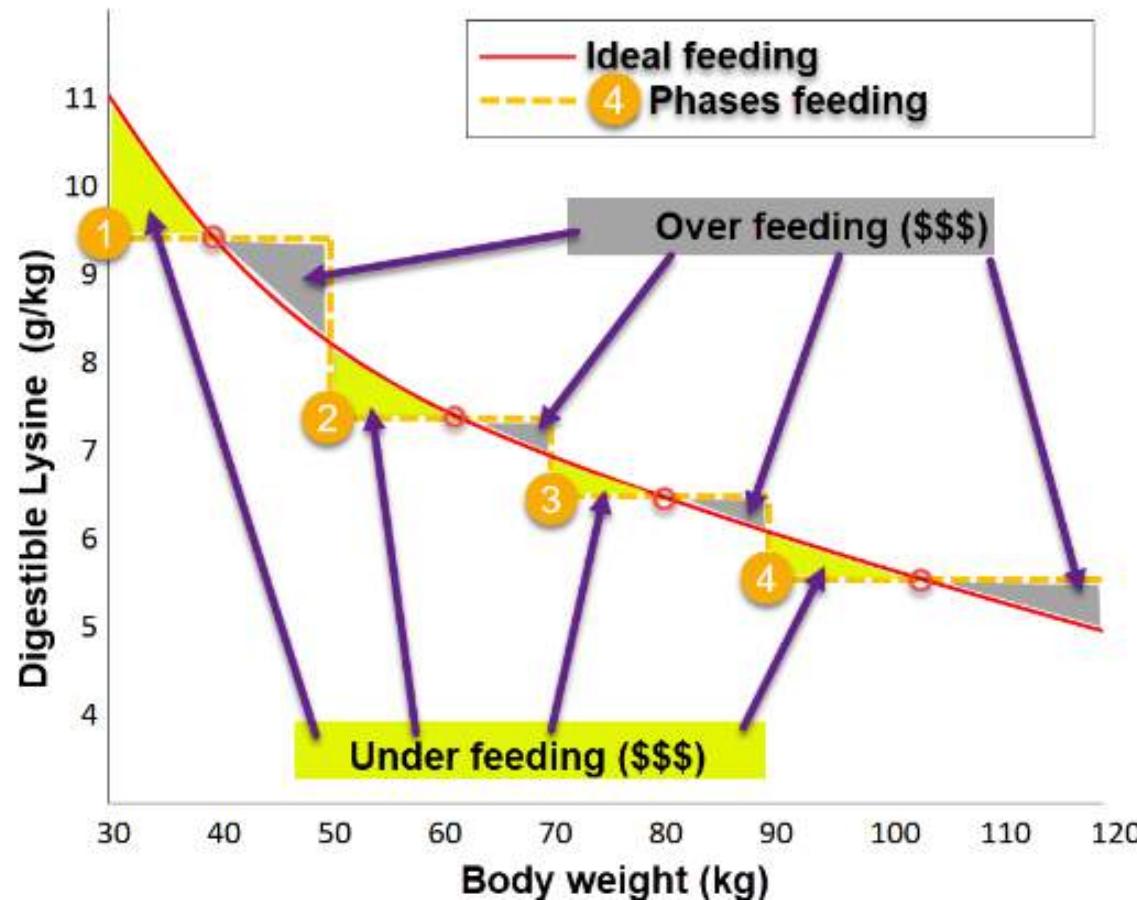


6

生產更多,花費更少!

Producing more while spending less!

1.1.3-Common feeding phases (without Evo)



