



丹麦母猪繁殖效率的新目标—40 P/S/Y

DENMARK'S NEW GOAL FOR SOW PRODUCTIVITY 40 PIGS PER SOW
AND YEAR

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ASAS China

October 20th. 2016



SEGES

Videncenter for Svineproduktion

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- SEGES: 1985 to 2016
- **一般繁殖 General reproduction**
 - 人工授精 Artificial insemination
 - 产仔数 Litter size
 - 夭折 Abortion
 - 妊娠诊断 Pregnancy diagnosis
- **繁殖传染病 Infectious diseases in reproduction**
- **仔猪死亡率 Piglet mortality**
 - 产仔 Farrowing
 - 哺乳期 Lactation
 - 较高的断奶体重 High weaning weight



IT ALL STARTED IN CHINA 40 YEARS AGO

始于40年前的中国

The famous Meishan pig 著名的梅山猪

- Prolific: 16-18 piglets per litter 高产：每窝16-18头仔猪
- Good mothering ability 母性好
- Superior piglet survival 高活仔
- Can digest roughage 耐粗饲

- Fat piglets 仔猪肥
- Slow growing 长速慢
- Low but uniform birth weight 出生重低却均匀





丹麦母猪繁殖效率的新目标是每年每头母猪提供40头生猪

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DENMARK 丹麦



母猪年断奶仔猪数

WEANED PIGLETS PER SOW AND YEAR

- Litters per year x weaned pigs per litter 每年产仔窝数x每窝断奶仔猪数
- Litters per year 年产窝数
 - No weaning before 21 days (EU regulation and good science) 21天之前不断奶 (基于欧盟法规和科学的方法)
 - High farrowing rate => few empty days 分娩率高=>空怀期短
 - Danish average = 2,27 litters per sow and year 丹麦平均每头母猪每年2.27窝
- Weaned piglets per litter 窝断奶仔猪数
 - Many total born piglets 总产仔数增加
 - Few still born piglets 死胎少
 - Low piglet mortality 仔猪死亡率低
 - Danish average = 13,8 piglets weaned 丹麦平均窝断奶仔猪数13.8



WHERE IS DENMARK NOW?

丹麦目前的养猪生产在什么水平?

The average producer 一般的养猪生产者

- Produces 31,4 pigs per sow per year 平均每头母猪每年提供生猪31.4
- Farrow 15,9 live born piglets per litter 窝产活仔数15.9
- Weaning 13,8 piglets per litter 窝断奶仔猪数13.8
- Daily gain in weaners is 444 gram per day 断奶仔猪日增重444克/天
- 育肥猪日增重974克/天 Daily gain in finishers is 947 gram per day

The best 5 producers in Denmark 丹麦前5位养猪生产者

- Produces 36,9 pigs per sow per year 平均每头母猪每年提供生猪36.9头
- Farrow 17,2 live born piglets per litter 窝产活仔数17.2
- Weaning 15,7 piglets per litter 窝断奶仔猪数15.7
- Daily gain in weaners is 496 gram per day 断奶仔猪日增重496克/天
- Daily gain in finishers is 1.077 kg per day 育肥猪日增重1.077千克/天

