育肥猪出栏管理

Commercial pig marketing management

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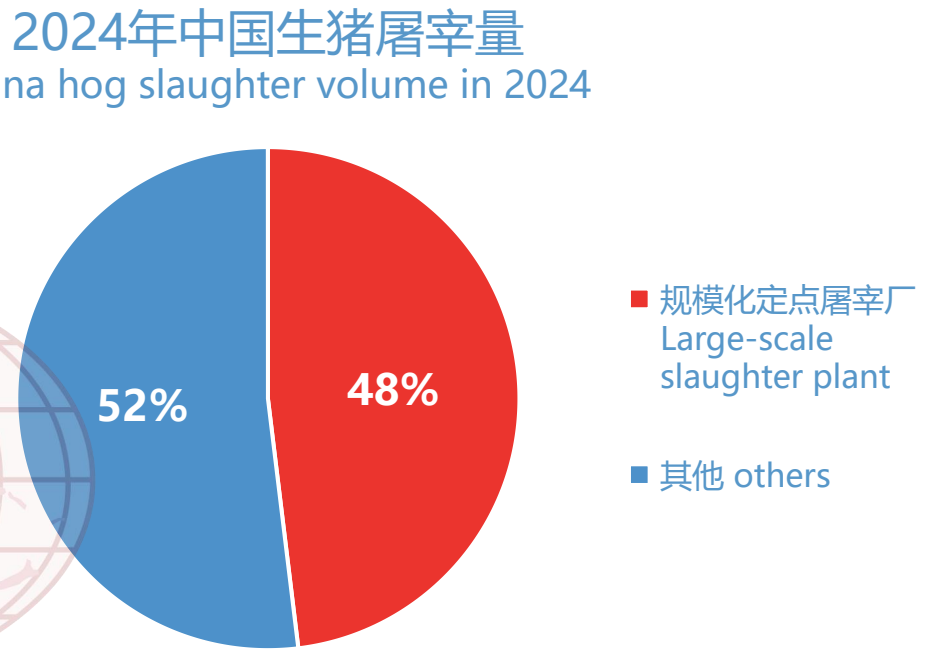
中国生猪产量
Pig production volume in China

- 2024年生猪出栏7,0256万头；
  702,560,000 heads of commercial pigs were marketed in 2024;
- 1-12月规模以上生猪定点屠宰企业屠宰量33773万头；
  337,730,000 heads of pigs were slaughtered in large-scale designated slaughter plant last year;
- 屠宰量最高的屠宰企业年屠宰量（1252）占生猪出栏量1.78%。
  The slaughter volume of the largest enterprise was 1.78% of China yearly marketing pig volume.



规模以上生猪定点屠宰企业屠宰量，为农业农村部统计调查监测数据，覆盖全国规模以上（年屠宰量2万头以上）生猪定点屠宰企业。

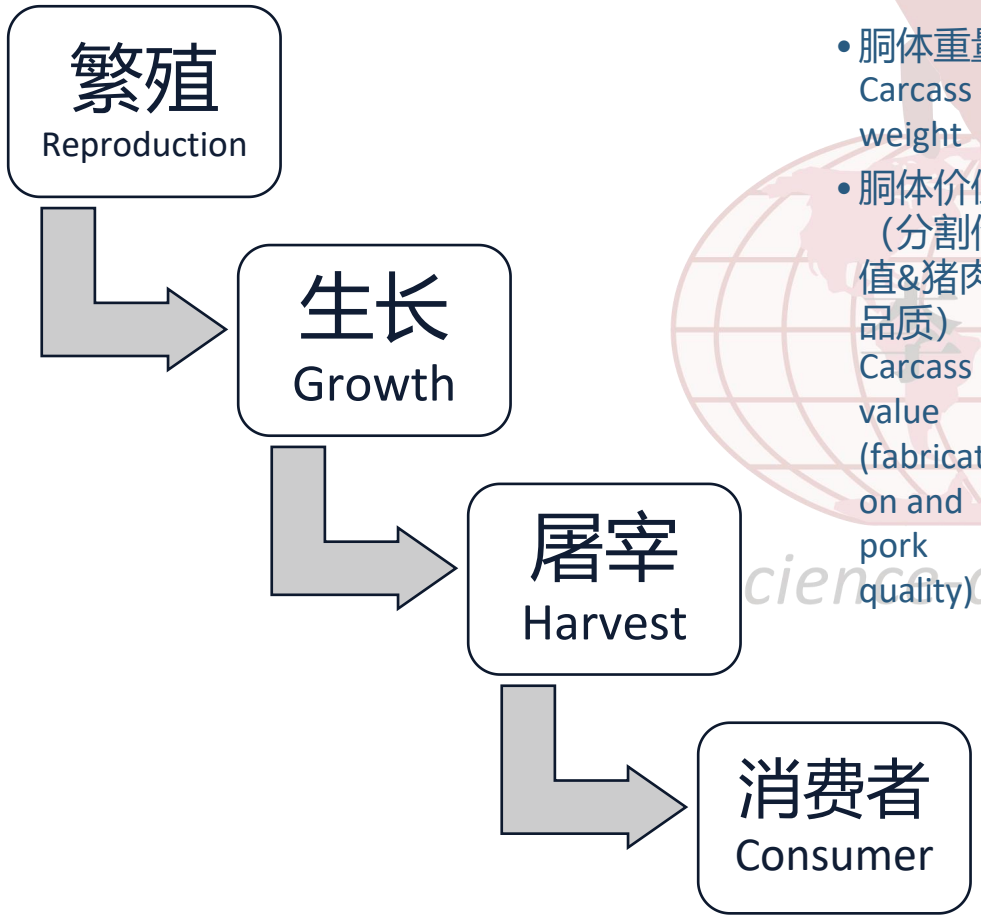
The slaughter volume of large-scale slaughter plant is monitored by Ministry of Agriculture and Rural Affairs. It covers designated hog slaughter enterprises across the country that meet the “large-scale” criteria (annual slaughter capacity over 20,000 pigs)

生猪全产业链价值

The value of commercial pig across entire industry chain

基于养殖端成本和消费端需求的价值

Based on the value of production cost and consumer demand.