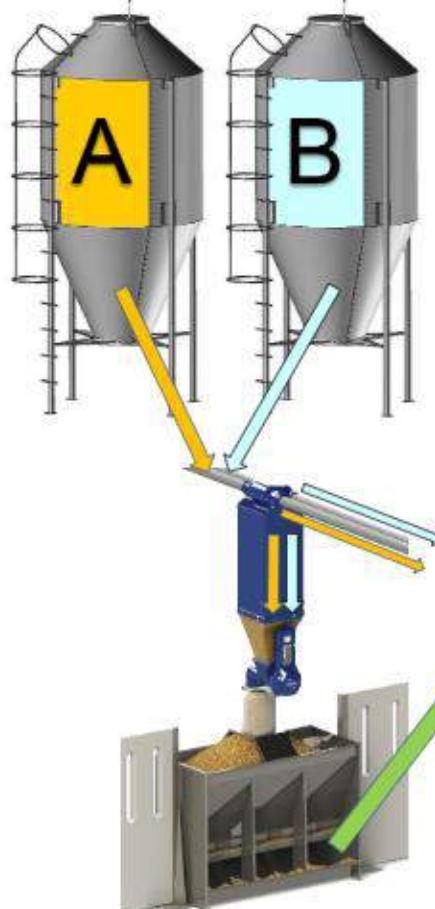
7

生產更多,花費更少!

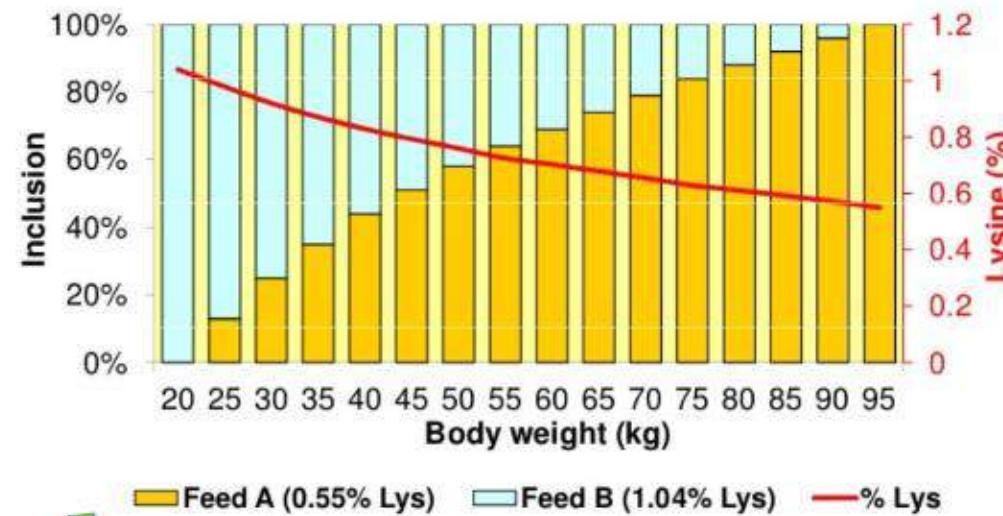
Producing more while spending less!

飼料混合

Feed Blending



→ Mix 2 diets to meet daily requirements



- For pigs: eliminates stress related to sudden phase change
- For Workers: Eliminates management of Phase Changes

