

第六届(2022)猪营养国际论坛

The 6th (2022) International Swine Industry Symposium

主办：美国动物科学学会 | 中国畜牧业协会

承办：上海亘泰实业集团有限公司 | 中国畜牧业协会生物产业分会 | 中畜传媒

协办：美国大豆出口协会 | 上海优久生物科技有限公司 | 上海征泰生物科技集团有限公司

后备母猪由出生到头胎分娩的饲养管理 Management and feeding of primiparous sows from birth to first farrowing

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现有了解-后备母猪发育

Current knowledge – Gilt development

- 选择后备母猪：出生重 $\geq 1\text{kg}$ Select gilts that are at least 1 kg at birth
- 断奶日龄 $\geq 25\text{d}$ Wean at 25 d of age or older
- 全期生长速度为 $600 \sim 800 \text{ g/d}$ Lifetime growth rate of 600 to 800 g/d
- 配种时体重 $135\text{-}150\text{kg}$ ，分娩时 $> 180\text{kg}$ Breed at 135-150 kg and farrowing $> 180 \text{ kg}$
 - $< 130\text{kg}$ ，影响终生生产力 $< 130 \text{ kg}$: impact on lifetime productivity
 - $> 150\text{kg}$ ，影响寿命和结构健康 $> 150 \text{ kg}$: impact on longevity and structural soundness
- 第二次发情时配种 Breed at second estrus
- 育种时具有正向代谢状态 Positive metabolic state at breeding
- 在第二次发情和达到目标体重之前催情补饲 Flush feed until second estrus and target body weight
- 只有在瘦削和没有达到目标体重时才要增加饲喂 Bump feed only if thin and below target body weight

现有了解-后备母猪发育

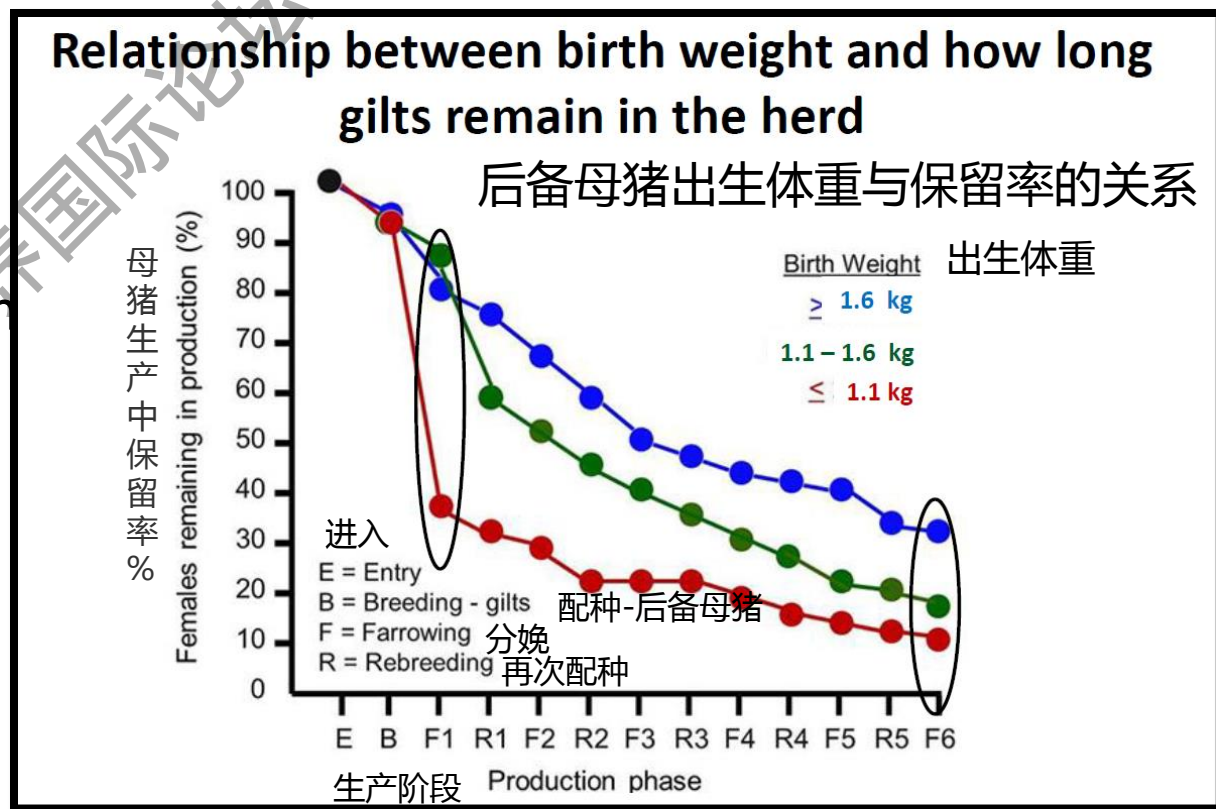
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 - $< 130\text{kg}$ ，影响终生生产力
 - $> 150\text{kg}$ ，影响寿命
- 第二次发情
- 育种时具有良好健康状态 at breeding
- 在第二次发情前饲喂 Flush feed until second estrus and target body weight
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为了进行挑选、管理和营养决策，
需要有充足的后备母猪
Gilt availability is required to allow selection,
management, and nutrition decisions.

后备母猪：从出生到断奶 Gilts from Birth to Weaning

- 高出生重的、吃到初乳的仔猪是良好的后备母猪 Big pigs at birth that get colostrum are good gilts.
- 分开哺乳，交互寄养 Split suckle and cross foster
 - 减少哺乳幼仔数 Reduce size of lactation litter
- 最低出生体重 Minimum birth weight
- 断奶时保留大的后备母猪 Keep big gilts at weaning
 - 从整体来看，出生时 < 1kg 的后备母猪在前3胎中比体重更重的母猪少生4.5头仔猪
If they make the herd, gilts that are less than 1 kg at birth have 4.5 fewer pigs over first 3 parities than heavier gilts (Magnabosco et al., 2016)



后备母猪个体出生体重对自出生至170日龄的“预选”及首次服役时的保留率的影响

Effect of individual gilt birth weight on retention rate from birth to “Pre-selection” at 170 d and to first service.服役率

后备母猪个体出生体重	Category低	(n)	D4	D24	D70	D170	Served (%)
Individual pig birth weight	Low 中低	1668	88.9a	72.7a	61.3a	51.6a	32.5a
	Med-L 中高	1854	94.7b	82.7b	74.2b	64.1b	44.1b
	Med-H 高	1983	96.4bc	86.2c	79.6c	71.0c	49.9c
	High	2063	97.1c	89.7d	84.3d	75.7d	53.8c

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服役率

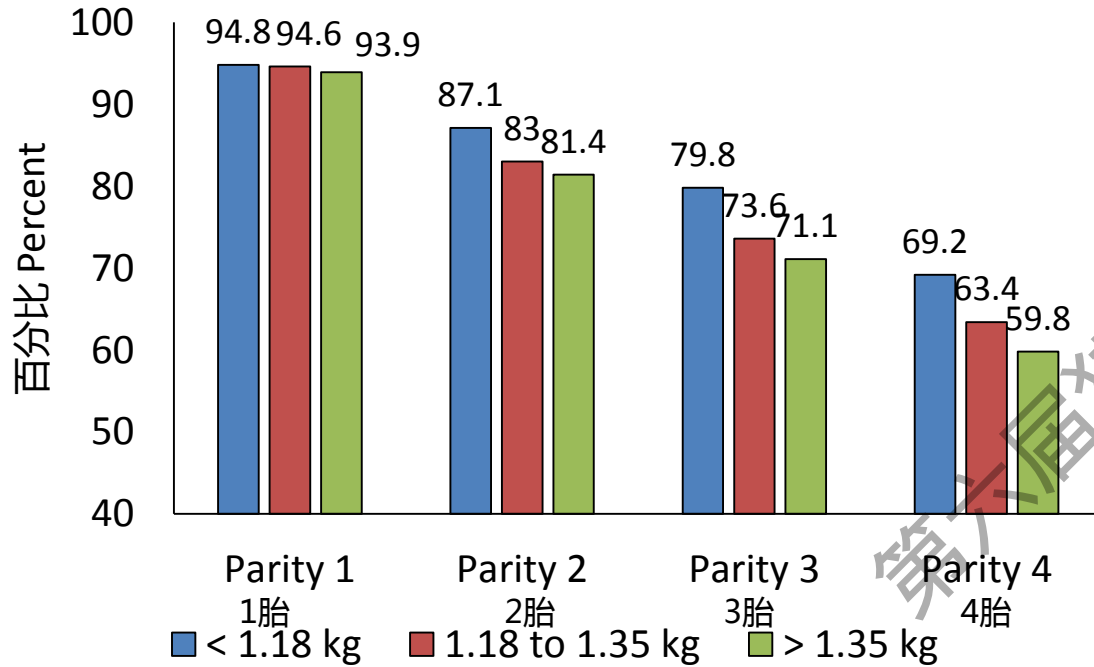
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	High 高	2063	97.1c	89.7d	84.3d	75.7d	53.8c

- 仔猪平均出生重低的母猪是一种可重复表型。因此，它们每窝生产的进入群体的后备母猪数量少，应该从繁育中移除出去 Sows with litters with low average pig birth weights is a repeatable phenotype. Thus, they produce few gilts per litter that enter the herd and should be removed from multiplication

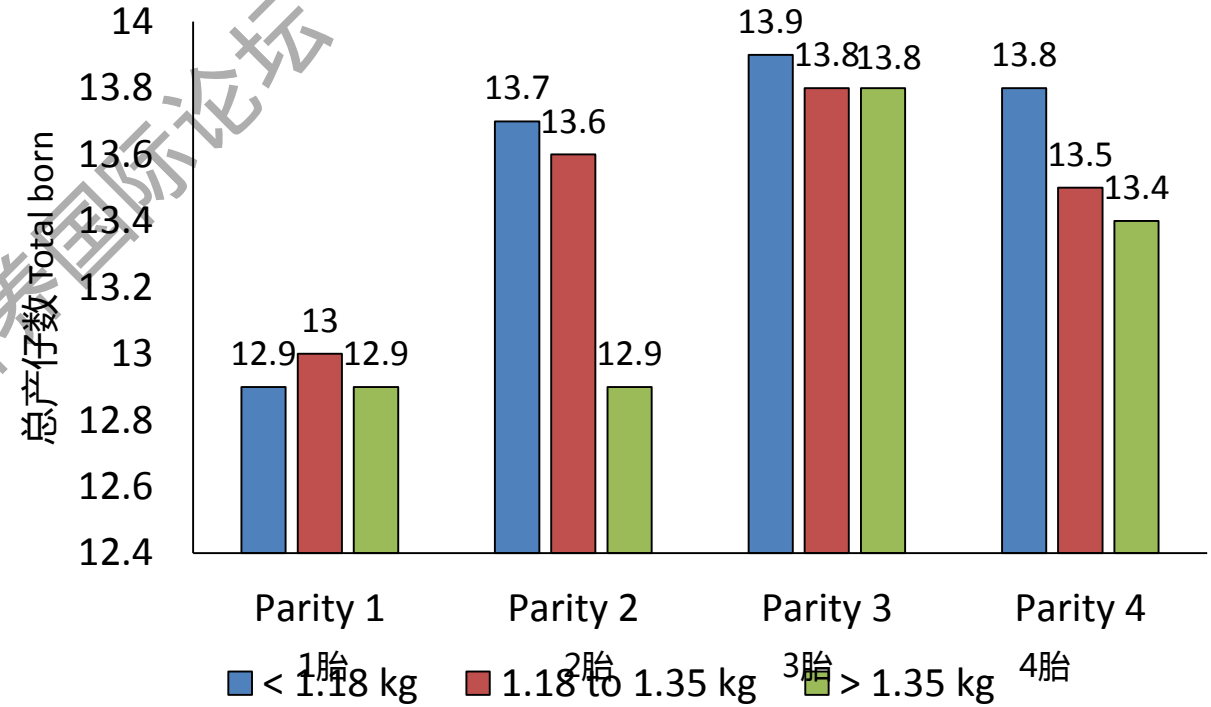
高出生体重猪如何？What about high birth weight pigs?

后备母猪服役后保留率

Retention of gilts after service



每窝仔猪数 Pigs per litter



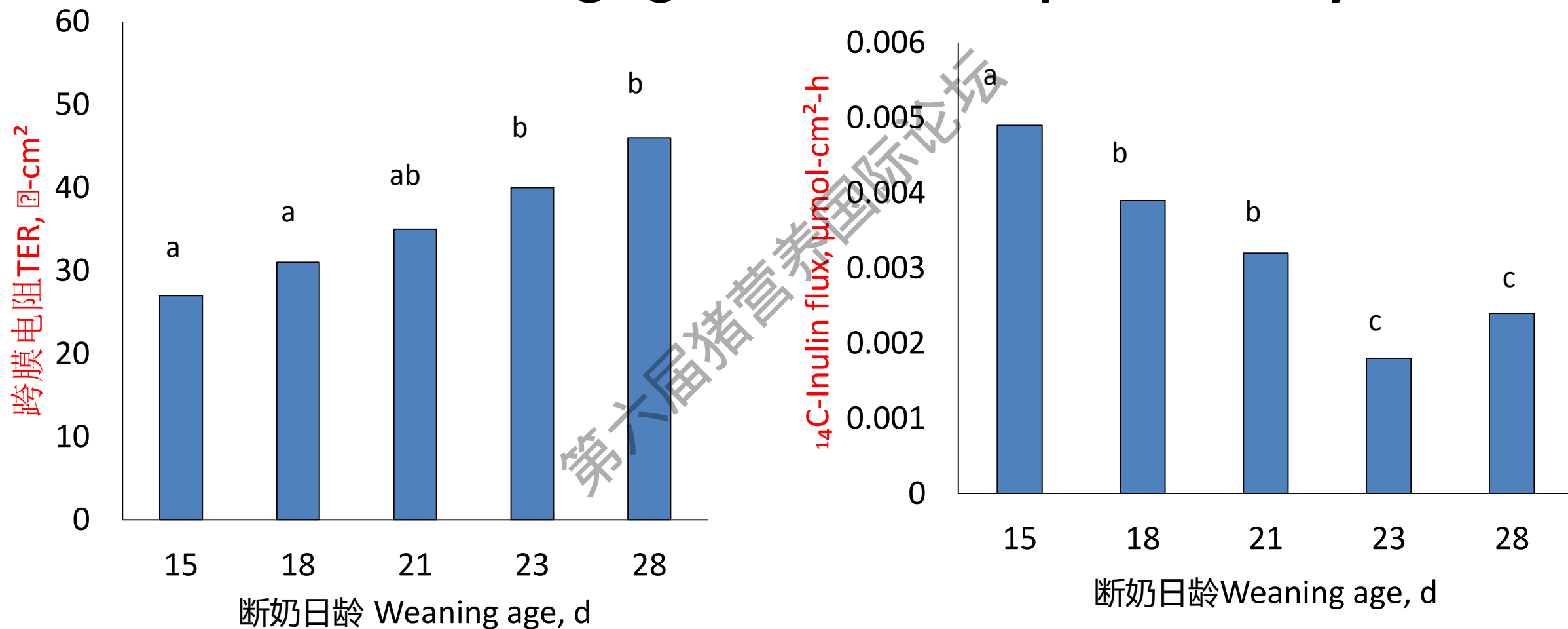
需要管理高出生重后备母猪的体重，以防止在第一次配种时超重。

Body weight of heavy birth weight gilts needs to be managed to prevent them from becoming too heavy at first mating.