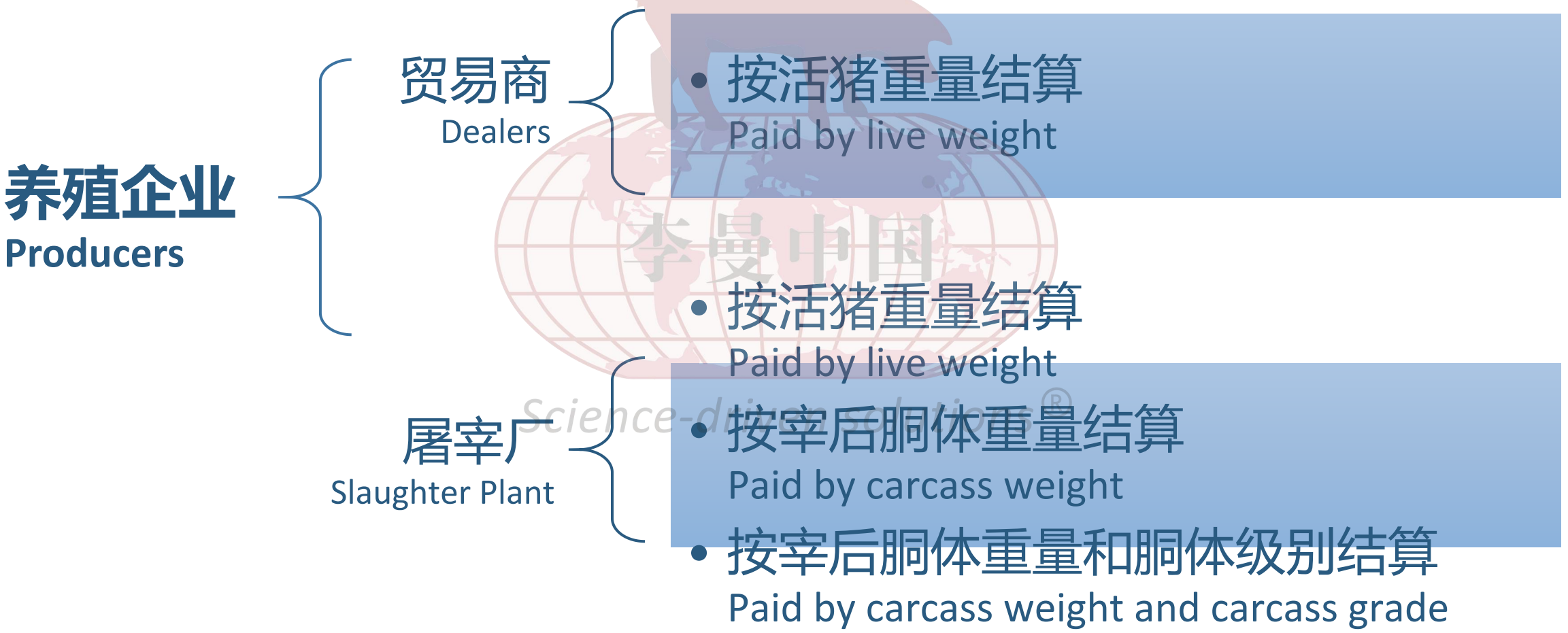
- 胴体重量 Carcass weight
- 胴体价值（分割价值&猪肉品质）Carcass value (fabrication and pork quality)

- 养殖端生产原料 Raw materials
- 养殖端付出成本 Production cost

- **屠宰端向养殖端购买原料 Slaughter plants purchase product from producers**
- 屠宰端加工产品 Further processed product
- 屠宰端付出成本 Production cost

- **消费者向屠宰端付费购买产品 Consumers purchase product from slaughter plants**

中国市场生猪销售模式
Marketing scheme in Chinese hog industry



屠宰厂结算模式
Payment models in slaughter plant

代加工
Processing fee

- 按头数收取代加工费用
  Charged per head

毛猪结算
Live pigs

- 按照猪只出农场或到屠宰厂重量结算
  Paid by live weight at farm or at plant

胴体结算
Carcass

- **初级模式**
  Primary
- 按照胴体重结算
  Paid by carcass weight

胴体结算
Carcass

- **中级模式**
  Intermediate
- 按照胴体重和胴体级别（6-7肋背膘厚度）结算
  Paid by carcass weight and grade (6-7th rib backfat thickness)

胴体结算
Carcass

- **高级模式**
  Advanced
- 按照胴体重和胴体级别（瘦肉率或更优方式） 结算
  Paid by carcass weight and grade (lean% or other superior methods)

地域差异/屠宰厂集中程度/行业发展
Regional differences/plant distribution/industry development

生猪交易模式
Hog trading model

- ✓生猪屠宰后表现决定生猪卖价；
  The price of live pigs is determined by post-slaughter performance.
- ✓养殖企业和屠宰厂/白条批发直接交易：生猪价值体现更真实；
  Direct transactions between producers and plants/carcass wholesales: bring out the true values of the pig
- ✓通过贸易商交易：影响因素多。
  Transactions through dealers: excessive influencing factors.

商品猪出栏管理关键点
Key management points of commercial pig marketing

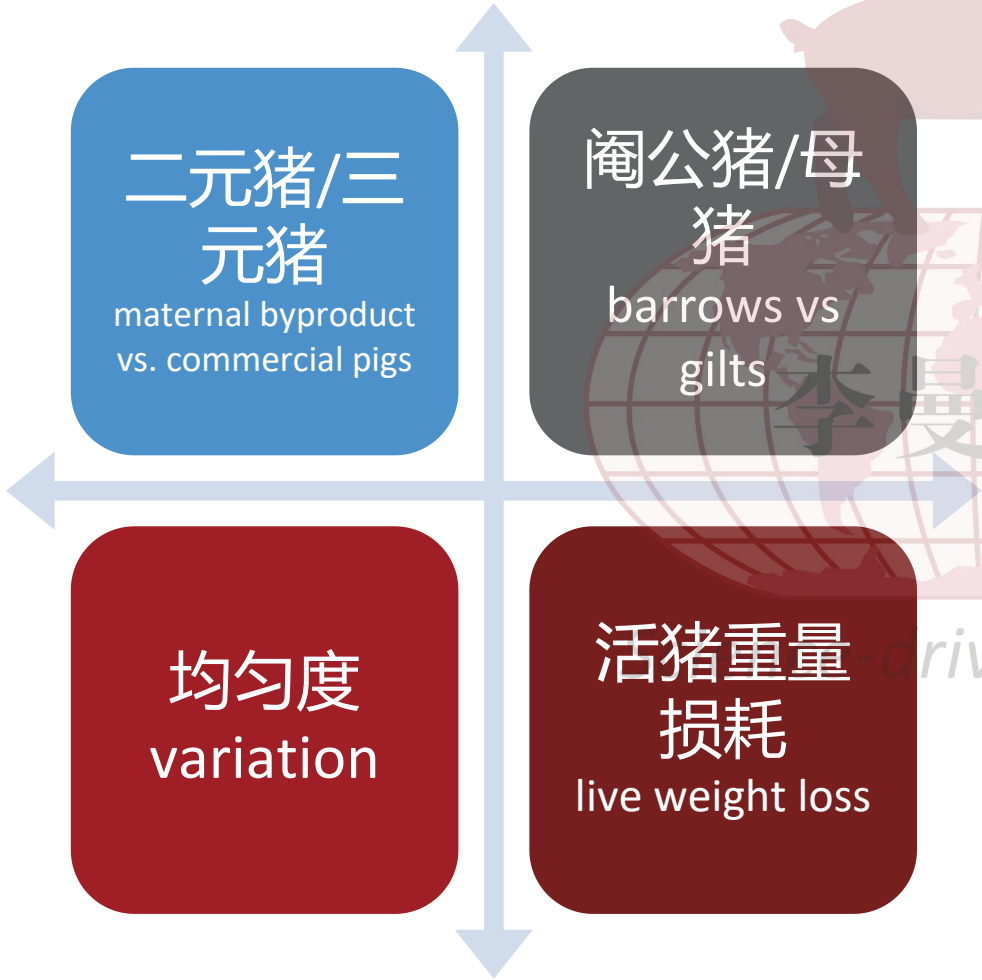
提升屠宰率/胴体级别 Increase carcass yield/grade	降低胴体损伤 Reduce carcass defects	提高猪肉品质 Improve pork quality