9

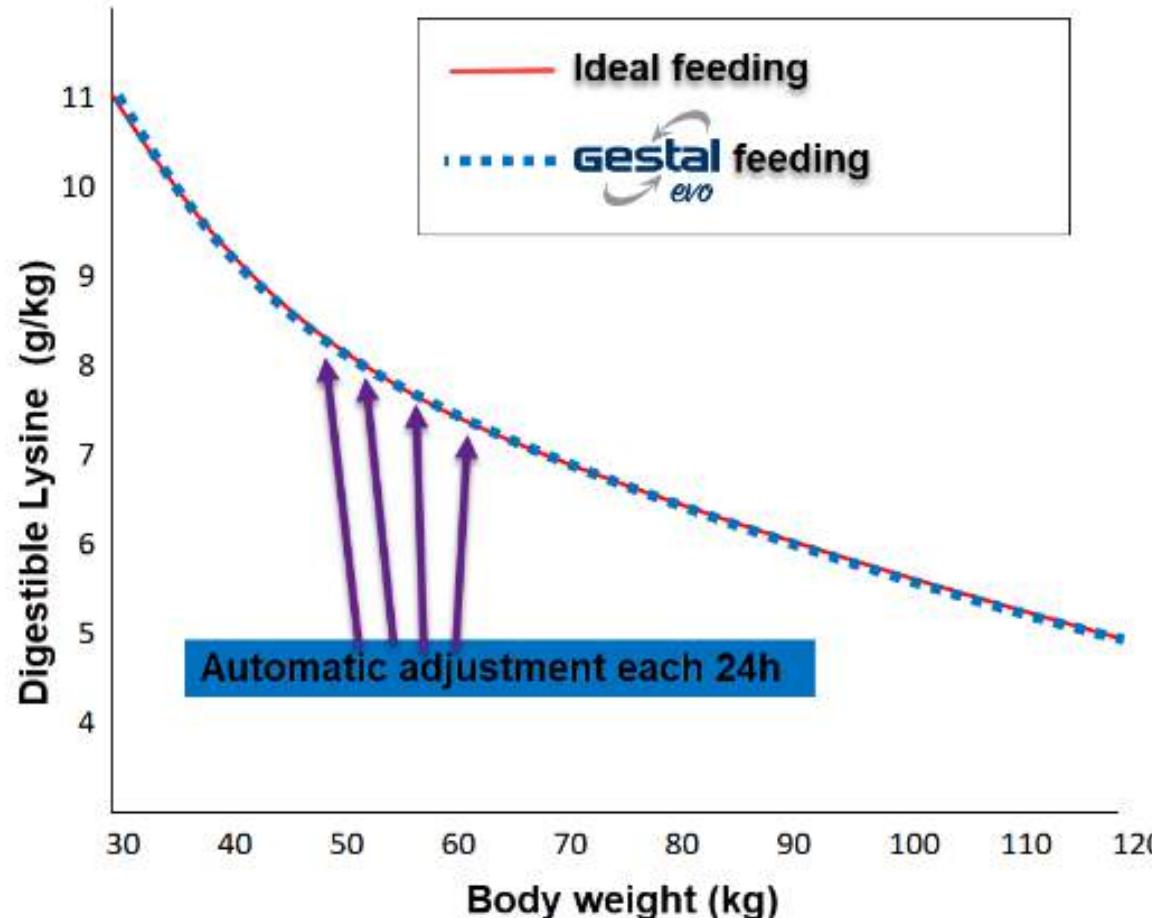
生產更多,花費更少!

Producing more while spending less!