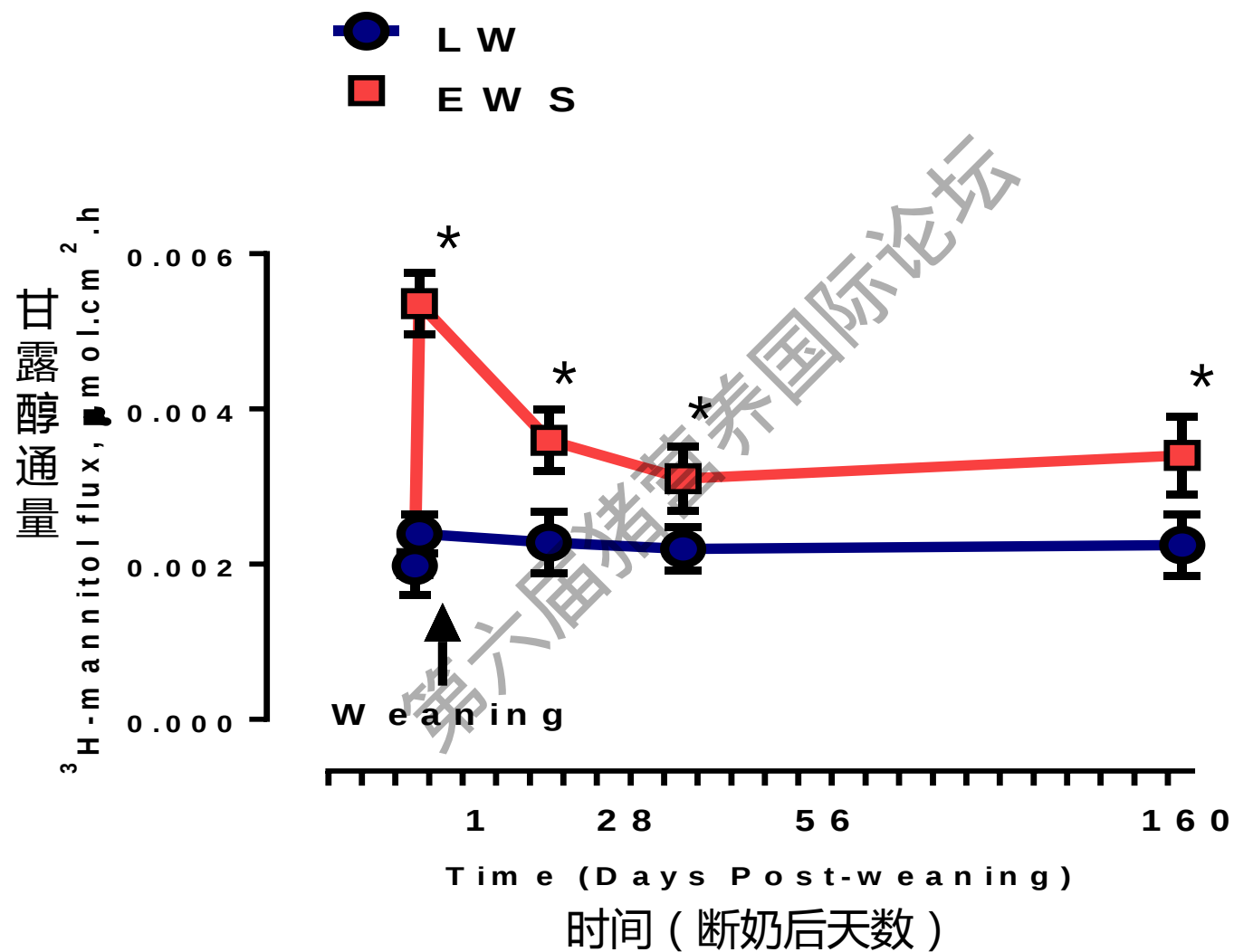
断奶日龄对肠道通透性的影响

Effect of weaning age on intestinal permeability



早期断奶应激对肠道通透性的长期影响

Long-Term Effects of Early Weaning Stress on Intestinal Permeability



断奶日龄对断奶至育肥期死亡率的影响

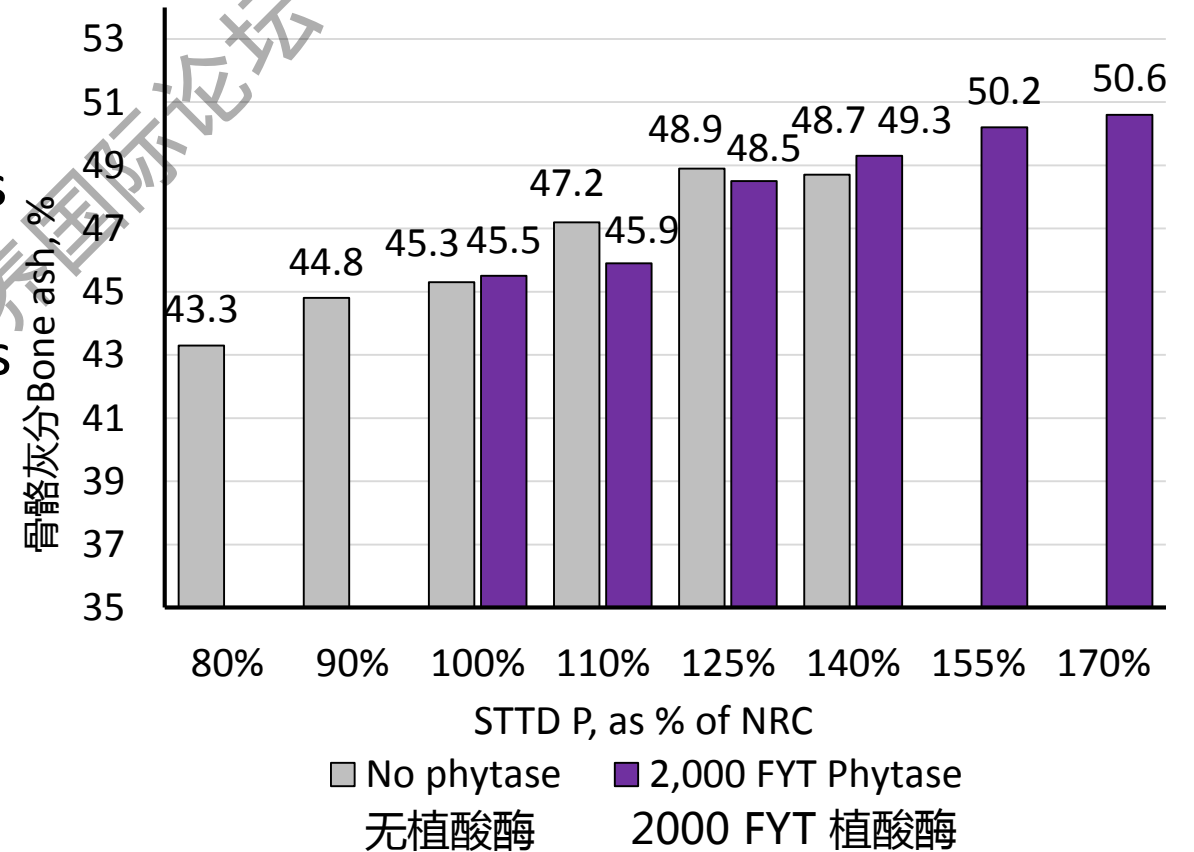
Influence of weaning age on wean-to-finish mortality

死亡率随日龄的增加而减少 Reduction in mortality for each day of age increase

- | | 斜率Slope, % |
|---|------------|
| • Main et al., 2005 | |
| – 断奶日龄为12-21d 12 to 21 d weaning ages | - 0.62 |
| – 断奶日龄为15.5-21.5d 15.5 to 21.5 d weaning ages | - 0.23 |
| – 总 Combined | - 0.47 |
| • Faccin et al. (2020) | |
| – 断奶日龄为18.5-24.5d 18.5 to 24.5 d weaning ages | - 0.21 |
| • Rosero – 断奶日龄为18-24d的数据 Database on 18 to 24 d weaning ages | |
| – 全部猪只 All pigs | - 0.56 |
| – 健康度差的猪只 Poor health | - 0.67 |
| – 健康猪只 Good health | - 0.36 |

保育阶段 Nursery phase

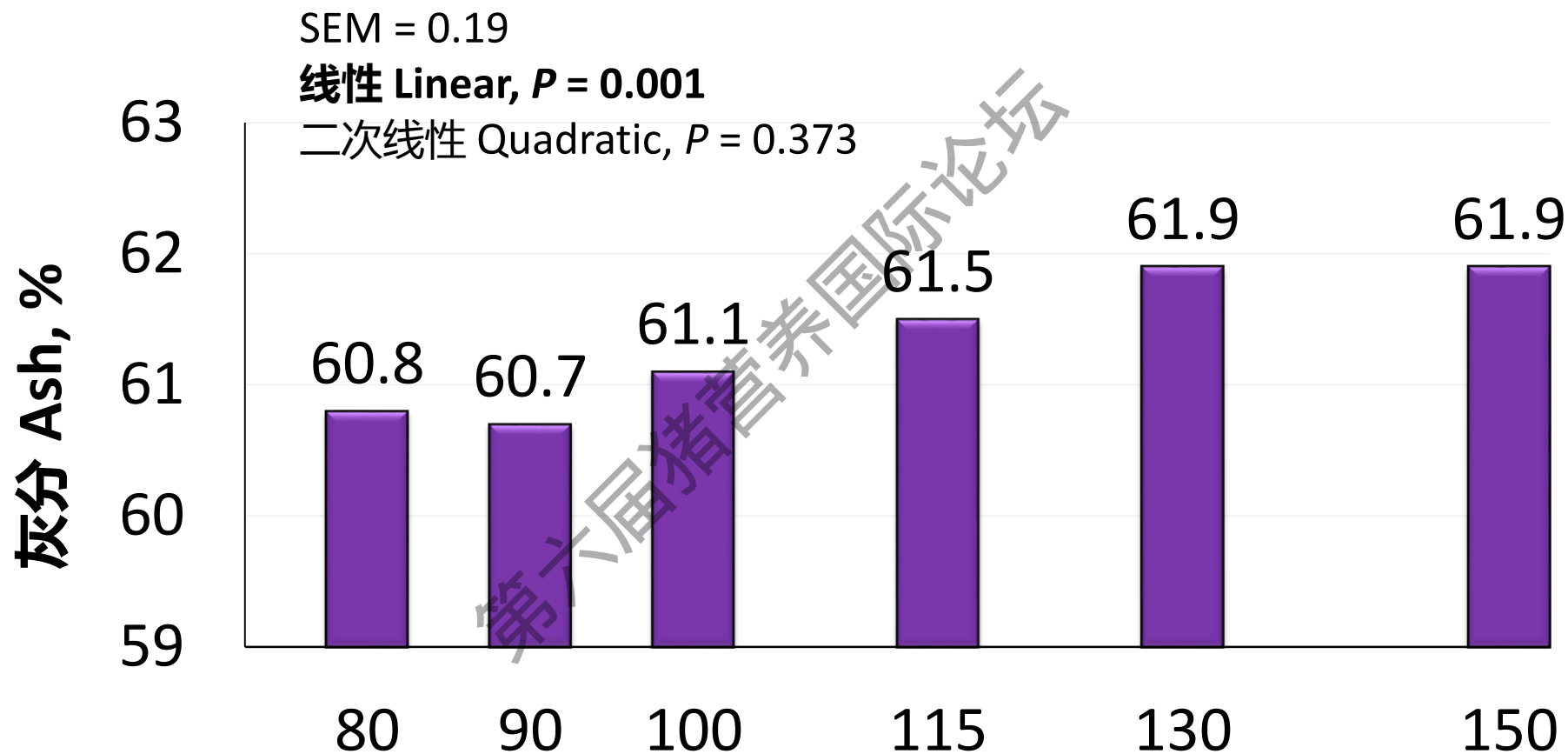
- 保持较高的健康状况和生长率 Maintain high health status and growth rate
- 保持与其他猪只的替换分离 Keep replacements separate from other pigs
- 饲喂标准的保育日粮 Feed typical nursery diets
 - 生长和骨骼发育所需的可消化磷 Digestible phosphorus for growth and bone development



生长阶段 Developer phase

- 保持后备母猪的健康，考虑粗磨谷物，无溃疡，无断料事件 Keep gilts healthy, consider coarse ground grain, no ulcers, no feed outage events
- 如果把后备母猪暴露在病原体中，确保此时应激最小 If exposing gilts to pathogens – do with least amount of stress.
 - 如果需要的话，考虑一下恢复的时间和治疗方法 Think about timing and treatment if needed to help recover.
- 生长速度的需要取决于生产系统 Growth rate needs depend on production system
 - 高健康，是中等生长速度的需要 High health – may need to moderate growth rate
 - 不要大量限制采食量，否则会限制乳腺发育 Do not limit consumption to a great extent or will limit mammary development
 - 在这个阶段，限制氨基酸的摄入对乳腺发育的影响不会像限制能量的影响大 Limiting amino acids does not impair mammary development in this phase as much as limiting energy.
 - 高疾病率可能需要提高生长率 High disease – may need to increase growth rate
- 与育肥猪相比，更高的钙磷水平;更多的繁殖用维生素(叶酸、生物素、吡哆醇);考虑使用螯合Cu、Mn和Zn Increased calcium and phosphorus compared to finishing pigs; vitamins for reproduction (folic acid, biotin, pyridoxine); consider chelated Cu, Mn, and Zn

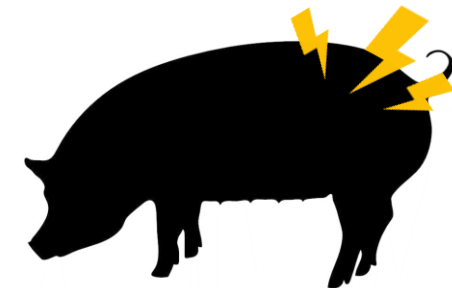
STTD磷对24 ~ 130 kg猪骨矿化的影响 Influence of STTD P on bone mineralization 24- to -130-kg pigs