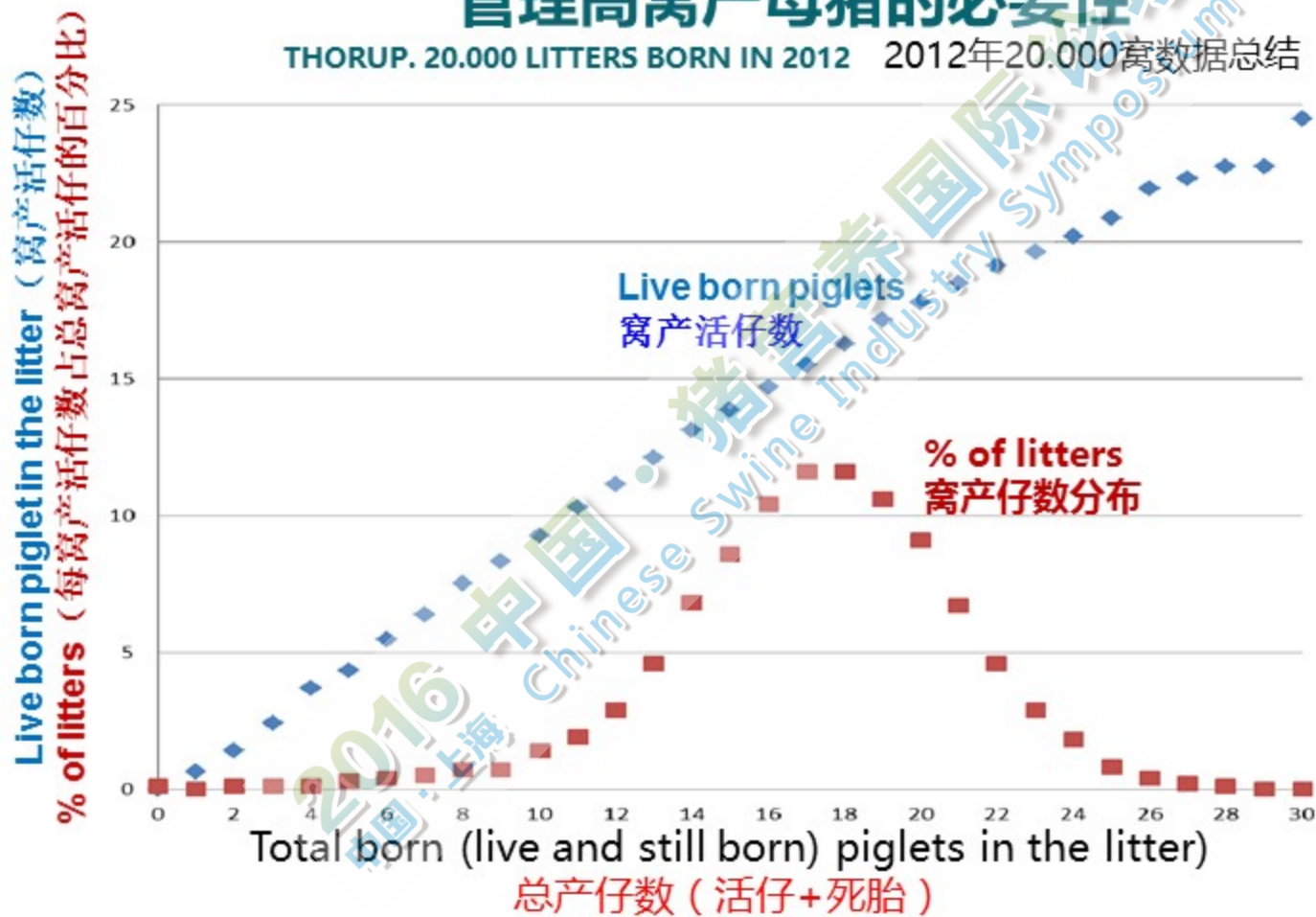


Every year Danish pig producers are weaning 0,7 piglets more per sow and year
丹麦养猪生产者每头母猪每年多提供0.7头断奶仔猪。

THE NEED TO HANDLE LARGE LITTERS

管理高窝产母猪的必要性

THORUP. 20.000 LITTERS BORN IN 2012 2012年20,000窝数据总结



COLOSTRUM = THE FIRST MILK

初乳=第一口奶

- Colostrum is available continuously during farrowing
初乳可以在分娩过程中持续产生
- Maternal antibodies = Immuno Globuline G
母源抗体=免疫球蛋白IgG
 - 25 ml colostrum per piglet is sufficient 每头仔猪25ml的初乳就足够了
- Energy能量
 - 200 ml colostrum/kg piglet/day is needed for survival
每头仔猪每公斤体重每天需要200ml初乳才能满足存活的需要



FEEDING IN LACTATION IS IMPORTANT

哺乳期采食饲料非常重要

- High litter size = high milk output 高窝产仔数=高产奶量
- Average litter growth is 3 kg/day 日均窝增重为3kg/天
- Slowly increasing feed allowance 逐渐增加饲料的供给
- Maximum 9 kg/day 最大量9kg/天
- Optimal feed quality 最佳的饲料供给量
- Focus on protein and Lysine 重点考虑蛋白和赖氨酸
- Remember water 注意水的供给