• 三元和二元猪分开销售
Separate commercial pigs from maternal byproduct
• 重量均匀/公母均匀
Uniform weight and sex distribution
• 装猪前停料8-10 h
8-10 h feed withdraw time at farm
	• 赶猪操作
	Pig handling
	• 运输密度
	Transport density
	• 卸猪操作
	Unload
		• 降低应激
		Reduce stress
		  • 停料
		  Feed withdrawal
		  • 赶猪/运输/卸猪
		  Pig handling/ transportation/unload

有效管理可以提高商品猪品质
Effective management can increase quality of pig

稳定的商品猪品质有助于在当地建立口碑，拓展销路
Consistent quality output helps build local reputation and expand market.

1. 育肥猪出栏管理 – 不要货不对板
Management of pig marketing: deliver pigs that meet the expectations



■货不对板影响：

Expectations include:

- 屠宰率 Carcass yield
- 背膘厚度 Backfat thickness
- 瘦肉率 Lean%
- 分割价值 Fabrication values
- 猪肉品质 Pork quality

货对板的前提 — 品种清晰，产品可预期

Prerequisite for delivering the right pigs： clear breed information and predictable product quality

- 不论是屠宰厂，白条批发商，还是白条零售商，肉店，超市，最基本的需求是产品稳定、可预期。No matter they are plants, wholesales, retails, butcher shops or grocery stores, the basic need is always consistent and predictable product.
- 不同品种混杂，导致胴体/猪肉品质不稳定。Mixed breeds caused inconsistent carcass quality and meat quality.
- 未来市场对不同品种的认知会越来越清晰。Future market will have a clearer understanding about different breeds.
- 未来市场会发展到以消费端需求为导向，以销定产的稳定局面。Future market will evolve into a stable state driven by the consumer demands, where production size is determined by sales volume.

同一养殖企业三元猪和二元猪屠宰性能差异

Slaughter performance differences between commercial pigs and maternal by-product within same company

相同来源，三元猪屠宰性能优于二元猪，主要体现在以下性状

Same source, commercial pigs have greater slaughter performances in：

- 屠宰率 Slaughter yield
- 背中线背膘 Midline backfat thickness
- 瘦肉率 lean%
- 分割价值 fabrication value
- 猪肉品质 pork quality

指标 Traits	品种 Breed	
	三元 Commercial pigs	二元 Maternal byproduct
热胴体重 HCW, kg	101.72	96.71
屠宰率(屠宰厂) Carcass yield, %	82.3	79.1
TMP瘦肉率 TMP lean%, %	62.24	60.71
尾膘（手工）Tail fat, mm	16.23	17.72
最后肋背膘（手工）Last rib BF, mm	25.75	29.16
6-7肋背膘（手工）6-7th rib BF, mm	29.36	33.34
第1肋背膘（手工）1st rib BF, mm	40.09	48.73
胴体直长 Carcass straight length, cm	103.04	102.62
胴体斜长 Carcass diagonal length, cm	87.79	87.69
肋排长度 rib length, cm	51.03	49.98
肋排宽度 rib width, cm	21.33	20.74
肋骨对数 rib counts	15.42	15.23

注：范例仅供参考

同一品系阉公猪和母猪屠宰性能差异

Slaughter performance differences between barrows and gilts within same line

相同品种，母猪屠宰性能优于阉公猪，主要体现在以下性状

Same line, gilts have greater slaughter performances in：

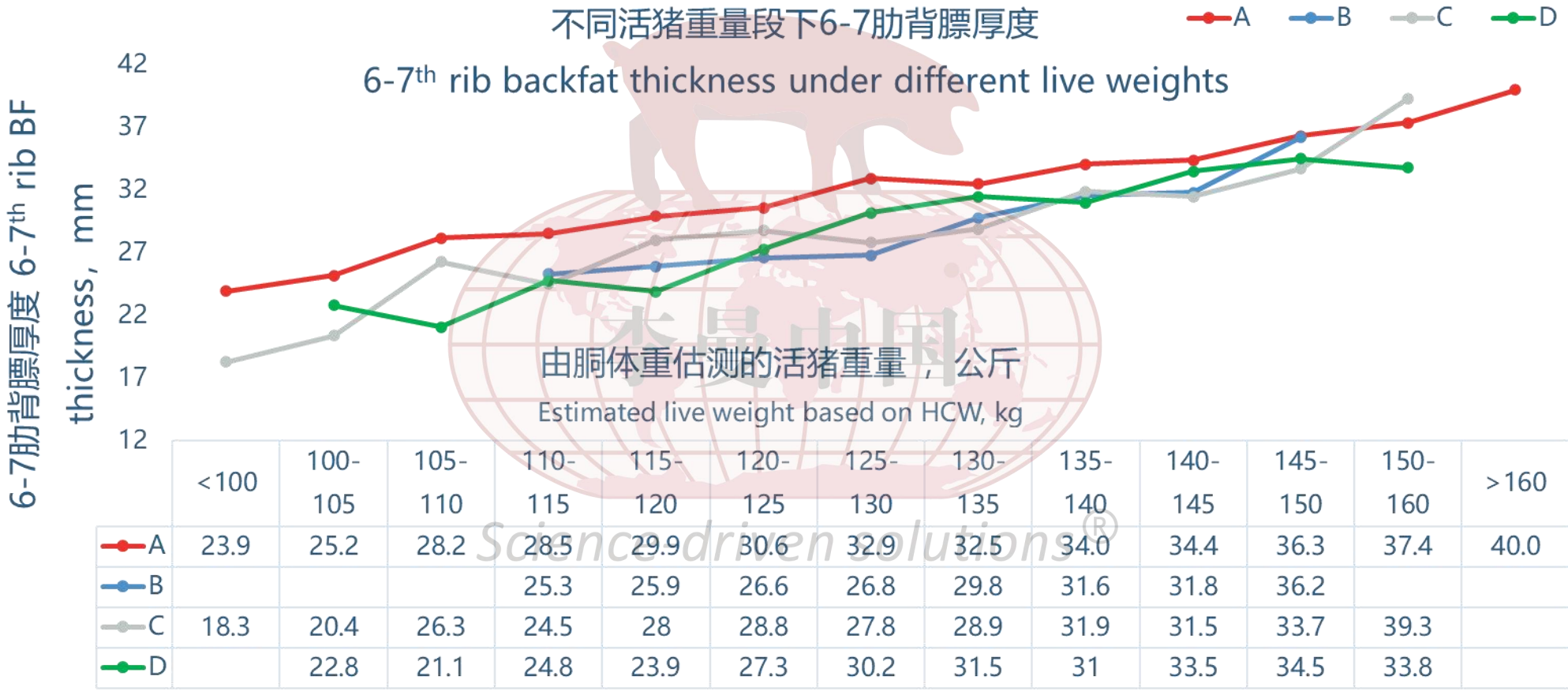
- 背中线背膘 Midline backfat thickness
- 瘦肉率 Lean%
- 分割价值 Fabrication values