NRC (2012) 各阶段的STTD P需要量的百分比

STTD P, % of NRC (2012) within phases

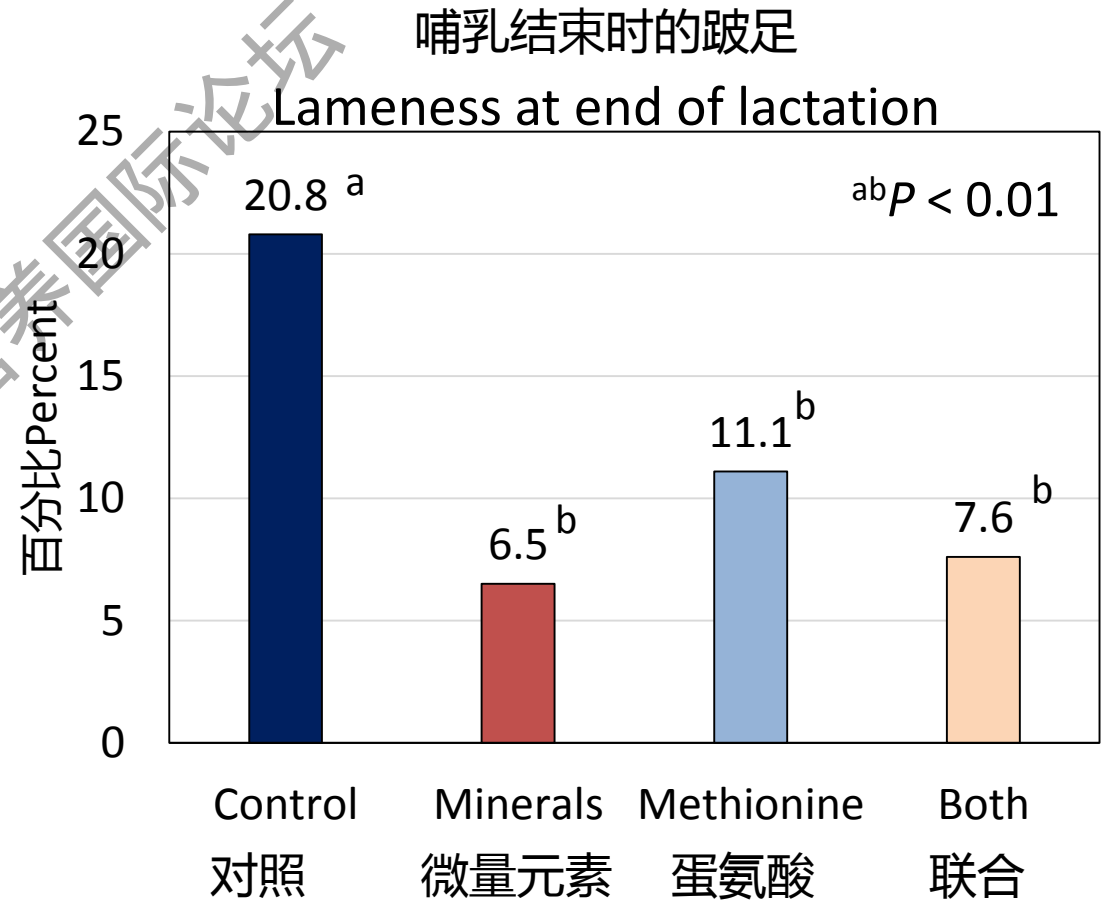
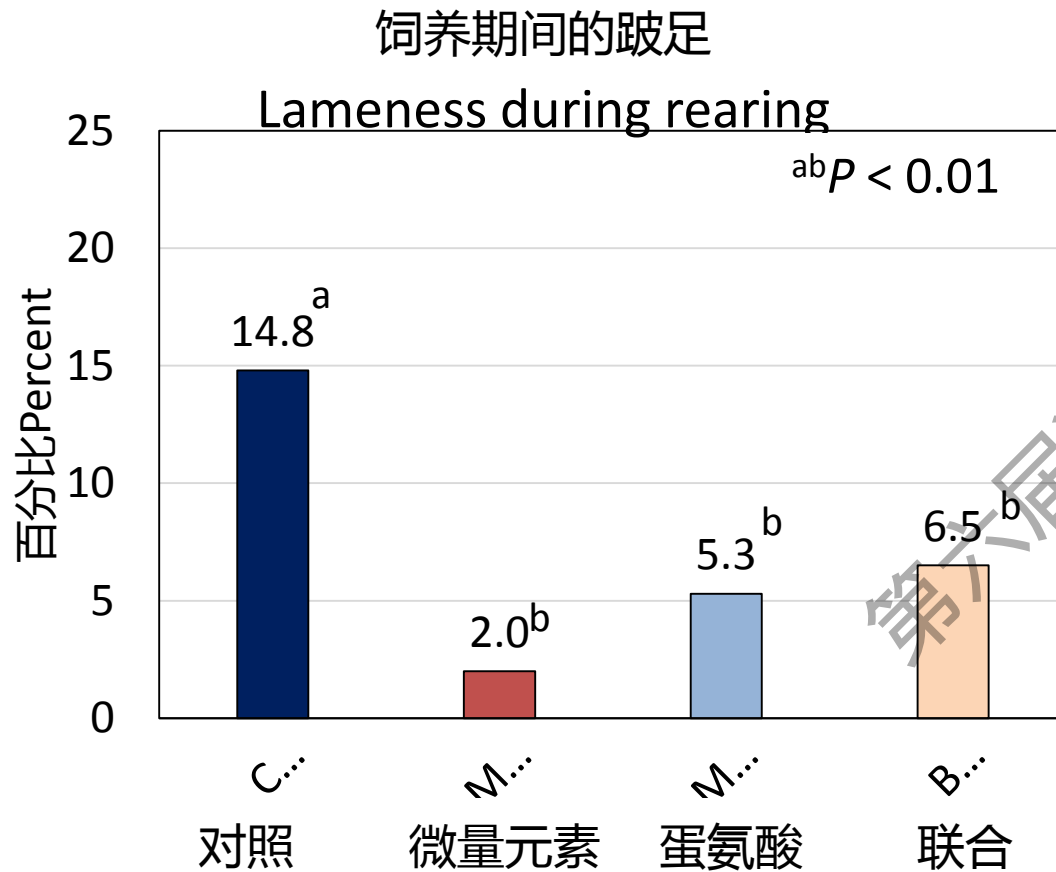
骨软骨病 Osteochondrosis



- 采食量对骨软骨病影响 Feed intake on osteochondrosis (de Koning et al., 2013)
 - 骨软骨病的敏感期是7 - 13周龄 Sensitive period for osteochondrosis is between 7 to 13 weeks of age
 - 与限饲相比，10周龄后自由采食可增加母猪的骨软骨病患率(平均日增重每提高100 g可增加20%的风险)
Ad libitum feeding after 10 weeks of age increased osteochondrosis prevalence in gilts compared to restricted feeding (100 g increase in ADG increased risk by 20%)
- 日粮配方对骨软骨病影响 Diet formulation on osteochondrosis (Fabà et al., 2019)
 - 生长速度的提高会增加患骨软骨病的风险 Increase in growth rate increases the risk of osteochondrosis
 - 骨软骨病评分随生长速度增加，直到110kg，但只能解释10%的骨软骨病变异 Osteochondrosis score increased with growth rate up to 110 kg, but it only explained 10% of the variation in osteochondrosis
 - 无论生长速度如何，添加有机微量元素和蛋氨酸都能降低后备母猪的骨软骨病评分
Supplementation of organic trace minerals and methionine reduced osteochondrosis score in gilts regardless of growth rate

螯合微量矿物质(铜、锰、锌)和蛋氨酸对跛足的影响

Influence of chelated trace minerals (Cu, Mn, and Zn) and methionine on lameness



发情检测和配种时的目标体重

Target weight for heat detection and mating

- 后备母猪应该在135-160kg之间配种，以获得最佳的终生性能

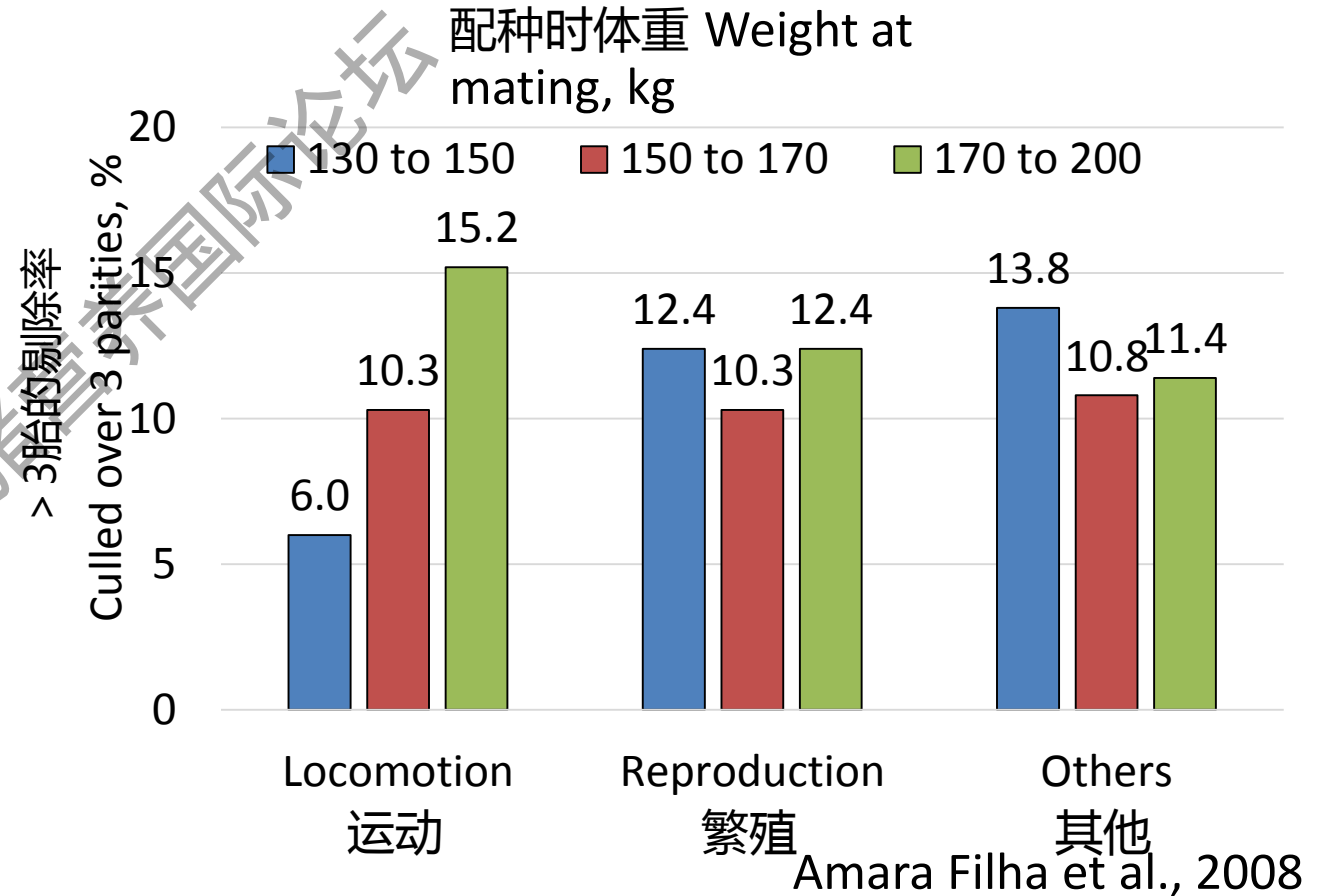
Gilts should be bred between 135 and 160 kg for optimal lifetime performance (Bortolozzo et al., 2009).

- 因此，后备母猪第一次发情的体重应小于140kg，第二次发情体重小于160Kg

Thus, gilts need to be a maximum of 140 kg of body weight at puberty have second estrus at less than 160 kg.

- 授精时过重的母猪可能会导致运动和结构问题，从而导致母猪在早期胎次时被淘汰

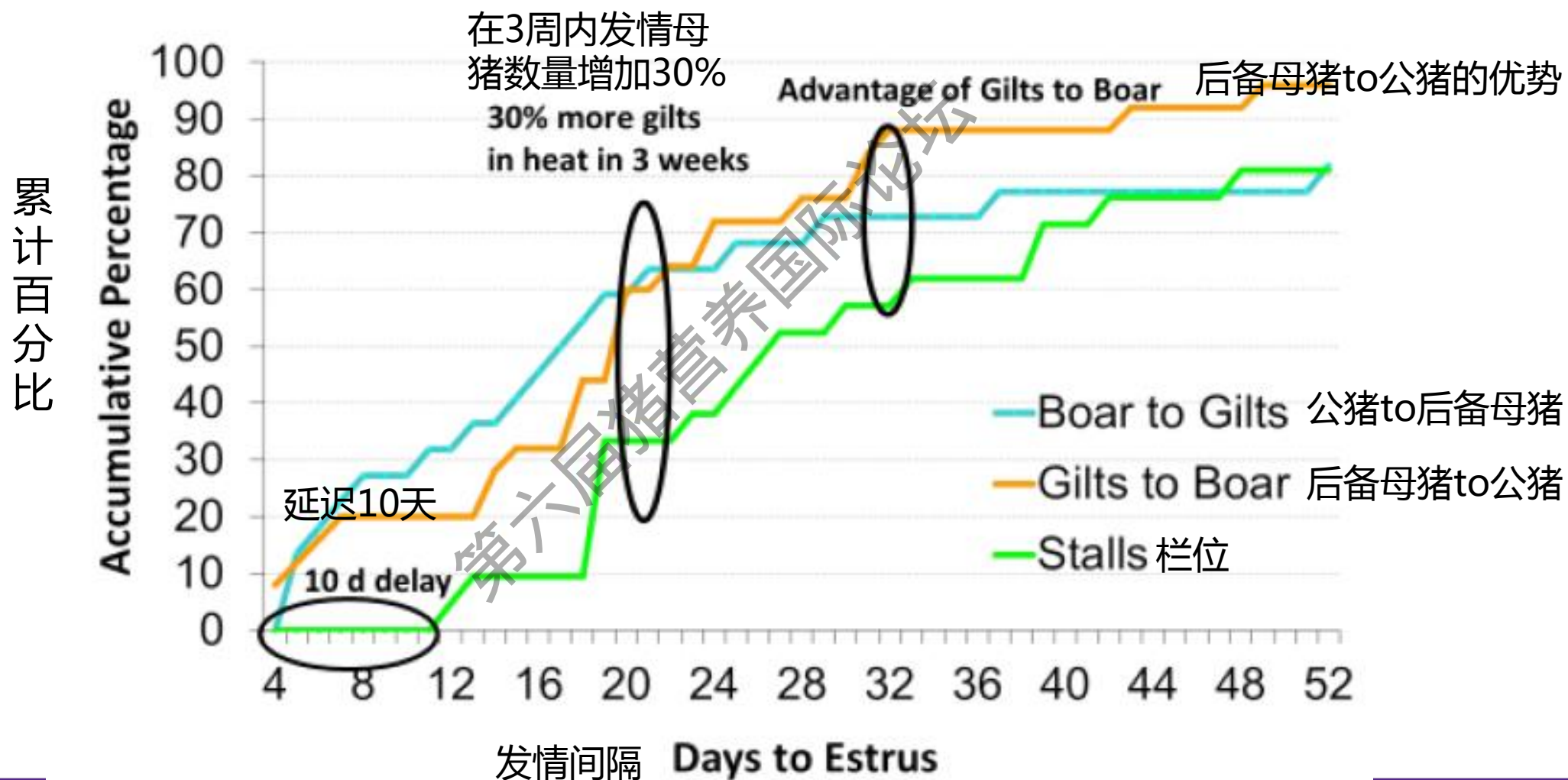
Inseminating overweight gilts can lead to locomotion and structural problems that result in sow removal at early parities.