飼料混合

Feed Blending

1.2.1-The *evo* Precision Solution



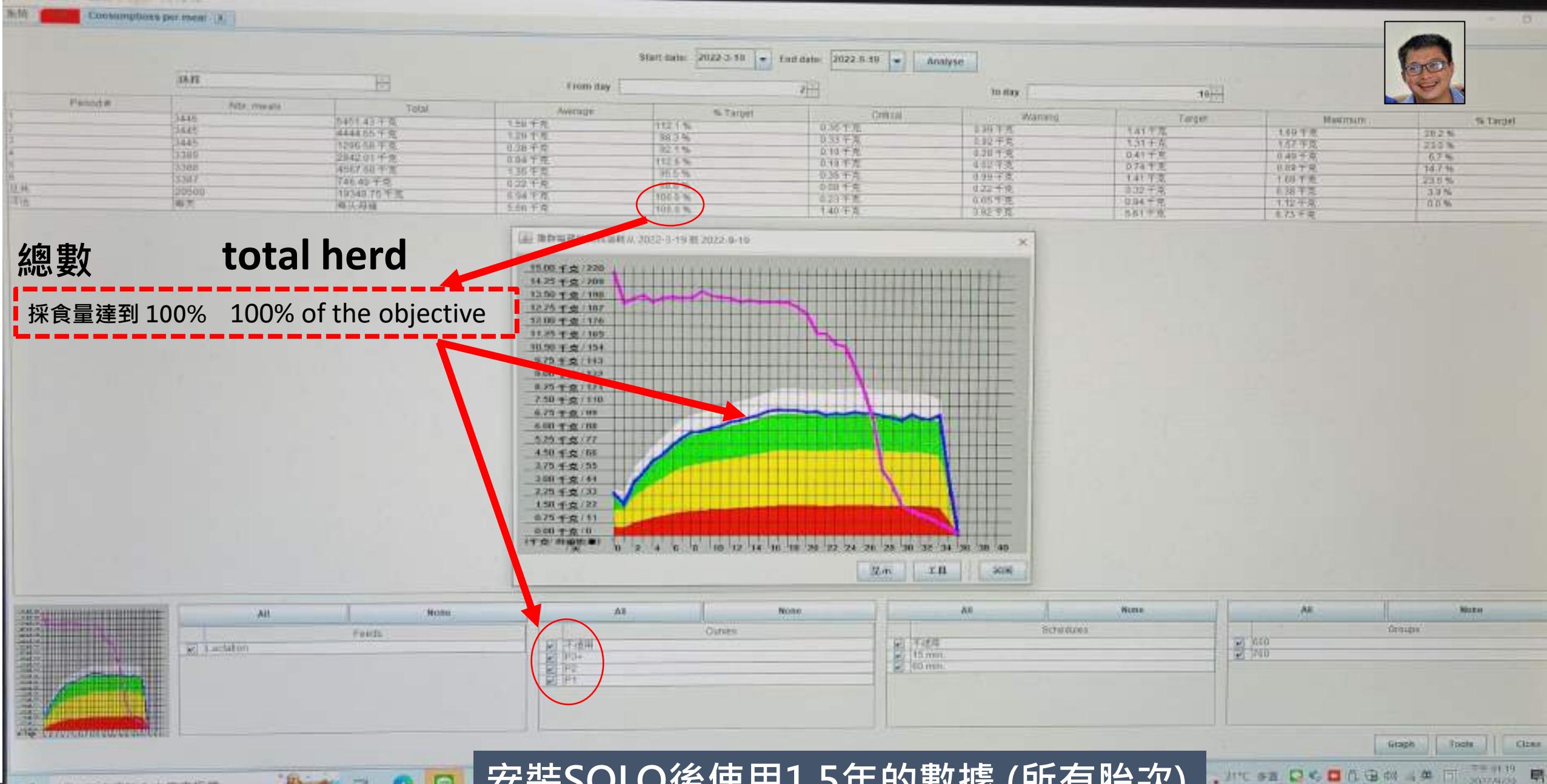
TAIWAN EXPERIENCE: 台灣實例



FARM VISIT, SEPTEMBER 20TH 2022

2022.9.20 的牧場參訪





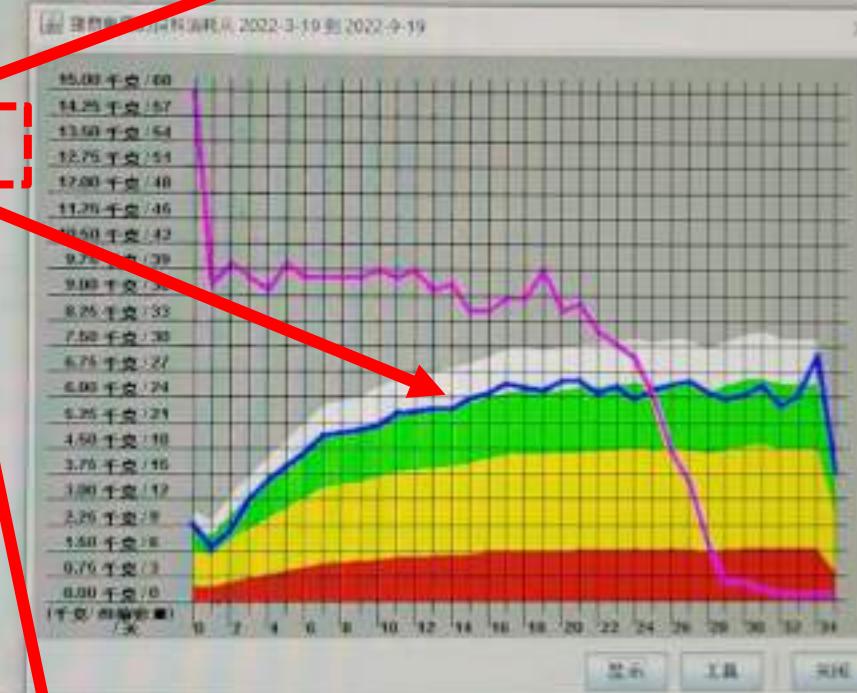


Start date: 2022-3-19 End date: 2022-9-19 Analyse

选择	From day	Today	To day	% Target					
Period #	Nbr meals	Total	Average	% Target	Critical	Warning	Target	Maximum	% Target
728	956.00 千克	1.31 千克	1111 %	0.25 千克	0.03 千克	1.18 千克	1.42 千克	2.77	227 %
728	788.43 千克	1.08 千克	97.8 %	0.26 千克	0.77 千克	1.00 千克	1.32 千克	22.8	22.8 %
720	257.03 千克	0.95 千克	91.6 %	0.10 千克	0.27 千克	0.38 千克	0.45 千克	7.5	7.5 %
718	726.10 千克	1.03 千克	113.8 %	0.18 千克	0.45 千克	0.81 千克	0.77 千克	15.3	15.3 %
718	749.50 千克	1.04 千克	99.4 %	0.29 千克	0.21 千克	1.75 千克	1.38 千克	21.7	21.7 %
716	171.18 千克	0.24 千克	22.2 %	0.04 千克	0.22 千克	0.22 千克	0.39 千克	5.0	5.0 %
4336	3446.82 千克	0.79 千克	99.0 %	0.20 千克	0.56 千克	0.88 千克	0.96 千克	9.0	9.0 %
每天	每天均值	4.36 千克	99.0 %	1.19 千克	2.25 千克	4.79 千克	5.75 千克		