指标 Traits	性别 Sex	
	阉公猪 Barrows	母猪 Gilts
热胴体重 HCW, kg	101.03	98.13
屠宰率(屠宰厂) Carcass yield, %	81.66	81.52
TMP瘦肉率, TMP lean%, %	60.59	61.18
尾膘（手工）Tail fat, mm	19.36	18.57
最后肋背膘（手工）Last rib BF, mm	29.40	28.29
6-7肋背膘（手工）6-7th rib BF, mm	34.99	33.14
第1肋背膘（手工）1st rib BF, mm	45.20	42.64
胴体直长, Carcass straight length, cm	99.13	100.06
胴体斜长, Carcass diagonal length, cm	85.99	86.66
肋排长度, Rib length, cm	47.32	48.14
肋排宽度, Rib width, cm	20.16	20.23
肋骨对数 Rib counts	14.91	14.93

注：范例仅供参考

不同养殖企业生猪重量和背膘厚度关系（均匀度）

Relationship between live pig weight and backfat thickness between different producers (Variation)



	<100	100-105	105-110	110-115	115-120	120-125	125-130	130-135	135-140	140-145	145-150	150-160	>160
A	23.9	25.2	28.2	28.5	29.9	30.6	32.9	32.5	34.0	34.4	36.3	37.4	40.0
B				25.3	25.9	26.6	26.8	29.8	31.6	31.8	36.2		
C	18.3	20.4	26.3	24.5	28	28.8	27.8	28.9	31.9	31.5	33.7	39.3	
D		22.8	21.1	24.8	23.9	27.3	30.2	31.5	31	33.5	34.5	33.8	

注：不同养殖集团间健康度、营养、饲喂方式等不同，数据仅作参考。

Note: different producers have difference health status, nutrition level and feeding strategy. Data is for reference only.

活猪重量损耗带来的活猪价格差异

Live pig price differences due to live weight loss

- 农场和贸易商交易，贸易商和农场按农场装猪后活猪重结算； Transaction between farm and dealer is done after loading and paid by live weight.
- 若不停料，贸易商拉猪到屠宰厂，和屠宰厂按卸猪后活重结算，贸易商多损耗3.5 kg； If no feed withdrawal, deals take the pigs to plant, and the payment is done by live weight after unloading. Dealers will lose 3.5 kg.
- 假定装猪活重128 kg，活猪单价13 元/kg，贸易商多损耗45.5元/头； Assuming the live weight at loading is 128kg, the live pig price is 13 yuan/kg, the deals will lose additional 45.5 yuan per head.
- 贸易商需压价0.355元/kg。 Dealers have to decrease the live pig price by 0.355 yuan/kg.

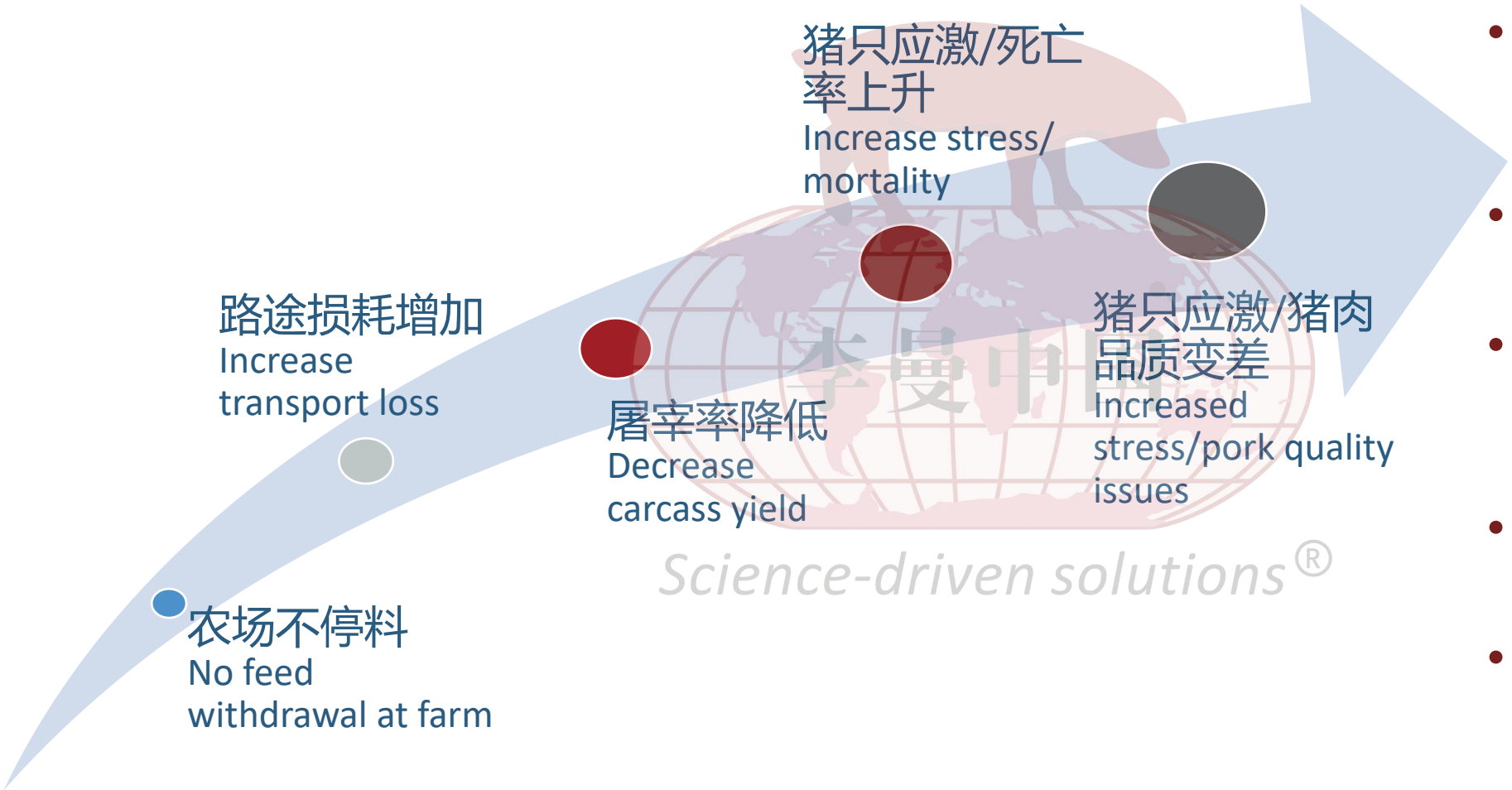
活猪重量损耗带来的活猪价格差异

Live pig price differences due to live weight loss

- 农场和屠宰厂交易，屠宰厂和农场按宰后屠宰率结算；Transaction between farm and plant is done by slaughter yield after harvest.
- 到屠宰厂卸猪后称活重；屠宰后称胴体重，以胴体重除以屠宰厂活猪重计算屠宰率；Live weight is acquired after loading. HCW is acquired after harvest. Slaughter yield = HCW/live weight at plant.
- 假定装猪活重128 kg，停料和不停料屠宰率差异约1.5% - 2.7%；Assuming the live weight at farm is 128kg, and there is a 1.5%-2.7% difference in slaughter yield between with or without feed withdrawal.
- 假定白条结算单价16元/kg，农场停料和不停料收到的结算价差0.24-0.43 元/kg，折合每头猪30-50元/头。Assuming the carcass price is 16 yuan/kg, there is a 0.24-0.43 yuan/kg price difference for pigs with or without feed withdrawal, equivalent to 30-50 yuan/head.