公猪诱情 Boar exposure

- 选用F1代公猪(F1代公猪具有杂交优势。杂种优势=性欲) Use F1 boars (F1 boars have heterosis. Heterosis = libido)
- 在22 - 24周龄开始公猪诱情 Start boar exposure at 22 to 24 weeks of age
- 提供1.1平方米(12平方英尺) Provide 1.1 sq M (12 sq ft)
- 公猪诱情得越多越好。发育成熟的公猪更好 More boar exposure is better. Mature boars are better.
 - 11-24月龄 11 to 24 months of age;
 - 公猪越多越好 More boars is better
- 在良好的公猪诱情条件下，大多数后备母猪应在220 ~ 225日龄的第2发情期配种 With good boar exposure, should breed majority of gilts in 2nd estrus by 220 to 225 d of age.
 - 未达到目标体重(135kg)的后备母猪推迟到第三次发情 Delay to 3rd estrus for gilts that have not met target weight (135 kg).

Direct vs Fenceline Contact 直接vs围栏接触



在第二次或第三次发情后配种 Breed on second or later estrus

- 记录发情周期Record estrous cycles
- 这个农场每周使用一个彩色的耳标来显示母猪进入发情期的次数This farm uses a colored ear tag each week to indicate how many times a gilt has come into estrus



从圈养到妊娠栏的转移Transitioning gilts from pens to stalls

- 理想情况下，找到24-27周龄发情母猪-转移并进入Ideally, find in heat 24 to 27 weeks of age – skip and enter.
- 体型-如果母猪小，继续提高采食量Size – if gilts are small, continue high intake
 - 如果是大的后备母猪，进入栏内并减少采食量(例如每天6.5 Mcal净能) If gilts are big, get in stall and reduce intake (ex. 6.5 Mcal NE/day)
- 在28周龄时全部转入(配种前需要进行栏舍适应) Enter all by 28 weeks of age (need crate acclimation prior to mating)
- 在后备母猪进栏后，要保持充足的公猪诱情。慢下来 Maintain good boar exposure after crating gilts. SLOW DOWN!
 - 需要强烈的公猪诱情才能找到发情的后备母猪Need heavy boar exposure to find gilts in heat
 - 公猪在每头后备母猪前方的时间≥10秒 Minimum of 10 seconds of boar in front of each gilt
- 发情检查后额外增加公猪诱情，看看母猪是否会产生静立反应 Additional boar exposure post heat check to see if gilts will stand with longer boar exposure.
- 转移3周后，如果还未发情，在圈内混群促进发情3 weeks post entry, no heat, mix in pens to try to get them to cycle

催情补饲 Flush feeding

第1-2次或第2-3发情期间的催情补饲，增加配种时的体重和背膘

Flush feeding between 1st to 2nd or 2nd to 3rd estrus, increases weight and backfat at breeding

从发情到配种，催情补饲的效果

Effects of flush feeding from puberty to breeding

170-215日龄 ~ 170 d to 215 d of age

n = 102

Main effects

P < 0.001

SEM: 1.3

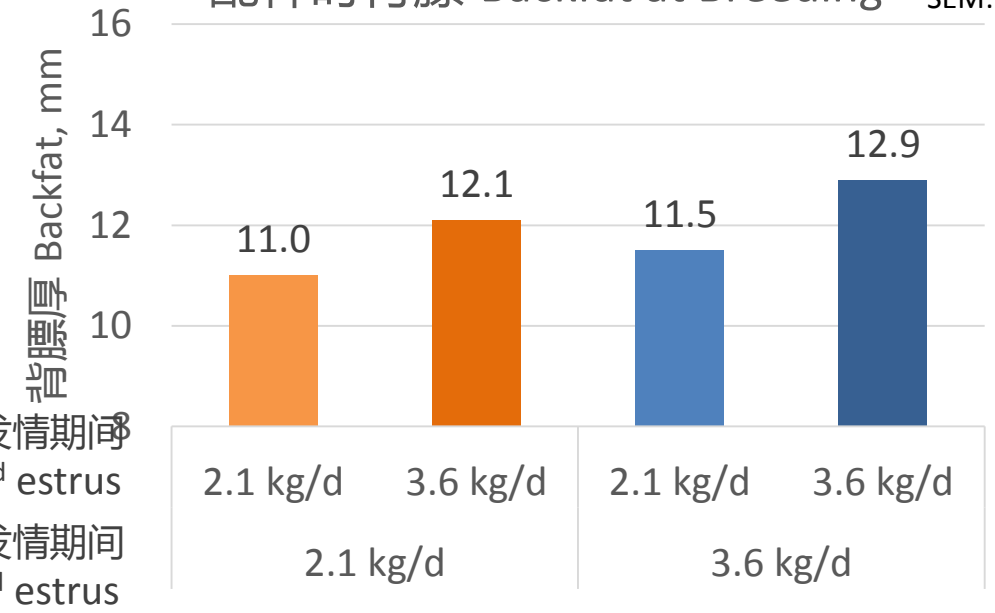
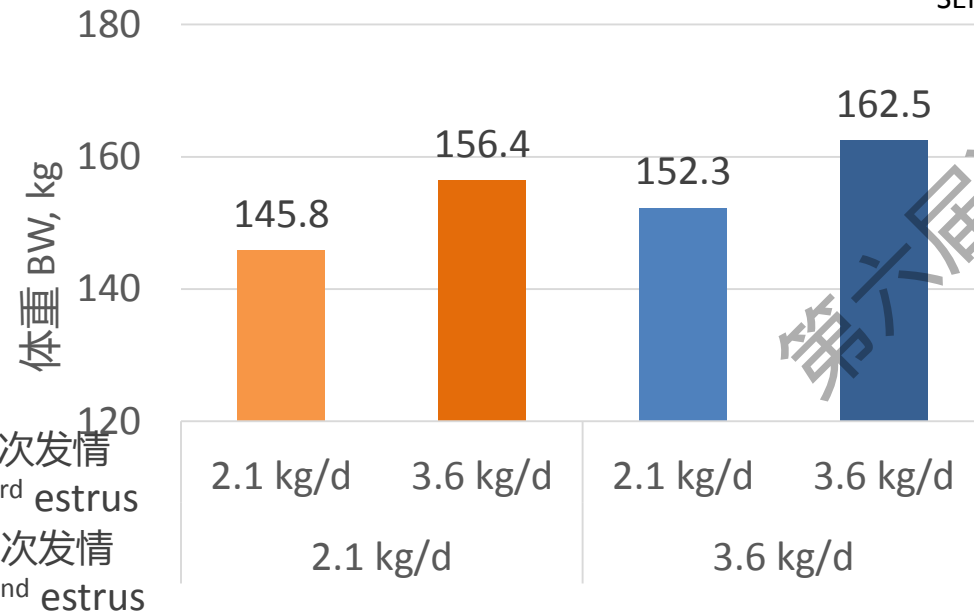
配种时体重 Weight at Breeding

配种时背膘 Backfat at Breeding

Main effects

P < 0.05

SEM: 0.3



催情补饲 Flush feeding

第1-2次或第2-3次发情期间的催情补饲提高排卵率，但只有在第1-2次发情期间补饲可以改善活胚胎数

Flush feeding between 1st to 2nd or 2nd to 3rd estrus increases ovulation rate, but only improves viable embryos between 1st to 2nd estrus

从发情到配种，催情补饲的影响

Effects of flush feeding from puberty to breeding

170-215 日龄 ~ 170 d to 215 d of age

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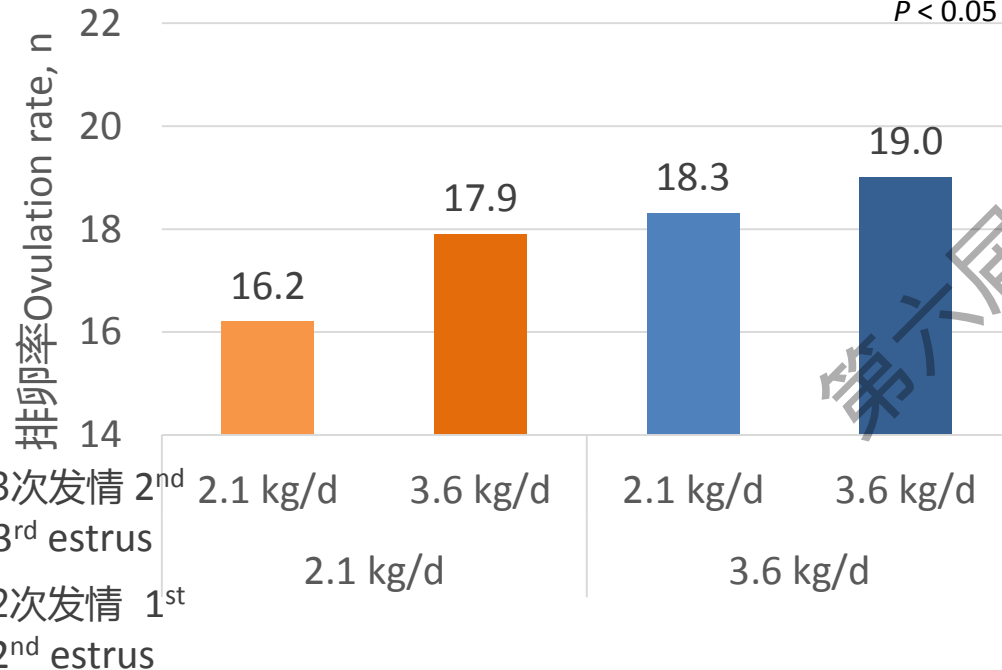
Main effect

1st to 2nd estrus

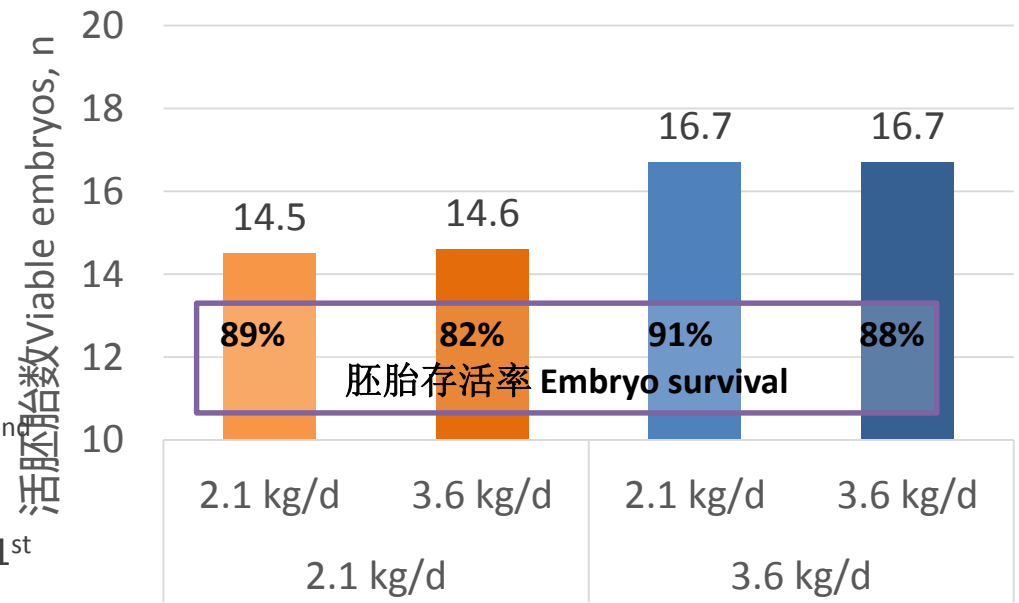
P < 0.05

排卵率 Ovulation Rate

Main effects
P < 0.05

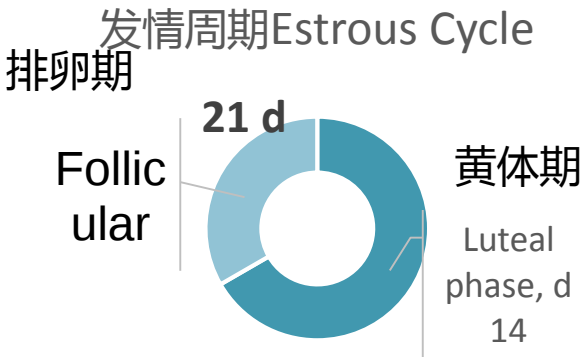


第30d活胚胎数 Viable Embryos on d 30

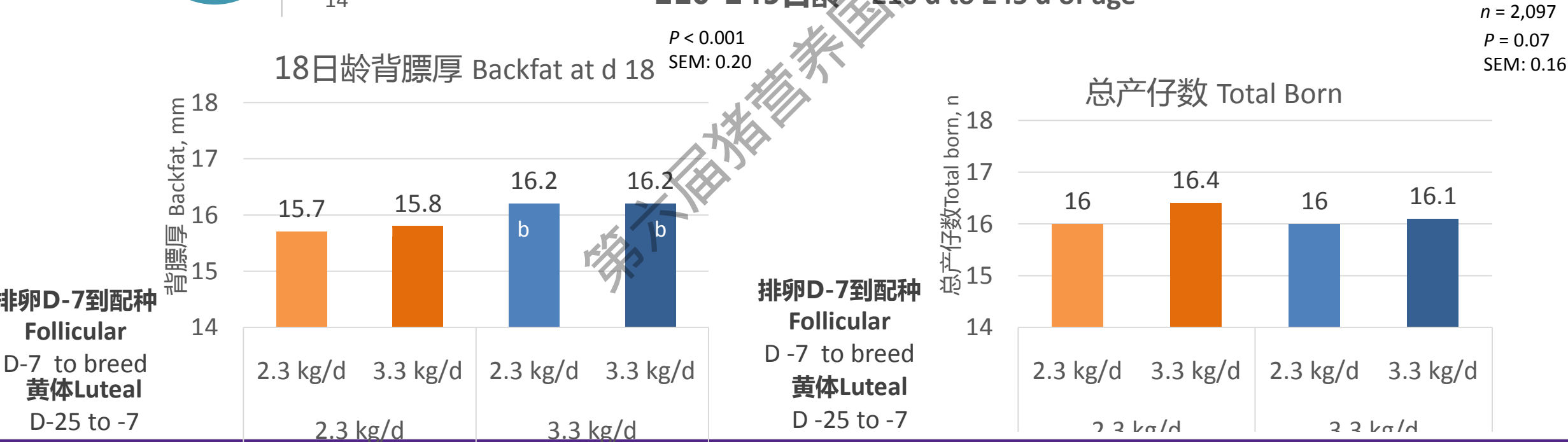


催情补饲 Flush feeding

配种前 < 7d的短时间催情补饲有改善低背膘后备母猪总产仔数的趋势
Flush feeding for a short period of < 7 days before breeding tend to improve total born in gilts with less backfat reserves