SPLIT NURSING FOR COLOSTRUM , 12 SMALL PIGLETS AT THE SOW FOR 1 HOUR ; LARGE PIGLETS IN ENCLOSURE

为了额外供给初乳，将大的仔猪隔开，给12头小仔猪单独与母猪放在一起1个小时





2016 中国
中国：上海 Chinese Swine Industry Symposium



SOWS WITH 15 TEATS NURSING 11, 13 OR 15 PIGLETS

拥有15个乳头的母猪哺喂11、13或15头仔猪

	11 piglets 11头仔猪	13 piglets 13头仔猪	15 piglets 15头仔猪
Runt piglets taken away, % 淘汰的僵猪, %	8	10	12
Mortality, % 死亡率, %	5	6	10
Weaned from own sow, no. 分娩母猪断奶仔猪数量, 头	9.6	10.9	11.7
Weaned, % 断奶率, %	87	84	78
Weight at weaning, kg 断奶重, kg	7.9	7.5	7.2

LACTATION 哺乳期

- The sow nurses every 40 minutes
母猪每40分钟一次泌乳反射
- Each nursing last for 5-10 seconds
每次泌乳反射持续5-10秒
- All piglets must be present at nursing
泌乳反射期间所有仔猪必须在场
- How to handle the many piglets born?
如何处理高窝产时的情况？



ADJUSTING LITTER SIZE 调整窝带仔数

- When farrowing is over 在分娩结束时
- When the piglets has had enough colostrum 在仔猪摄入足够初乳时
 - 12 hours after birth 出生后12小时
- Before the piglets starve to death 在饥饿致死之前
 - Before 24 hours after birth 出生后24小时之前
- Before nursing rank has been established 在哺乳序列建立之前
 - Before 48 hours after farrowing 分娩后48小时之前
- Before unused teats dry out 在未用乳头断乳之前
 - Before 48 hours 48小时之前
- Right number of piglets at the sow 确保母猪所哺仔猪数量合适
 - The number of functional glands 有效乳腺的数量
 - Maximum 14-16 最多14-16个
- Right piglets at each sow 每头母猪所分配的仔猪数量合适
 - Small piglets at young sows 年轻母猪照顾弱小仔猪
 - Smallest at 2nd parity sows (Immunoglobulins, milk production) 二胎母猪照顾最弱小仔猪 (免疫球蛋白, 产奶量)
 - Large piglets at old sows 老龄母猪照顾强壮仔猪