2. 育肥猪出栏管理 – 停料

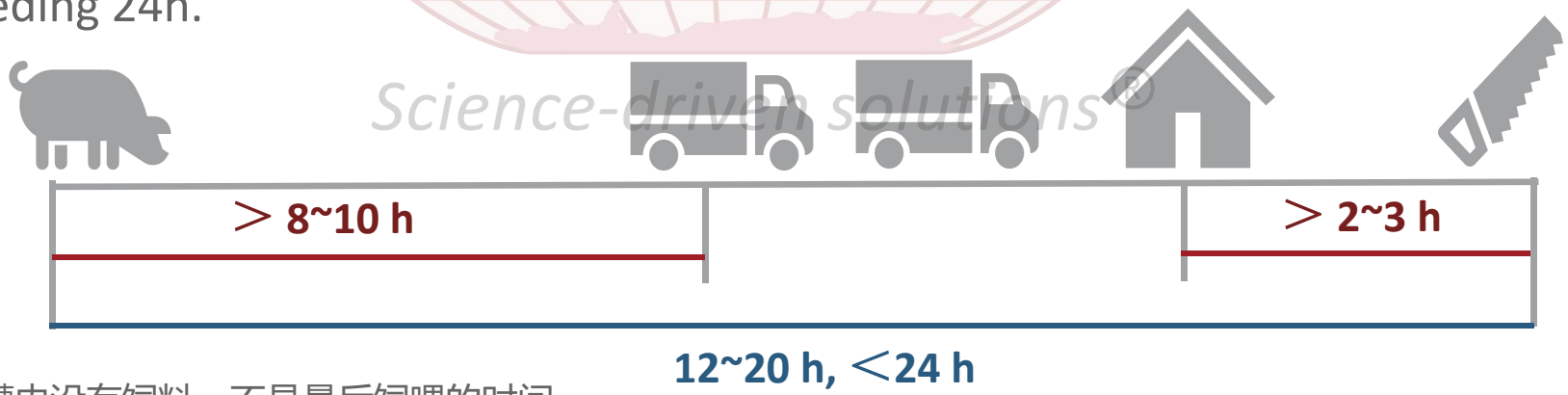
Management of pig marketing: feed withdrawal



- 企业口碑下降
  Decrease company reputation
- 毛猪销售价格下降
  Decrease live pig price
- 养户结算增加
  Increase payment to farmers
- 饲料浪费
  Waste of feed
- 利润损失
  Loss of profit

停料建议
Suggestions on feed withdrawal

- 从提升屠宰率的角度，装猪前应让猪至少停料8至10小时；
  At least 8-10h feed withdrawal time before loading in order to increase slaughter yield.
- 在运输完毕将猪放入待宰圈后，在致晕前，让猪至少休息2至3小时；
  At least 2-3h lairage time.
- 理想情况下，总停料时间（在猪场、运输期间和屠宰厂）应为12至20小时，且不超过24小时。
  Ideally, total time of feed withdrawal should be within 12-20h (at farm, transport and at plant), not exceeding 24h.



停料：指料槽内没有饲料，不是最后饲喂的时间
Time of feed withdrawal refers to the time when feeder is empty, not the last time of feeding.

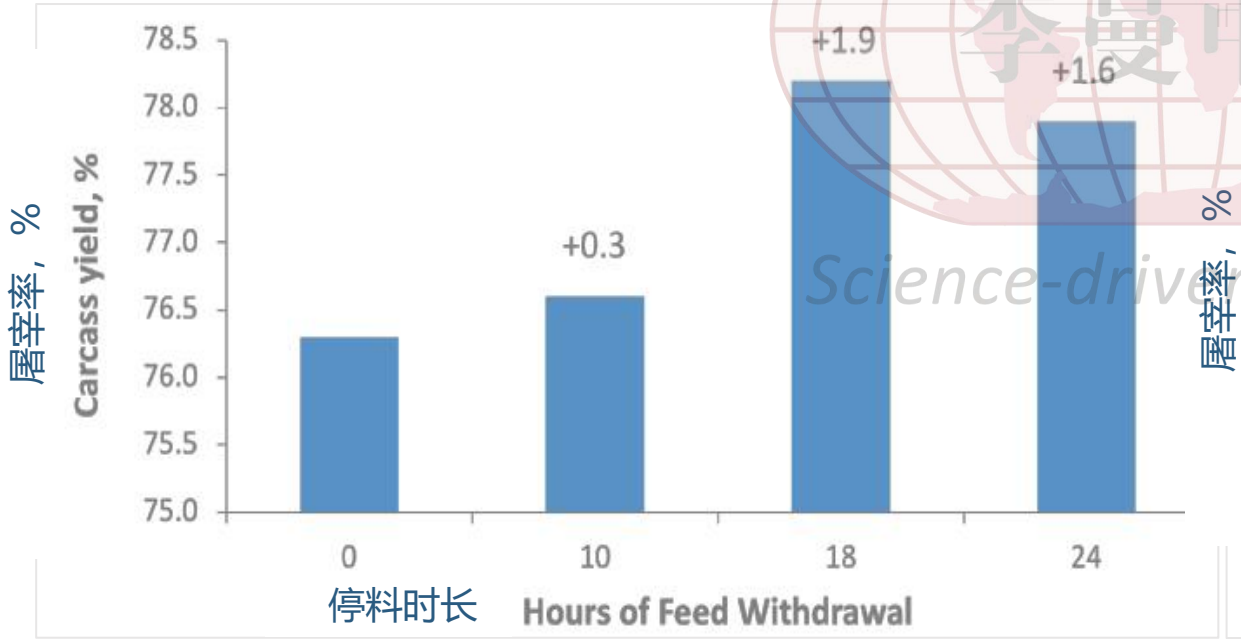
停料对屠宰率的影响
Impact of feed withdrawal to slaughter yield