从发情到配种，催情补饲的影响 Effects of flush feeding from puberty to breeding 210-245日龄 ~ 210 d to 245 d of age



催情补饲Flush feeding

后备母猪 Gilts	达到目标体重和日龄 Up to target weight and age	提高排卵率和总产仔数 Improve ovulation rate and total born
	超过目标体重和日龄 Over target weight and age	提高排卵率但是没有提高总产仔数 Improve ovulation rate but no improvement in total born
配种 Breeding	第二次发情 In 2 nd estrus	提高排卵率和总产仔数 Improve ovulation rate and total born
	第三次及以后发情 In 3 rd or later estrus	提高排卵率，但是没有提高总产仔数 Improve ovulation rate but no improvement in total born
时间Timing and Duration	配种前 < 7天 < 7 days before breeding	适用于达到或超过目标体重和年龄的后备母猪 For gilts at or above target weight and age
	配种前 > 18天 > 18 days before breeding	适用于低于目标体重和年龄的后备母猪 For gilts below target weight and age

妊娠早期饲喂Early gestation feeding

来源 REFERENCE	样本大小 SAMPLE SIZE	阶段 STAGE	妊娠天数 GESTATION DAYS	配种体重 WEIGHT AT BREEDING, kg	代谢能 ME _m , Mcal/d	每日代谢能 DIETARY ME, Mcal/kg	饲喂水平 FEEDING LEVEL, kg/d		代谢能 % OF ME _m		指标 RESPONSE CRITERIA		
							对照 CON.	处理 TRT.	对照 CON.	处理 TRT.	胚胎存活率 EMBRYO SURVIVABILITY	血浆孕酮 PLASMA PROGESTERONE	总产仔数 TOTAL BORN
Jindal et al., 1996	48	Gilt	1 – 15	116	3.52	2.71	1.9	2.6	146%	200%	-22%	-57%	-
De et al., 2008	36	Gilt	1 – 35	-	-	2.91	-	-	120%	200%	-20%	-14%	-
Athorn et al., 2013	18 or 19	Gilt	0 – 10	126	3.76	2.89	1.5	2.8	115%	215%	19%	26%	-
Langendijk et al., 2015	21	Gilt	10 – 11	103	3.22	2.87	0.0	2.5	0%	223%	-	-8%	24%
Virolainen et al., 2005	12	Sow	1 – 35	252	6.32	2.83	2.0	4.0	89%	179%	-35%	-25%	-
Hoving, 2012	37	Sow	3 – 35	170	4.71	3.11	2.5	3.3	165%	215%	2%	ns	
Mallmann et al, 2020	244	Sow	6 – 30	197	5.26	3.15	1.8	2.5	108%	150%	-	-	0%
Mallmann et al, 2020	239	Sow	6 – 30	197	5.26	3.15	1.8	3.2	108%	192%	-	-	-8%
Weighted Average 平均体重			-	185	5.00	3.08	1.8	2.9	111%	180%	-12%	-24%	-2%

- 只有当对照组接近维持水平(1.5 kg/d)时，提高饲料水平才有益处
Increasing feed level was only beneficial when control was near maintenance level (1.5 kg/d).
- 高饲喂水平(> 10 Mcal ME; 7.5 Mcal NE)是有害的。
High feeding levels (>10 Mcal ME; 7.5 Mcal NE) were detrimental.

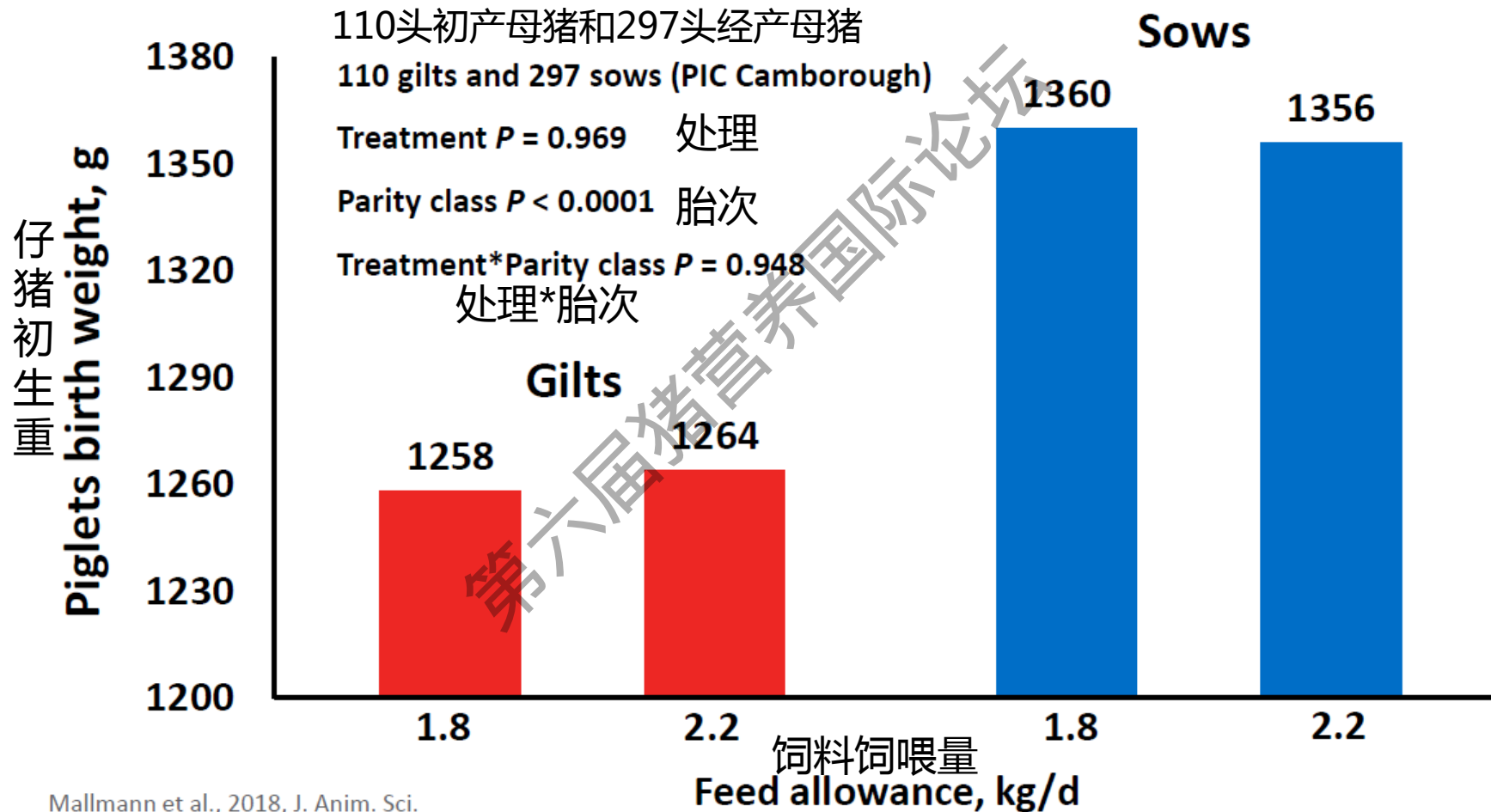
妊娠后期加饲Bump feeding sows in late gestation

来源 REFERENCE	妊娠开始 天数 START DAY OF GESTATION	每个处理 窝数 LITTERS PER TREATMENT	总产 仔数 TOTAL BORN	对照 CONTROL		提高饲喂量 INCREASED FEED INTAKE		加饲效果 CHANGES DUE TO EXTRA FEED	
				Mcal ME/d	g SID Lys/d	每kg日加饲体增重, kg Mcal ME/d	g SID Lys/d	BW GAIN per kg OF EXTRA DAILY FEED, kg	仔猪出生重变化 PIGLET BIRTH CHANGE, g
Shelton et al. 2009	90	21	14.3	6.8	11.9	9.8	17.1	6.6	86
Soto et al. 2011	100	24	12.5	7.0	9.8	12.9	18.2	NR	126
Gonçalves et al. 2015	90	371	14.2	5.9	10.7	8.9	10.7	5.6	24
Gonçalves et al. 2015	90	371	14.2	5.9	20.0	8.9	20.0	9.1	28
Greiner et al. 2016	100	65	13.4	5.9	9.0	8.8	14.0	NR	-120
Ampaire 2017	90	17	13.4	7.2	12.3	8.6	14.5	24	-10
Mallmann et al., 2018	90	50	14.4	5.9	11.7	7.2	14.3	6.5	6
Mallmann et al., 2019	90	243	14.1	5.9	11.5	7.6	14.7	6.4	26
Mallmann et al., 2019	90	242	14.3	5.9	11.5	9.2	17.9	8.8	-1
Mallmann et al., 2019	90	246	14.3	5.9	11.5	10.9	21.1	7.9	-11
Average 平均值	---	---	13.9	6.2	12.0	9.3 (49%)	16.3 (36%)	7.7	12.0
Standard deviation 标准误	---	---	0.6	0.5	3.0	1.6	3.2	2.4	36.1



从妊娠90天开始加饲

Bump feeding from d 90 of gestation

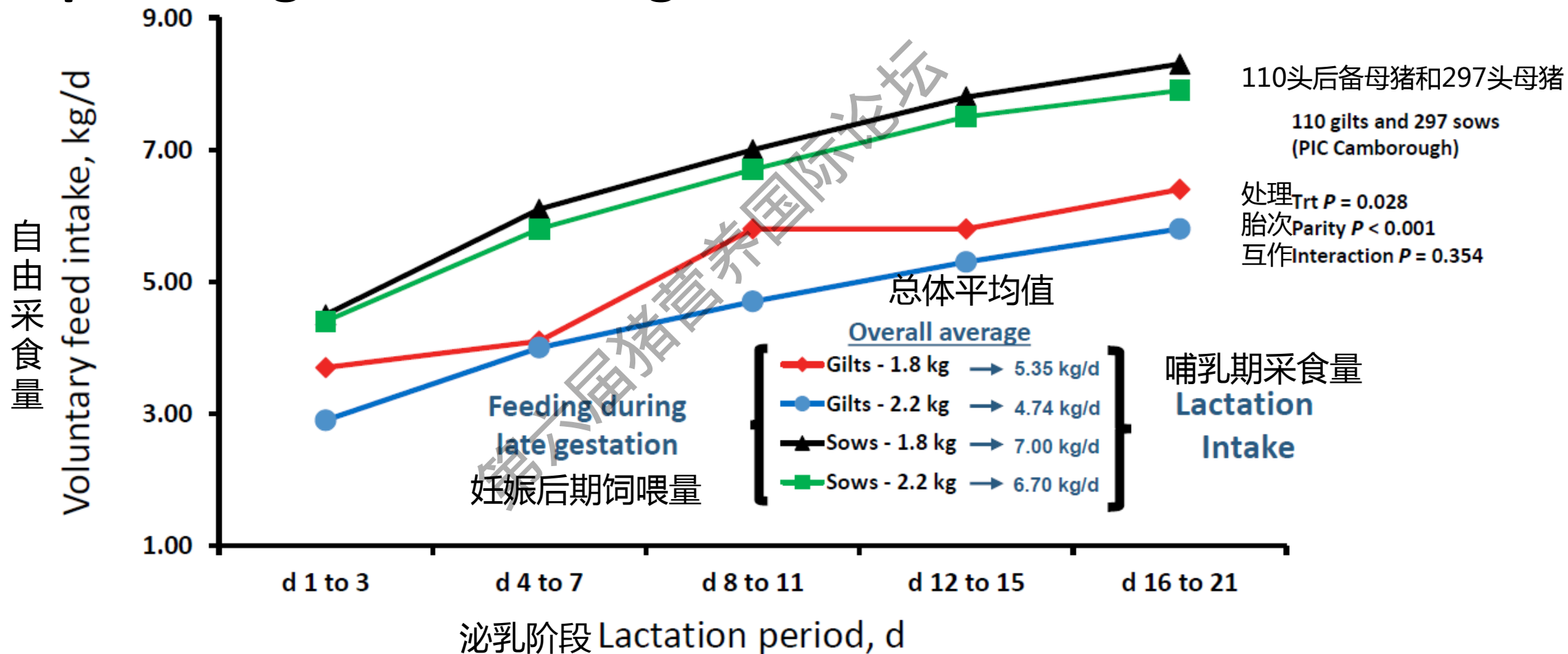


Mallmann et al., 2018, J. Anim. Sci.