NURSE FOR SMALL PIGLETS

弱仔猪的管理

IGG 免疫球蛋白G

12 hours after farrowing 分娩后12小时

The largest piglets are taken to other sows

最强壮的仔猪分配给其他母猪

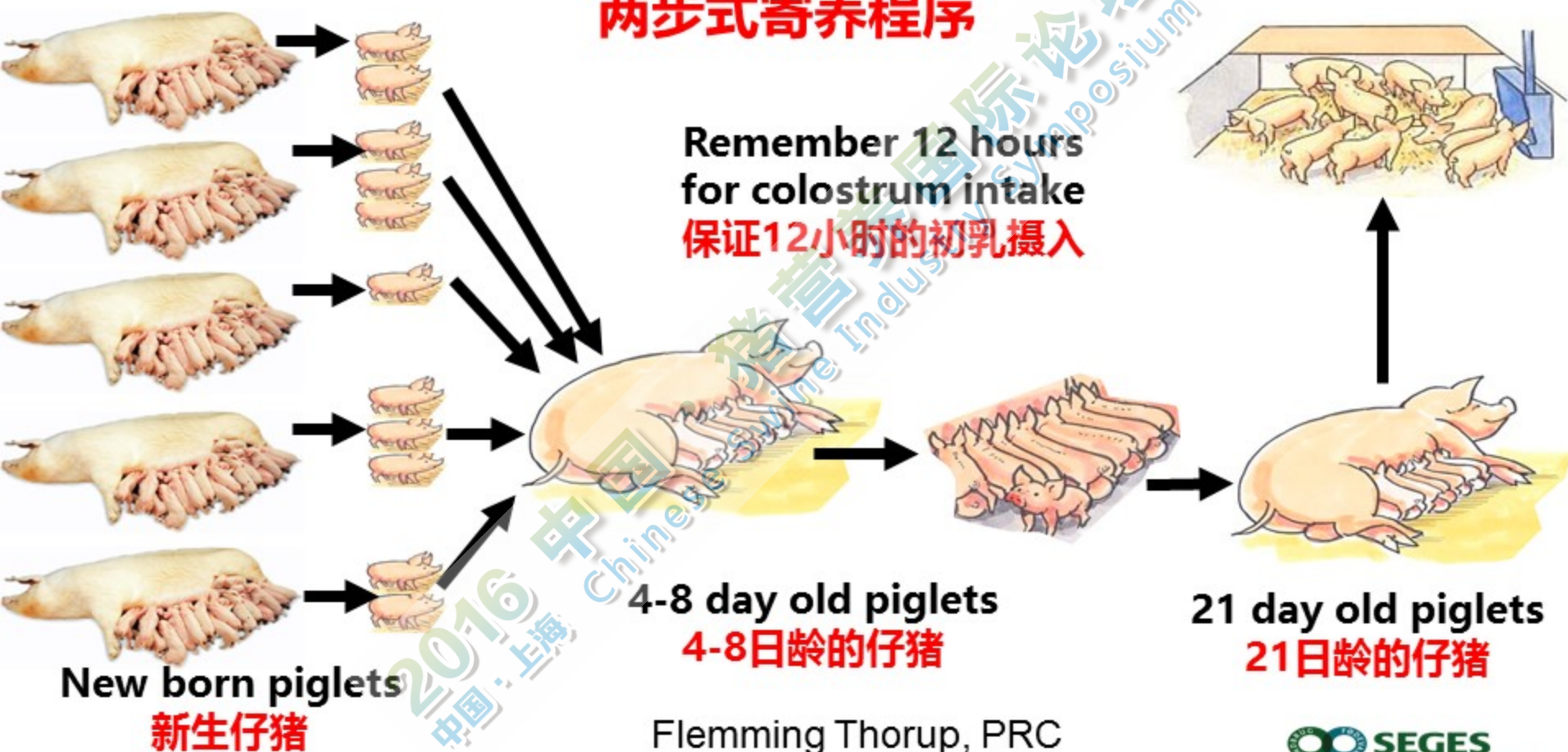
Sows with some small newborn piglets in the litter

母猪每窝都有些体重小的新生仔猪



TWO STEP FOSTERING PROCESS

两步式寄养程序



Flemming Thorup, PRC



2016 中国·上海

中国
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Swine Industry Symposium

猪营养国际论坛

EXTRA MILK SUPPLY 人工乳的使用

LISBETH BROGAARD PETERSEN 2013



2016 中国·上海 Chinese Swine Industry Symposium

SPLIT MILKING FOR SOWS MILK 母猪分开哺乳 AN ALTERNATIVE TO NURSE SOWS 寄养母猪的饲喂

- 6 sows did each manage 24 piglets 6头母猪一次各照顾24头仔猪
- The first 3 days 12 piglets were exchanged every 6 hours 前3天，每隔6小时，12头仔猪交换一次
- Then 18 days with exchange every 12 hours 然后的18天，每12小时交换一次
- Extra milk supplement 额外的奶水供给
- Extra dry feed 额外的干饲料



RESULTS 结果

- The sows did accept the two teams of piglets 😊 母猪接受两组不同的仔猪
- The piglets did keep the same rank when returned to the sow 😊 当再次换回到同一母猪时，仔猪能够保持相同的哺乳序列
- Exchange of litters did not affect the interval between nursings 😊 (Based on video from day 6 onwards) 各窝仔猪的交换哺乳不影响泌乳反射间隔（基于从6日龄起的视频得出此结论）
- Survival was acceptable. 92% 存活率是可以接受的：92% 😊
- Growth was unacceptable. 4,7 kg by day 21 😞 😞 生长不太理想 4.7kg/21日龄



CONCLUSIONS 结论

- Denmark will do 40 pigs/sow/year
丹麦母猪每头每年提供40头生猪
 - 2017 in the best herd 2017年最好的母猪群 可达到此水平
 - In 10 years in average herds 10年内母猪群的平均数
- Conventional breeding increases litter size
常规育种提高了窝产仔数
- Piglets in large litters will survive 窝产高的仔猪能够存活
- Large litters = good management 高窝产=管理好
- High litter size and high finisher growth rate 高窝产和育肥期
高生长速度兼得

China Farmers University 中国农业大学 Beijing 2007 2007年北京



Thank you for your attention 谢谢!

Questions? 问题?

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