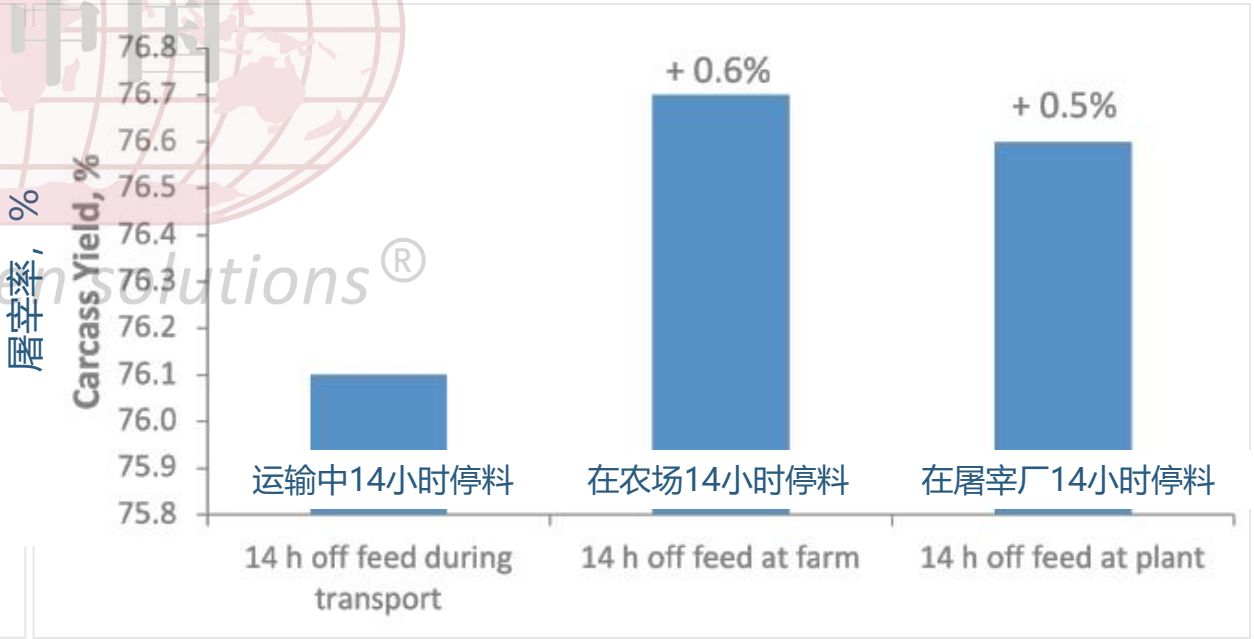
- 12-20小时的停料时长可有效提升屠宰率；

  A 12-20h of feed withdrawal can effectively increase slaughter yield.

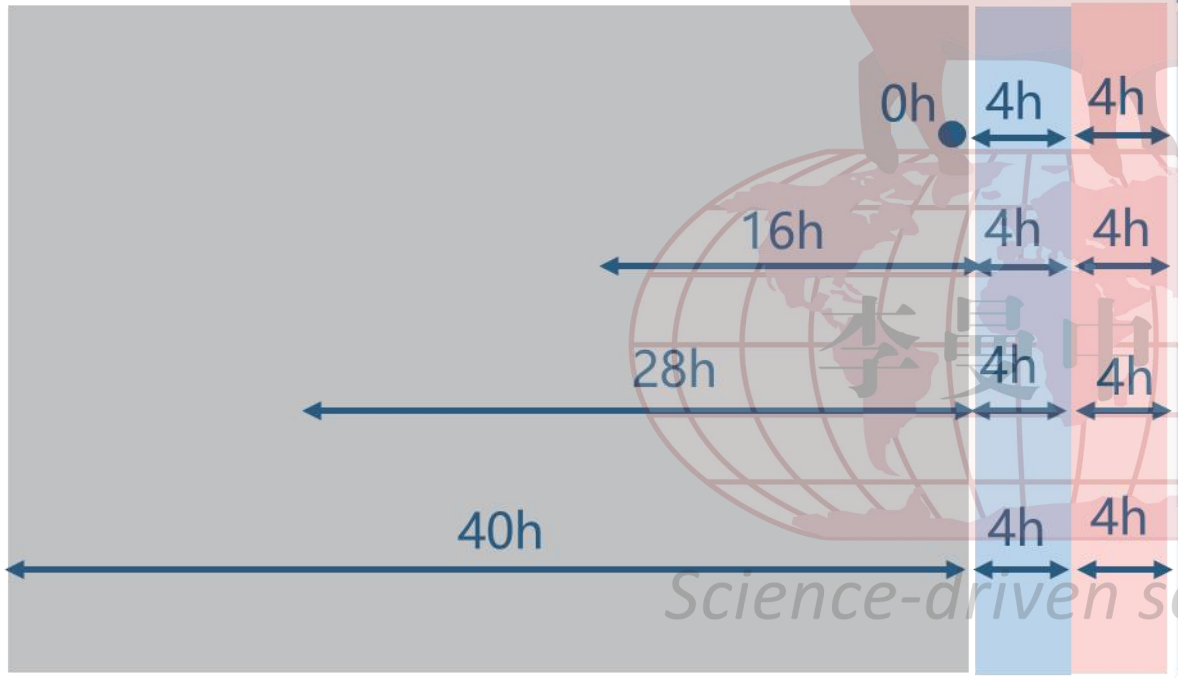
- 在非运输环境中的停料更有利于提升屠宰率。

  Feed withdrawal during non-transportation time can increase slaughter yield more effectively.





停料24小时可以在不影响胴体重的情况下提升屠宰率1.66%，停料超过24小时可能会降低热胴体重 Feed withdrawal time within 24h can increase slaughter yield by 1.66% without affecting HCW. Feed withdrawal time over 24h may decrease HCW.



总停料时间，h	初始活重，kg	到厂重，kg	热胴体重，kg	屠宰率，%
8	129.9	128.8	**95.8**	**74.43**
24	129.6	125.5	**95.5**	**76.09**
36	130.1	122.8	**93.8**	**76.35**
48	129.8	121.9	**93.1**	**76.40**

- 总共728头母猪和阉公猪，PIC337x康贝尔； A total of 728 barrows and gilts, PIC337xCamborough.
- 初始活重在出猪前44h测量。 Initial live weight was measured 44h before loading.

Frobose et al., 2018. “Effects of preslaughter feed withdrawal time on finishing pig carcass, body weight gain, and food safety characteristics in a commercial environment.”

农场停料考核管理

Management of feed withdraw KPI at farm

- 上游下游KPI不同；
  Different positions within the industry chain have different KPIs
- 同一企业内，不同部门KPI不同；
  Different department within the same company also have different KPIs
- 同一企业内，生产部门和销售部门配合度
  The coordination between production and sales department within the same company

3. 育肥猪出栏管理 – 装猪/运输/卸猪

Management of pig marketing

在猪场装猪是一大首要应激。通过适当的转猪技巧、转猪工具和便于猪移动的设备，可最大限度地减少这种应激。

Loading at farm is one of the primary causes of stress. Using proper skills and tools to move pigs can minimize the stress.

Poor lighting and the only light is shining directly into the eyes of the pigs.

Good lighting, but low hanging lights are distracting to the pigs.

确保在装猪过程中猪经过的所有区域都有适当的照明。

Provide good lighting when moving and loading pigs.