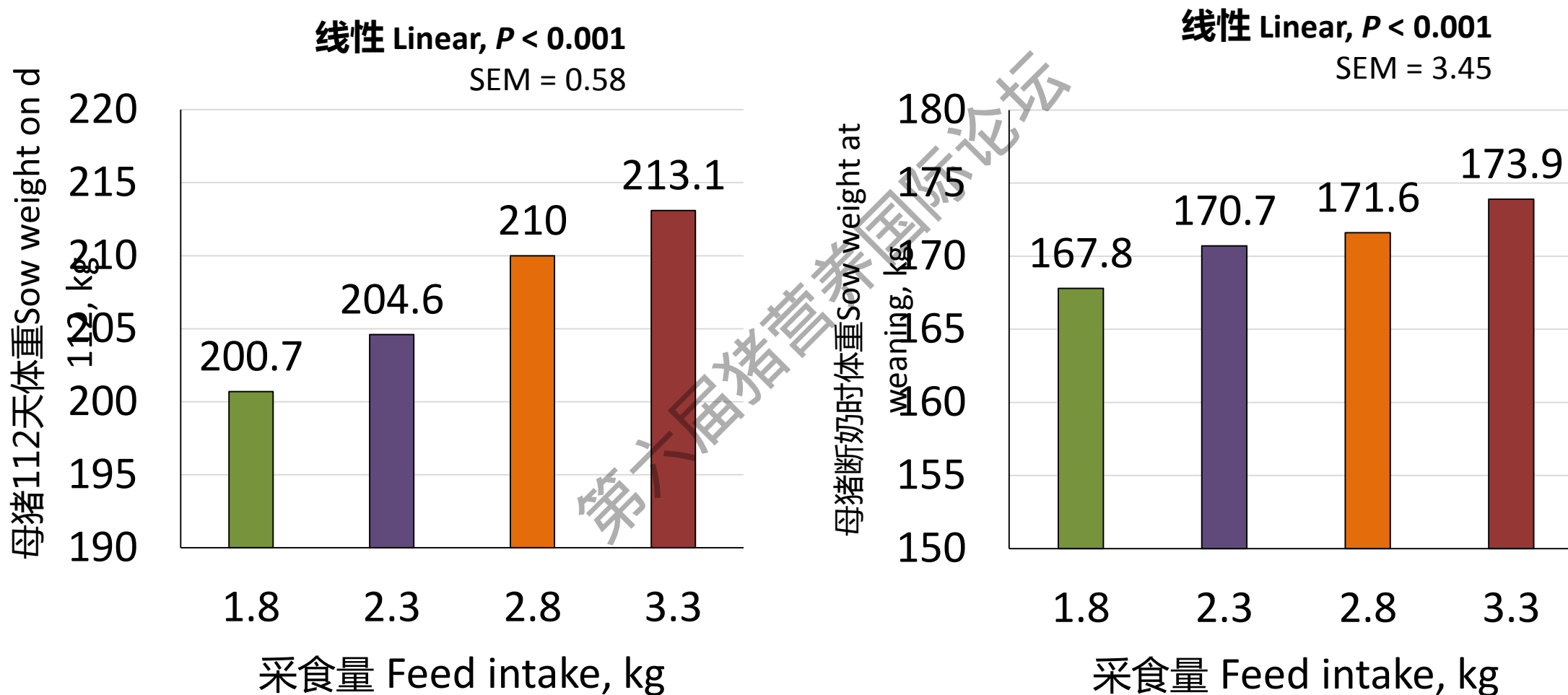
妊娠后期 (> 90天) 加饲对哺乳期采食量的影响

Bump feeding from d 90 of gestation on lactation feed intake



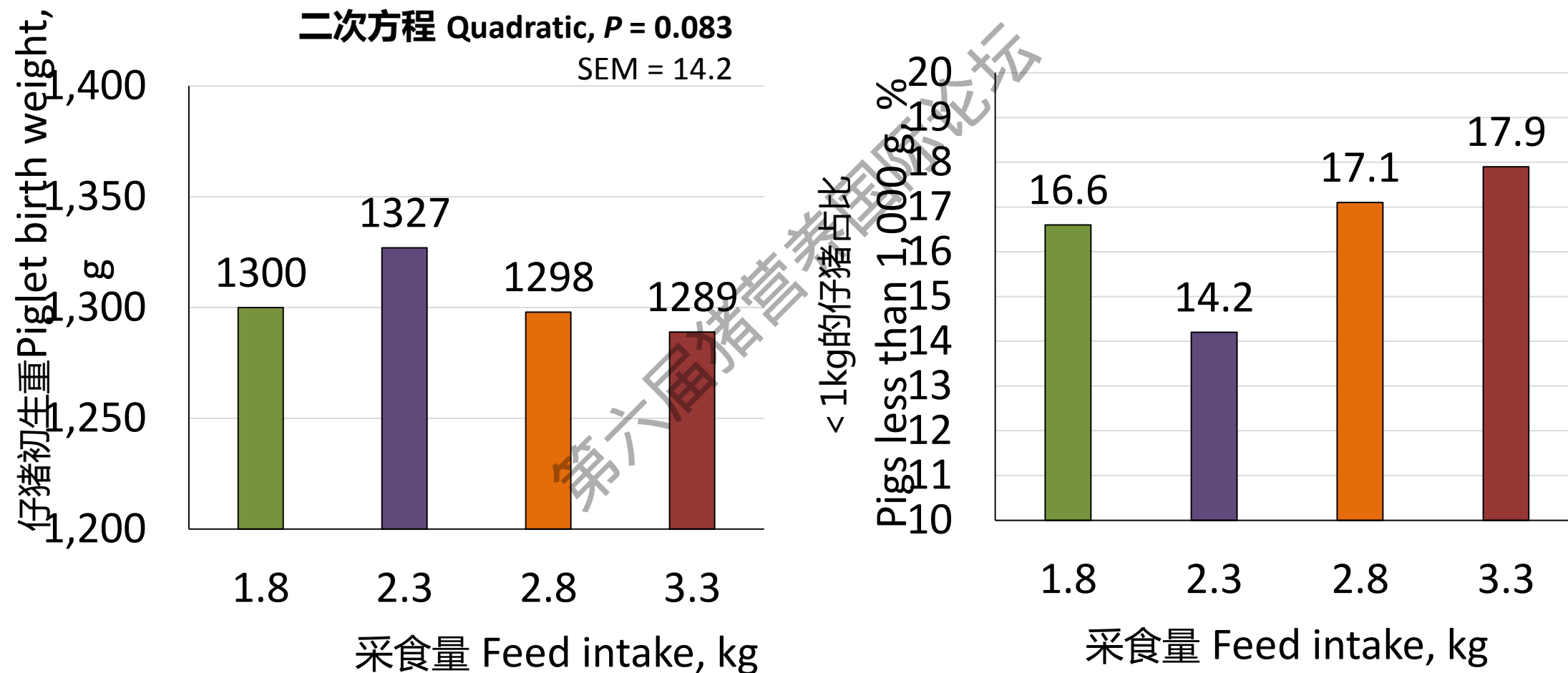
妊娠后期（ > 90天 ）加饲对母猪体重的影响

Increasing feed intake for gilts from d 90 of gestation to farrowing on sow body weight



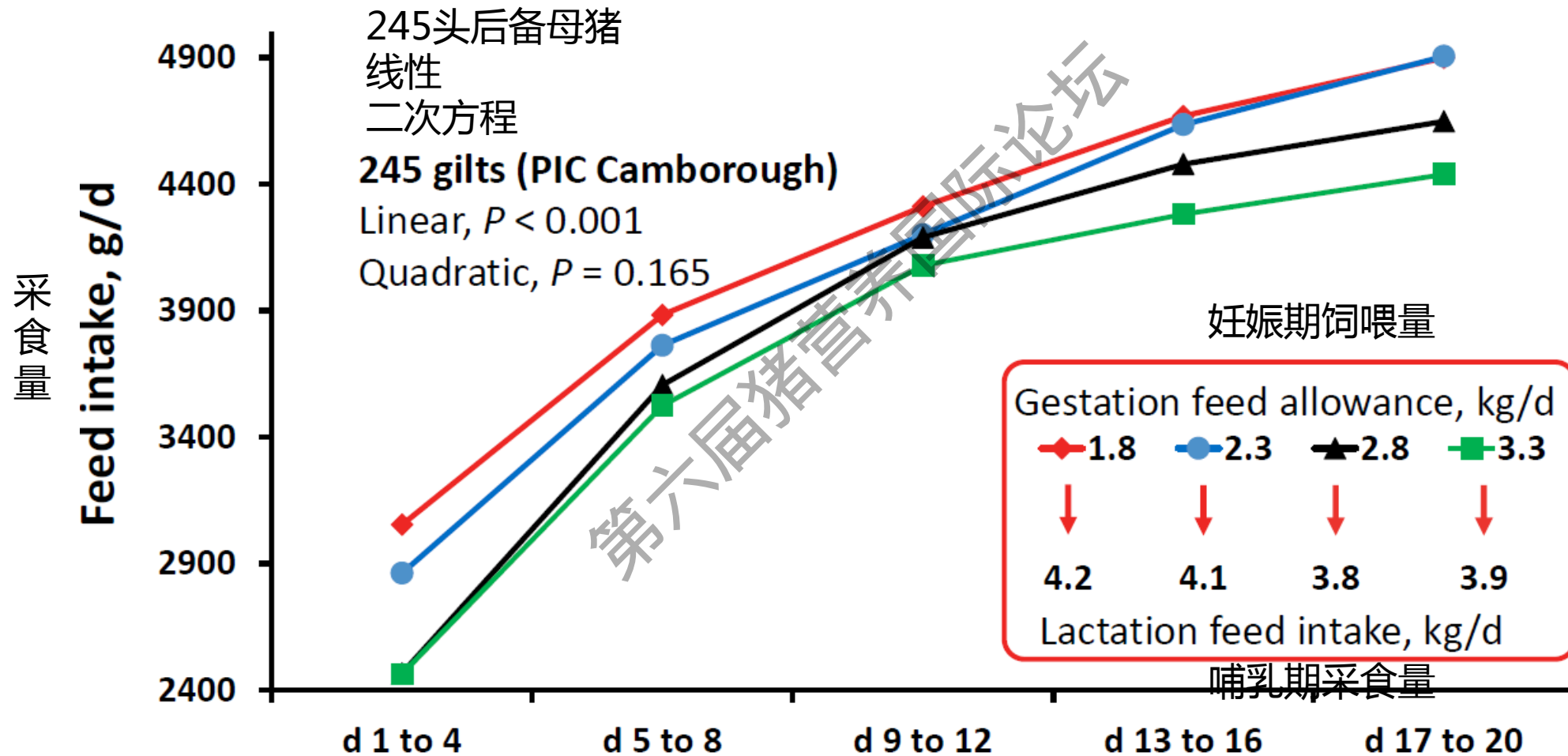
妊娠后期 (> 90天) 加饲对仔猪初生重的影响

Increasing feed intake for gilts from d 90 of gestation to farrowing on piglet birth weights



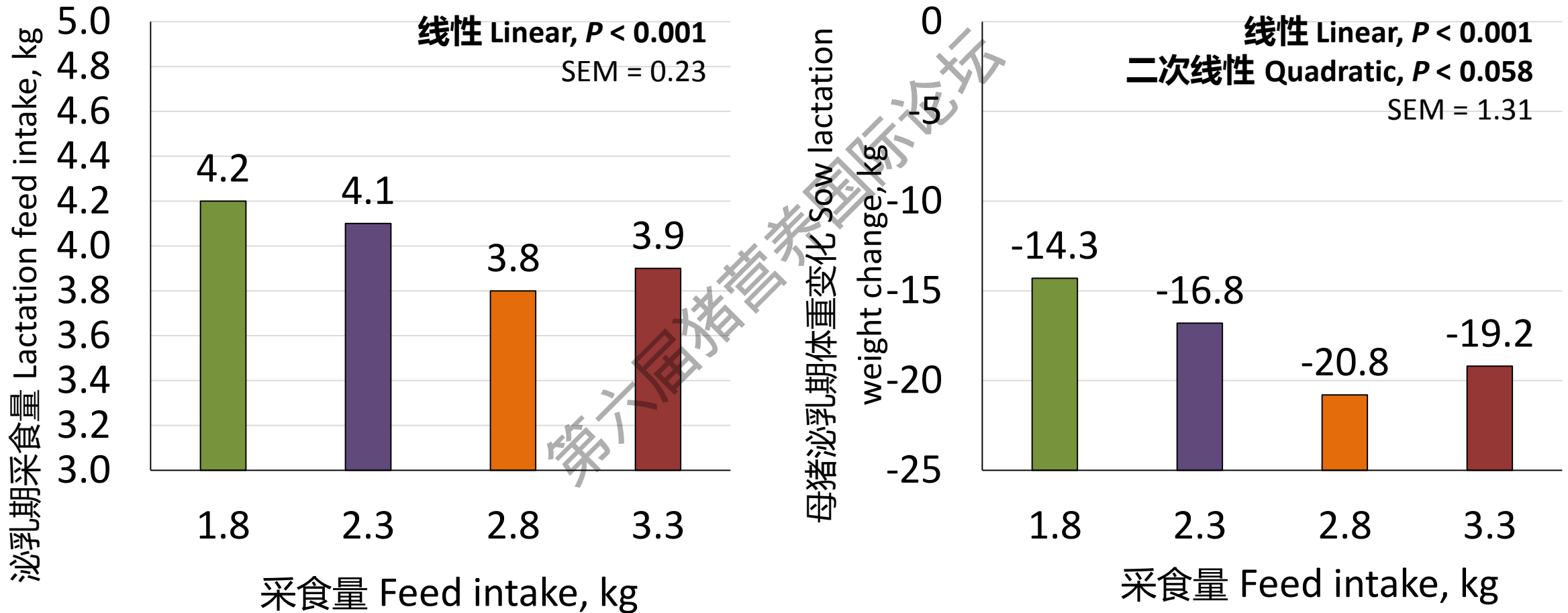
后备母猪90日龄后加饲-哺乳期采食量

Bump feeding from d 90 for gilts – Lactation intake



后备母猪妊娠后期 (> 90d) 加饲对泌乳期采食量的影响

Increasing feed intake for gilts from d 90 of gestation to farrowing on sow lactation intake



后备母猪妊娠后期 (> 90d) 加饲对初乳产量的影响 Increasing feed intake for gilts from d 90 of gestation to farrowing on colostrum yield

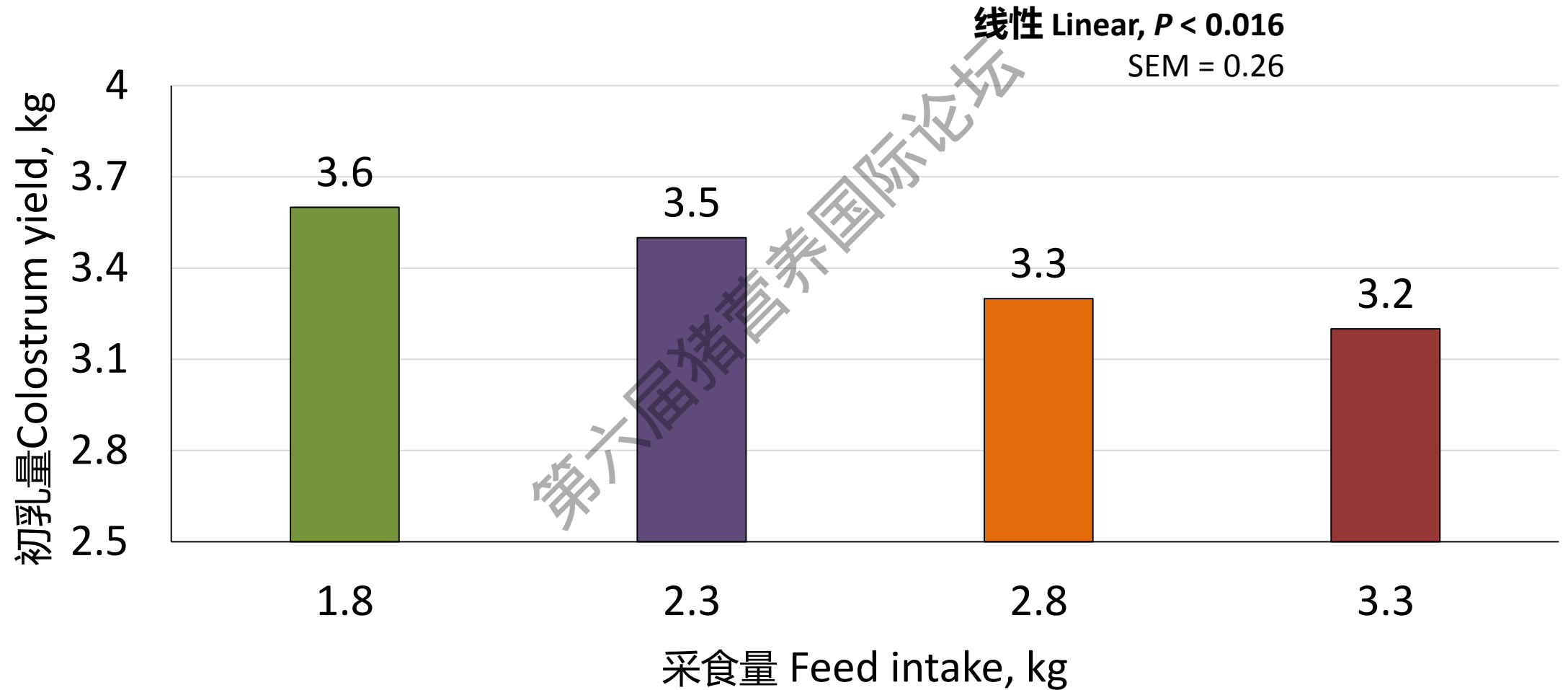


Table 1. Nutritional treatments that stimulated mammary development (in terms of mass of parenchymal tissue or amount of parenchymal DNA) in pigs