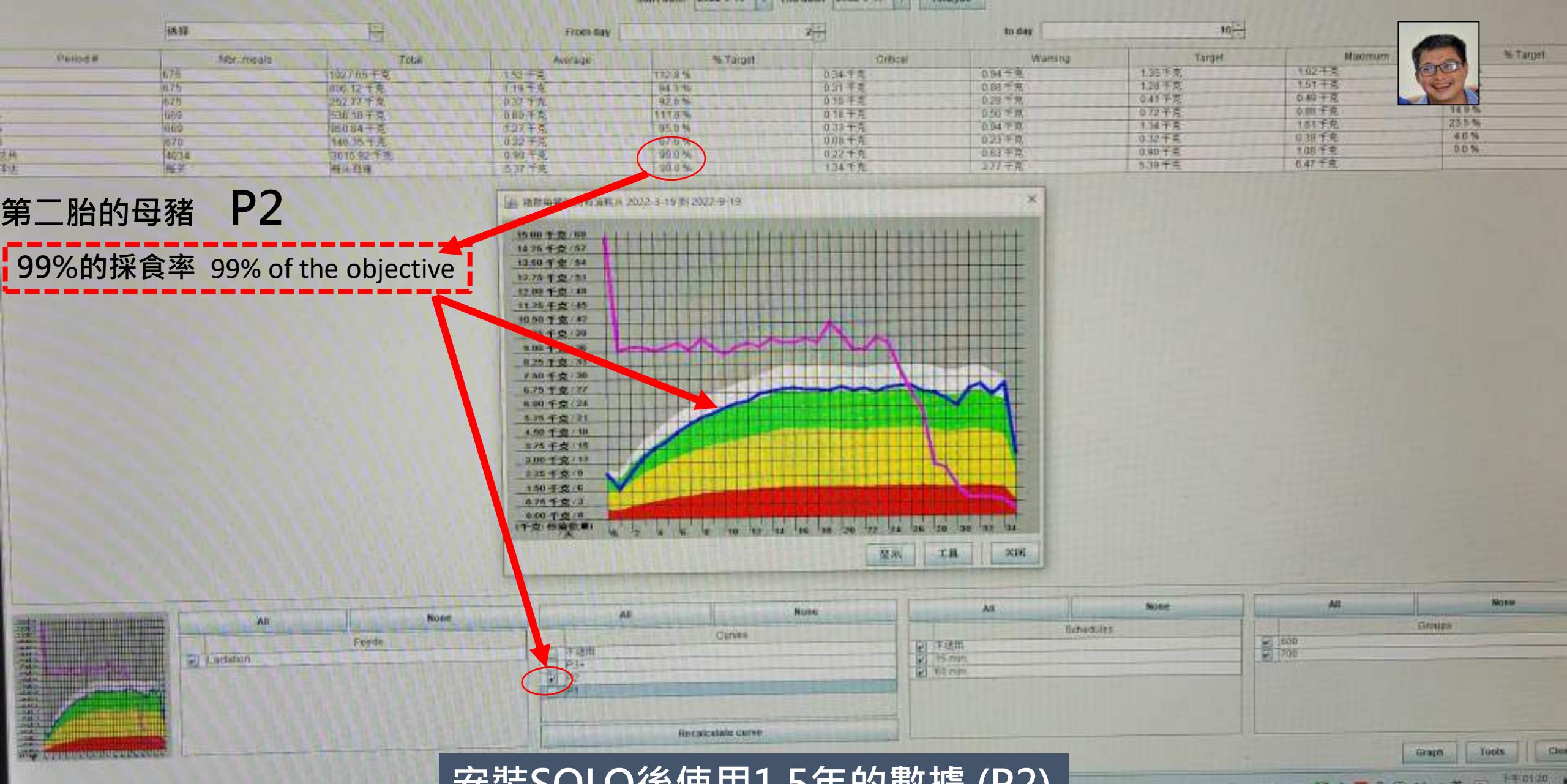
新女豬 P1

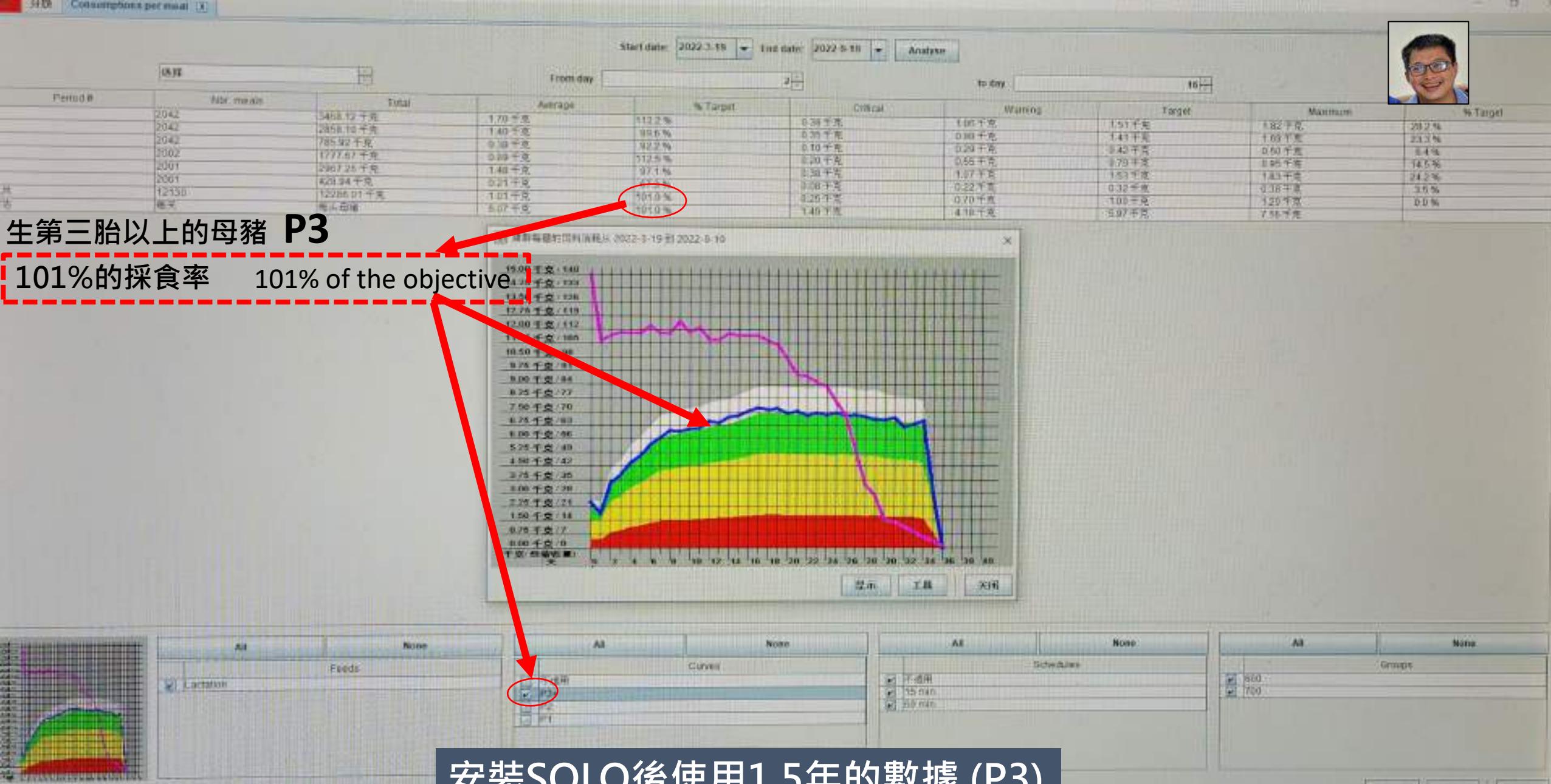
99%的採食率 99% of the objective



安裝SOLO後使用1.5年的數據 (P1)

1.5 YEARS AFTER INSTALLATION, P1







JIN HAI FARM

Mr LI

太少 : 母豬處於飢餓狀態
limited : sow is hungry



理想 : 母豬吃的量剛好
ideal : sow is satisfied



浪費 : 母豬在玩飼料
wasteful: sow is playing with feed



觀察飼料槽來管理餵飼狀態
FEED TROUGH MANAGEMENT