- 光线充足 Sufficient lighting.
- 没有重大光线变化 No dramatic light transitions.
- 漫射灯光 Even distribution of lighting.
- 高处安装 High hanging lights.

赶猪
Movement of pigs

- 小批量移动猪群
  Move pigs in small groups
    - 同时移动太多猪会导致拥挤
      Toom any pigs will cause crowding.
- 了解科学移动猪群的原理
  Know the science of moving pigs
    - 不要越过猪的平衡点或进入它的盲区
      Never go forward of the point of balance of enter the blind spot
- 避免噪音以及大喊大叫
  Avoid loud noises or shouting
- 禁止粗暴的肢体接触
  No rough physical contact
- 让猪按自己的节奏前进
  Move the pig at its own pace

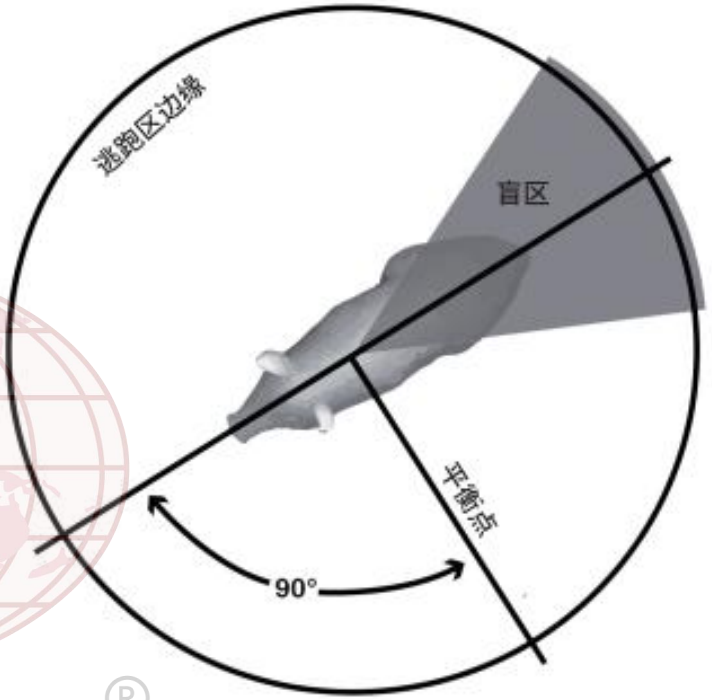


图3.29 移动猪的技巧

图片来源：美国国家猪肉委员会《运输质量保证手册》，2018年

赶猪工具
Pig handling tools

可以使用
Acceptable




可少量使用，但最好完全不用
Minimize use, but best to completely eliminate use

禁止使用
Never use



赶猪
Movement of pigs

- 移除通道内的干扰项，避免90°的直角转弯。

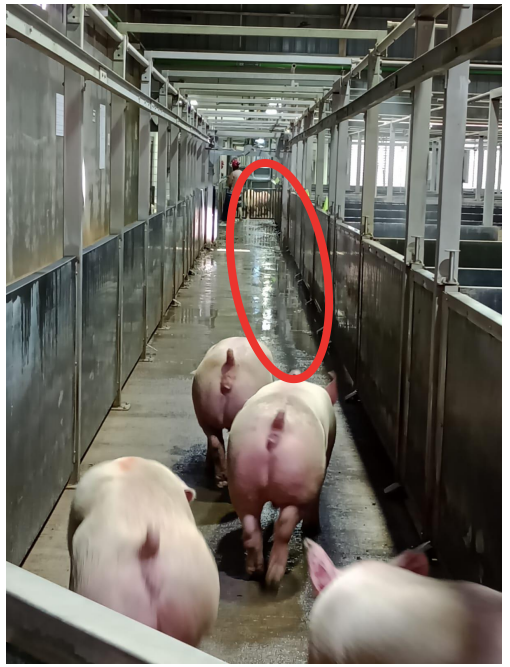
  Remove distractions from the pathway. Avoid 90 degree turns

- 地面类型的变化以及地面积水的倒影均会干扰猪并影响其移动。

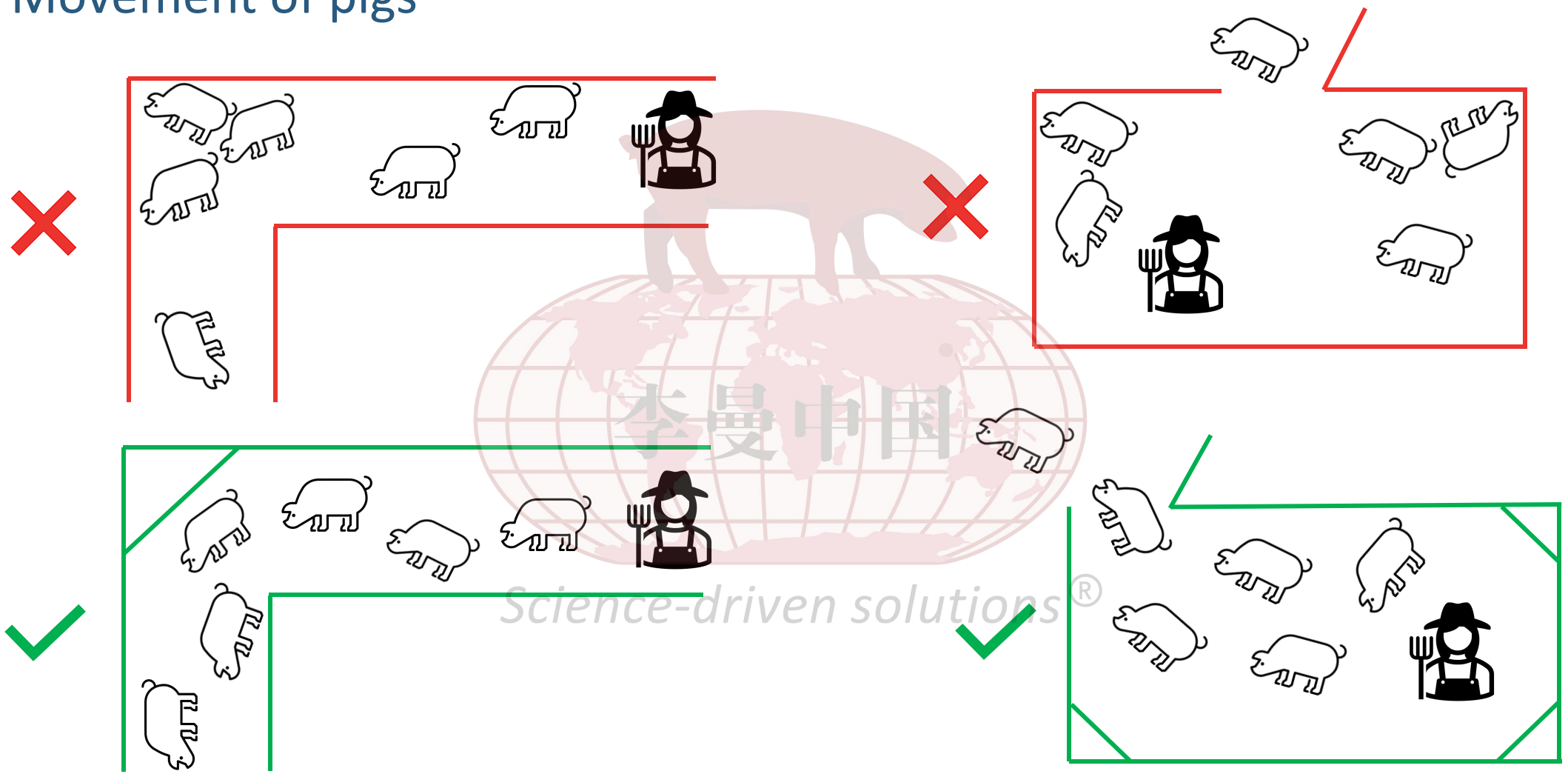
  Different floor types or reflections on the floor will cause distractions