处理	阶段	参考
Treatment 10%亚麻籽	子宫内(妊娠第62天)	References
10% flaxseed		Farmer et al. (2007)
金雀异黄酮		
2.3 g/d of genistein		Farmer et al. (2010)
Ad libitum feeding		Sorensen et al. (2002b)
自由采食vs. 20%限制采食		Farmer et al. (2004)
Ad libitum feeding		Sorensen et al. (2006)
自由采食vs. 33%限制采食		
Ad libitum feeding vs. 33% feed restriction	90 d to puberty	
24-vs. 36-mm BF	90d到发育期	
过能量和蛋白质摄入		
24- vs. 36-mm BF ² at		Ad and Williams (1991)
gestation via change		
and protein intakes		
21- to 26- or 17- to 19-	Gestation	er et al. (2016a)
12- to 15-mm BF at the end of	妊娠	
gestation via changes		
5.76 vs. 10.5 Mcal ME/d		n et al. (1991)
Domperidone (0.4 mg /kg)		ompenberg et al. (2013)
多潘立酮 (0.4mg/kg体重)		
17.5 vs. 12 Mcal ME/d		Kim et al. (1999b)
65 vs. 32 g lysine/d	Lactation	Kim et al. (1999b)
65vs. 32g赖氨酸		

在发育过程中过度限制采食量会降低实质DNA和体重
Decreased parenchymal DNA and weight if feed intake is restricted too much during development

妊娠期增加饲喂或高背膘导致实质DNA、RNA和蛋白质减少
Decreased parenchymal DNA, RNA and protein from bump feeding or high backfat in gestation

哺乳期能量或氨基酸摄入量低可导致实质体重降低
Decreased parenchymal weight with low energy or amino acid intake in lactation

Nutrition and feeding during gestation

妊娠期的营养和饲喂

Never Stop Improving
Nutrition & Reproduction
Technical Services

PIC 2020 – Gilts and Sows 后备母猪和经产母猪

假设玉米-豆粕型饲料中ME为3.23 Mcal, SID赖氨酸为0.6%

Assuming corn-SBM based diet with 3.23 Mcal of ME and 0.60% SID Lys.

Average of SID Lys intake = ~11.0 g/d on a herd basis

平均SID 赖氨酸摄入量=群体基础11g/d

每30d增加2个卡尺单位

To gain ~ 2 caliper unit for every 30 d

瘦的

THIN

在整个妊娠期间，基础水平可获得约1.7卡尺单位

Base level to gain ~ 1.7 caliper units throughout gestation

理想的

IDEAL

在整个妊娠期减少到~1个卡尺单位

To reduce ~ 1 caliper units throughout gestation

肥的

FAT

5.5 lb or 2.5kg/d
(8.0 Mcal ME/d)

4.0 lb or 1.8kg/d
(5.9 Mcal ME/d)

3.5 lb or 1.6kg/d
(4.9 Mcal ME/d)

0

30

60

90

112

Days of Gestation

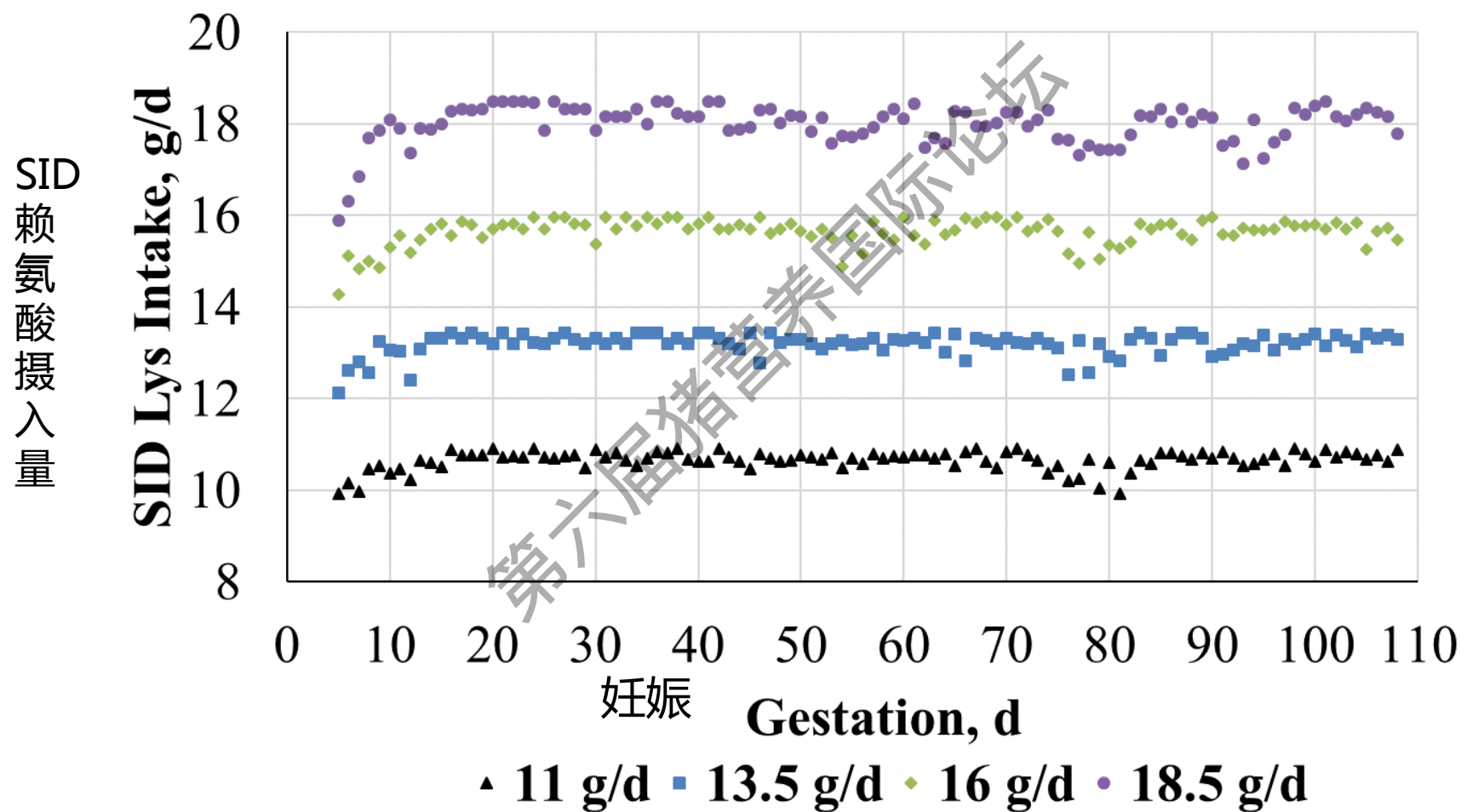
妊娠天数

PIC®

Colors of the bars are in accordance with the colors of the stickers in the sow caliper