gestal



JIN HAI FARM

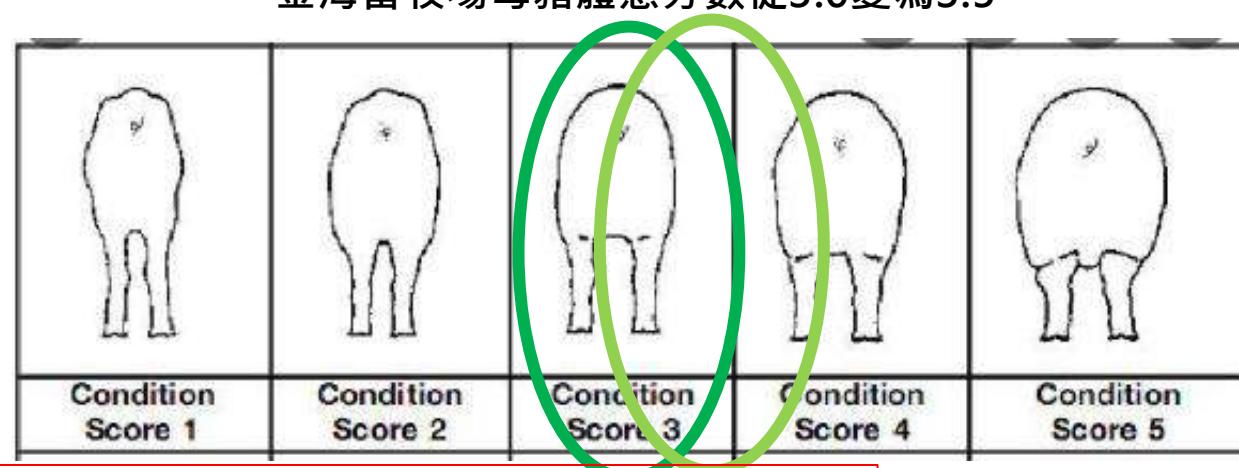
Mr LI



使用Gestal前
BEFORE GESTAL
仔豬平均重量為72公斤
72KG LITTER WEIGHT AVERAGE

使用Gestal之後
AFTER GESTAL
仔豬平均重量為78公斤
78KG LITTER WEIGHT AVERAGE

+ 6 KG



600頭母豬中有200頭使用Gestal系統
200 OF 600 SOWS ON GESTAL
每年增加500頭小豬
+ 500 PIGLETS PER YEAR

比較：使用Gestal的前後差異
STATISTICS «BEFORE vs AFTER GESTAL»



Q&A 時間 Questions?