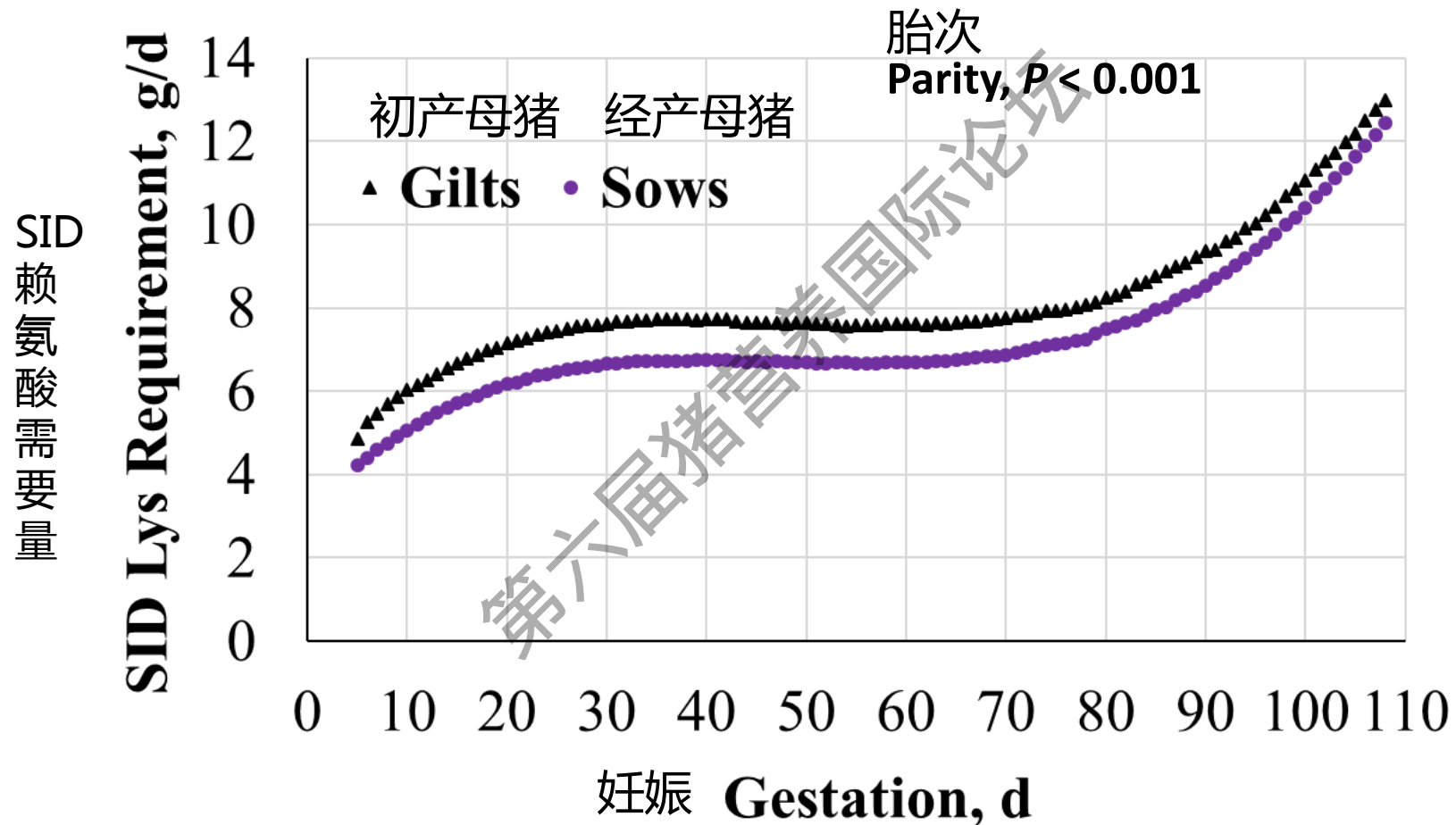
不同日粮处理间后备母猪SID赖氨酸摄入量

Daily gilt SID lysine intake by dietary treatment

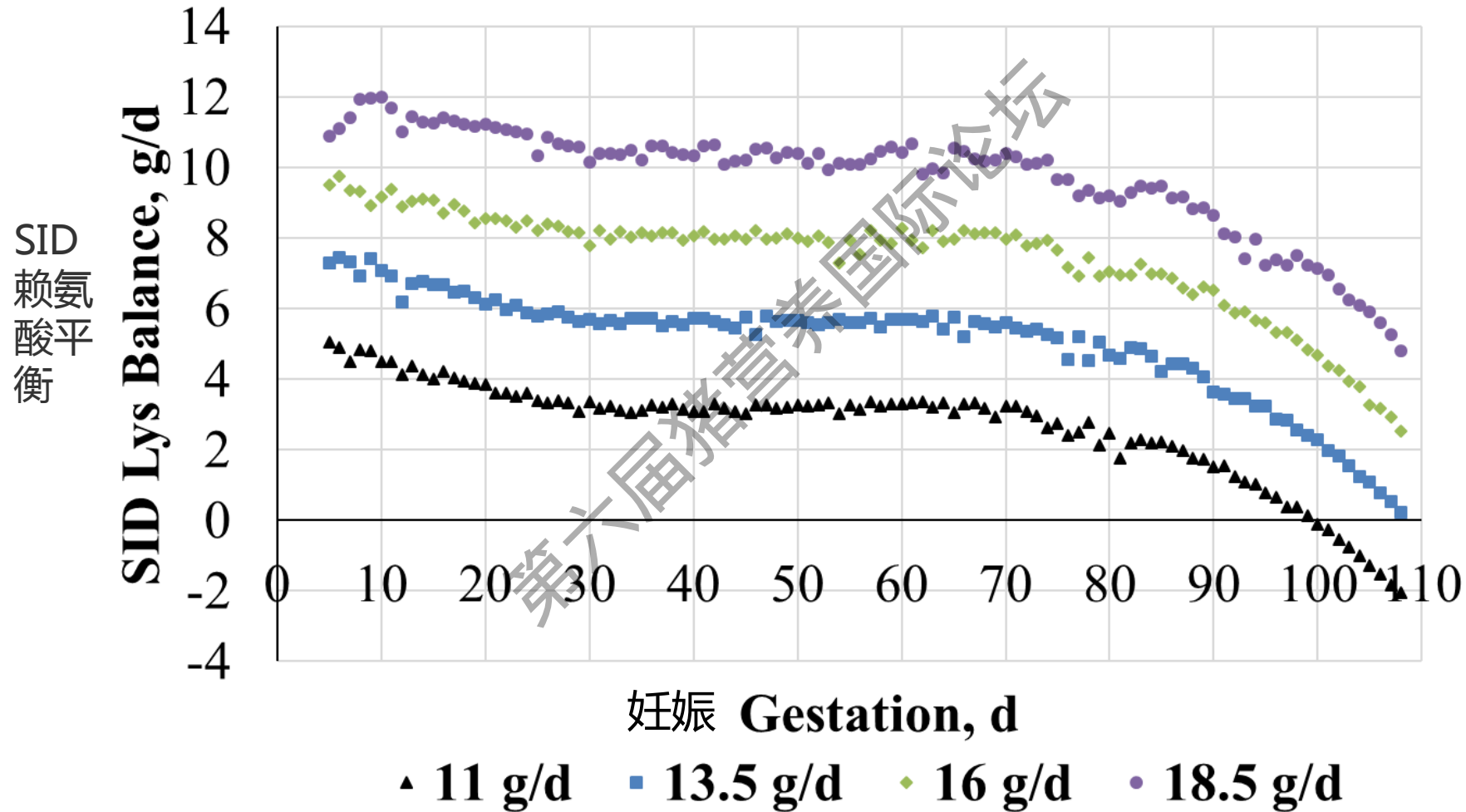


蛋白质沉积的SID赖氨酸日需要量

Daily SID lysine requirements for protein deposition

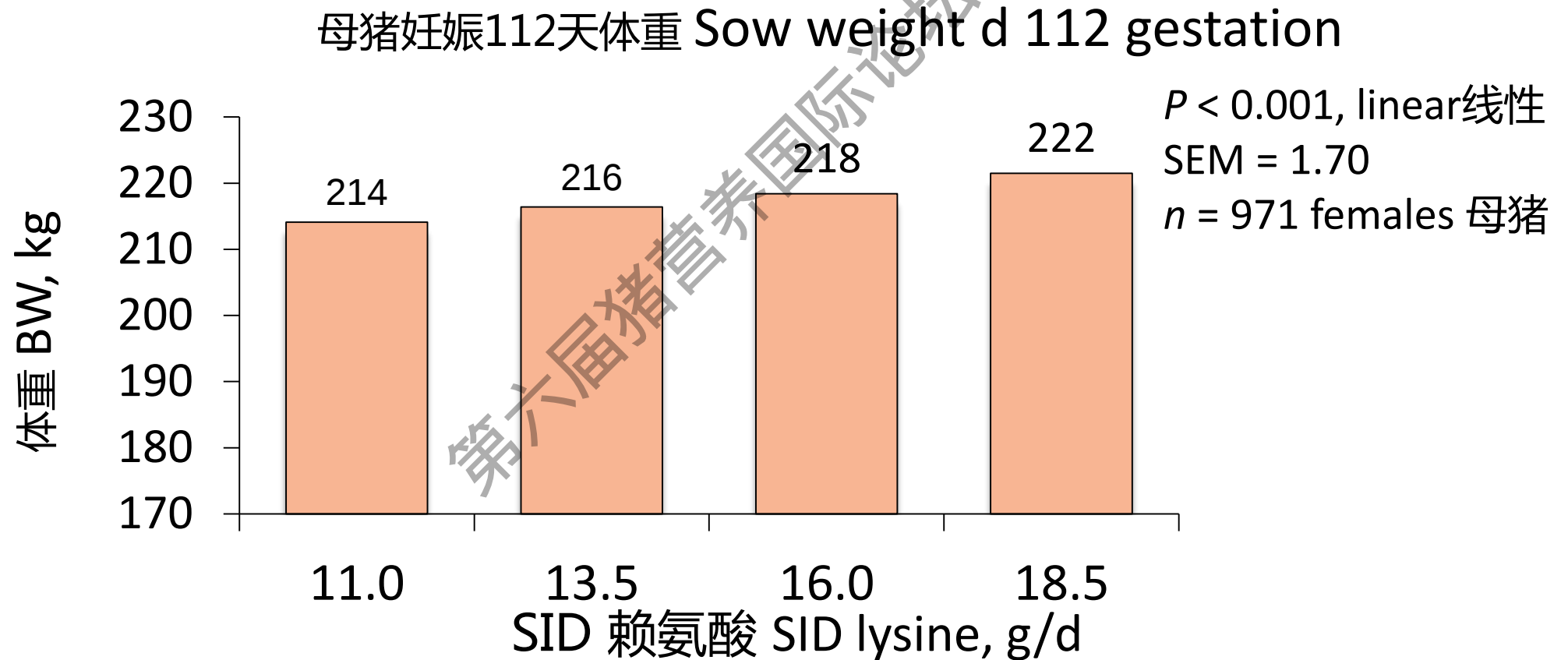


不同日粮处理间初产母猪SID赖氨酸平衡 Daily gilt SID lysine balance by dietary treatment



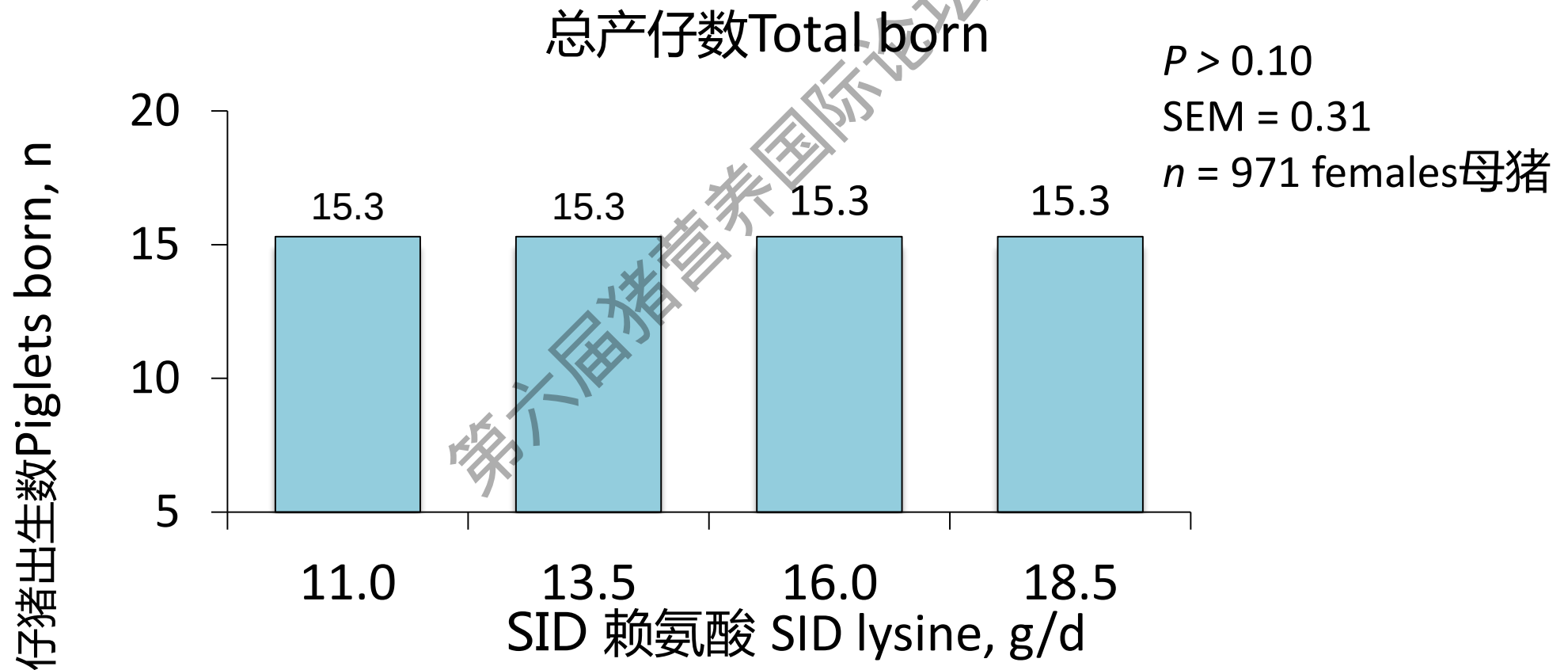
初产母猪妊娠期赖氨酸需要量

Gilt lysine requirements in gestation



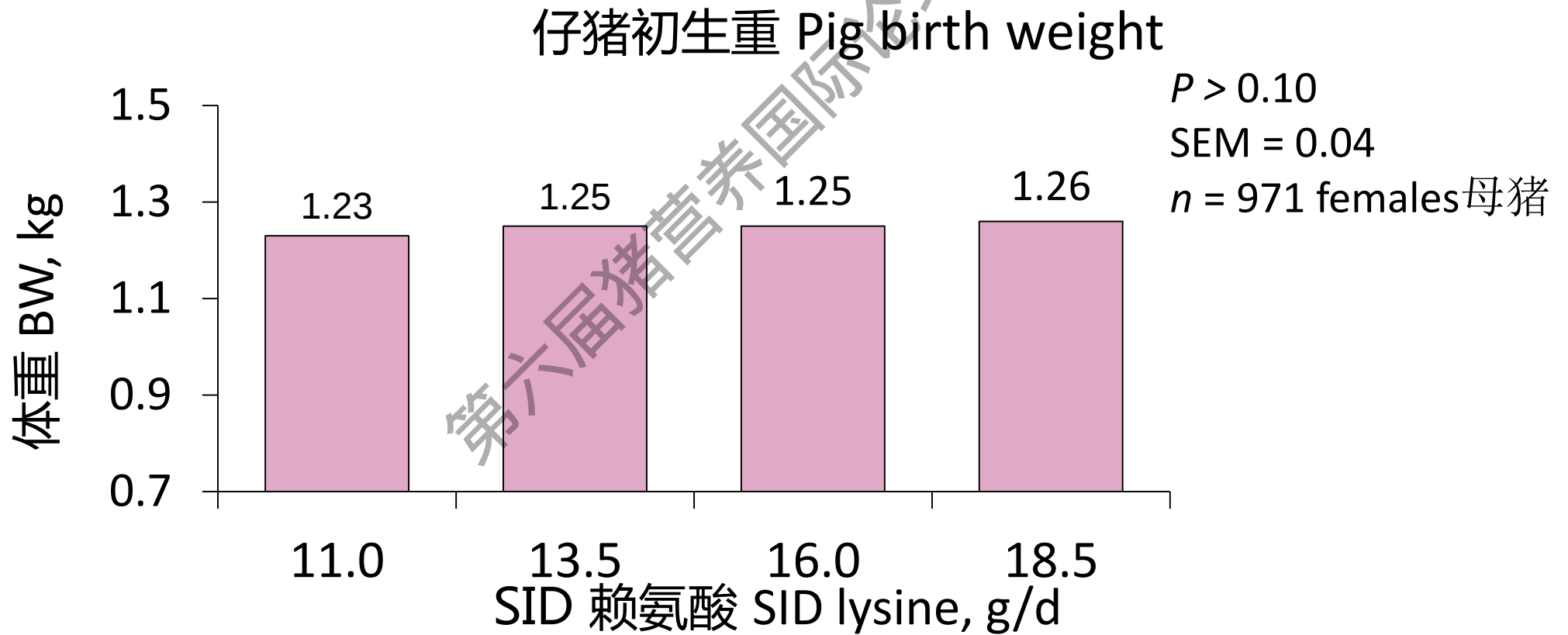
初产母猪妊娠期赖氨酸需要量

Gilt lysine requirement in gestation



初产母猪妊娠期赖氨酸需要量

Gilt lysine requirements in gestation



妊娠期饲喂总结 Gestation feeding summary

- 妊娠早期 Early gestation
 - 在配种后的前几天，饲喂低于基础水平的饲料会降低胚胎的存活率 Feeding below base level during the first few days after breeding will reduce embryo survival.
 - 高采食量(> 10 Mcal of ME/天)将减少总产仔数 High feed intake (> 10 Mcal of ME/day) will reduce total born.
- 妊娠后期增加饲喂 Late gestation bump feeding
 - 初产母猪的仔猪初生重几乎没有改善 Little improvement in birth weight in piglets from gilts
 - 经产母猪的仔猪初生重无明显改善 No improvement in birth weight in piglets from sows
 - 后备母猪和经产母猪的死产率提高 Increases stillborn percentage in gilts and sows
 - 降低哺乳期采食量，减少初乳和常乳的产量 Reduces lactation feed intake and reduces colostrum and milk production
- 初产母猪妊娠后期需用11 ~ 14 g/d的SID赖氨酸 Gilts require 11 to 14 g/d of SID Lys in late gestation

其他事情 Other things

- 照明-即使不是为了后备母猪，需要为工作人员提供良好的照明Lighting – Want good lighting for people in barn if not for the gilts.
- 空气质量-如果人们不喜欢它，他们不会花时间在后备母猪上Air quality – If people don't like it, they won't spend time needed with gilts.
- 温度-确保后备母猪不受热/冷应激 Temperature – Don't heat or cold stress gilts
- 地板-不要光滑，板条维修良好，干净Flooring – Don't want slick floor, slats in good repair, clean
- 圈舍-想要不伤害后备母猪的围栏Penning – Want penning that doesn't injure gilts
- 平方英尺- 保育时空间充足(≥ 0.28 平方米;3平方英尺);在育肥时越大越好，特别是在发情检测时(1.1平方米;12平方英尺)Square footage – Plenty in nursery (min 0.28 sq M; 3 sq ft); more is better in finisher, especially during heat detection (1.1 sq M; 12 sq ft)
- 人类互动- 当你接近时，后备母猪不应该害怕你，没有战斗或逃跑的反应Human interaction – Gilts should not be scared of you and have fight or flight reaction when approached.

现有了解-后备母猪发育

Current knowledge – Gilt development

- 选择后备母猪：出生重 $\geq 1\text{kg}$ Select gilts that are at least 1 kg at birth
- 断奶日龄 $\geq 25\text{d}$ Wean at 25 d of age or older
- 终生生长率为 $600\text{-}800\text{g/d}$ Lifetime growth rate of 600 to 800 g/d
- $135\text{-}150\text{kg}$ 配种， $> 180\text{kg}$ 分娩 Breed at 135-150 kg and farrowing $> 180\text{ kg}$
 - $< 130\text{kg}$ ，影响终生生产力 $< 130\text{ kg}$: impact on lifetime productivity
 - $> 150\text{kg}$ ，影响寿命和结构健康 $> 150\text{ kg}$: impact on longevity and structural soundness
- 第二次发情时配种 Breed at second estrus
- 配种时具有正向代谢状态 Positive metabolic state at breeding
- 在第二次发情和达到目标体重之前催情补饲 Flush feed until second estrus and target body weight
- 只有在瘦削和没有达到目标体重时才要加饲 Bump feed only if thin and below target body weight

后备母猪由出生到头胎分娩的饲养管理 Management and feeding of primiparous sows from birth to first farrowing



主办：美国动物科学学会 | 中国畜牧业协会

承办：上海亘泰实业集团有限公司 | 中国畜牧业协会生物产业分会 | 中畜传媒

协办：美国大豆出口协会 | 上海优久生物科技有限公司 | 上海征泰生物科技集团有限公司

THE END