- 通道内光线分布均匀，且光源位于高处，不会直射猪只。

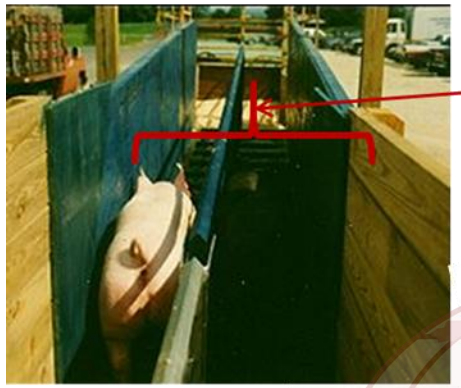
  Evenly distributed lighting, hanging high, not shining directly into the eyes of pigs.



赶猪
Movement of pigs



装猪
Loading pigs

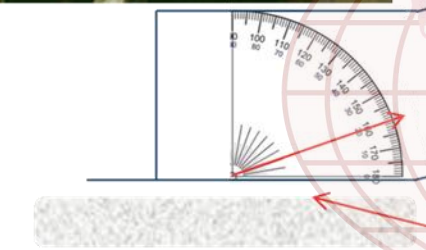


最少可容纳并行的两头猪（0.9米）
At least two pigs width (0.9 m)

最大坡度20°，推荐不大于15 °
Slope less than 20 °, recommended < 15 °

防滑的表面，间距、大小合适的防滑台阶（2.5 cm高，20 cm宽居中）
Surface prevents from slipping, with properly spaced steps (2.5cm height, 20 cm width)

坡道与卡车连接良好
Inclines and trucks are connected well



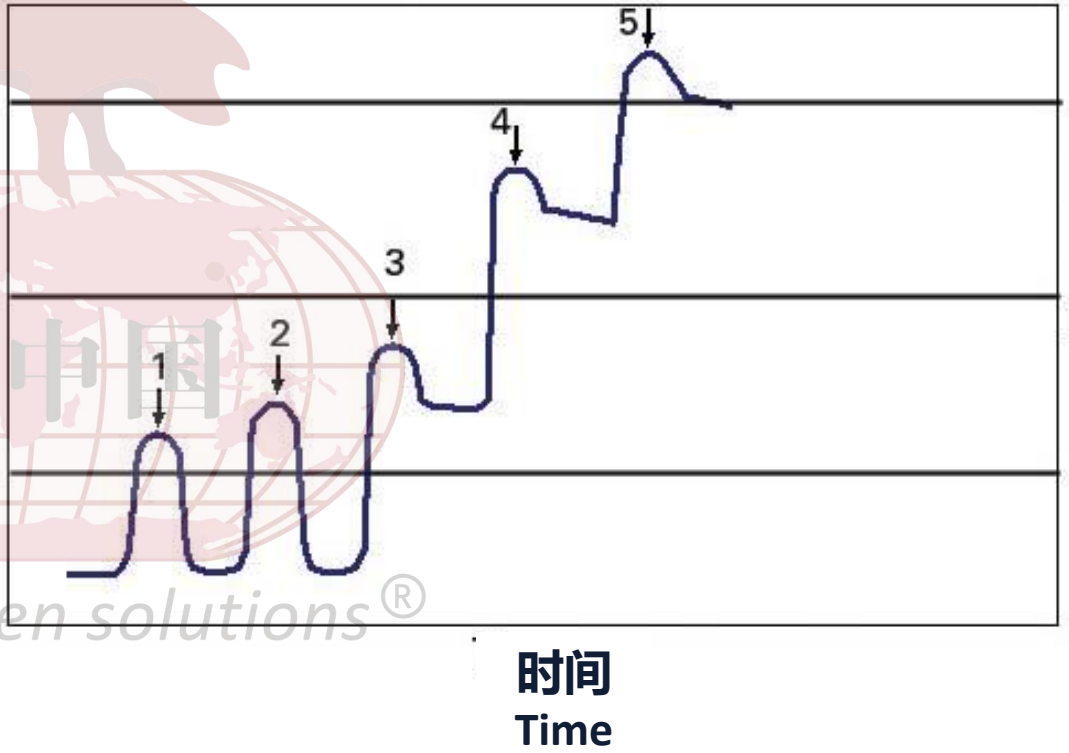
在坡道两端均设有水平区域
Horizontal space at two ends of the incline

定期检修坡道及卡车接触地方
Check the connecting part regularly

运输
Transportation

- 如果猪车内环境不好，装猪时产生的应激就无法消除。
  The stress caused by loading cannot be alleviated if the transport environment is poor.
- 在少于2小时的行程中，通常猪不能在卸猪前适应装猪和运输产生的应激
  If the transport time is less than 2h, stress caused by loading and transport cannot be reduced.

装载和运输带来的应激具有加性效应*
The stress caused by loading and transportation has additive effects



*Handling and Loadout of the Finisher Pig, Jeff Hill, PSF, Anna K. Johnson, ISU

运输
Transportation

- 关注正确的装载密度范围：225-250 kg/m^{2}的密度可有效减少到场死亡率。
  A stocking density of 225-250 kg/m^2 can effectively reduce DOA.
- 装载密度越高，运输时越要小心。
  Pay more attention when stocking density is high.
  - **运输前控料**是减少运输损失和确保运输动物福利的关键。
    Feed withdrawal is the key to reduce transport loss and ensure animal welfare during transportation.

卸猪
Unloading

- **合理的卸猪流程和宰前静养对于帮助猪快速克服应激至关重要。尤其是当待宰圈太小，猪在屠宰前无法获得足够的静养时。**

  Proper unloading procedure and lairage can help pigs overcome stress, especially when the lairage pen is too small and the pigs cannot get enough rest before slaughter.

- 在卸猪过程中，避免不必要的上下坡。如果要有坡道，坡度应小于20°。 Avoid inclines or declines when unloading. If unavoidable, the slope should be less than 20 degrees.
- 卸猪坡道上应采用防滑钉或防滑材料避免猪只跌倒。
  Use anti-slip material to prevent pigs from slipping on the ramps.

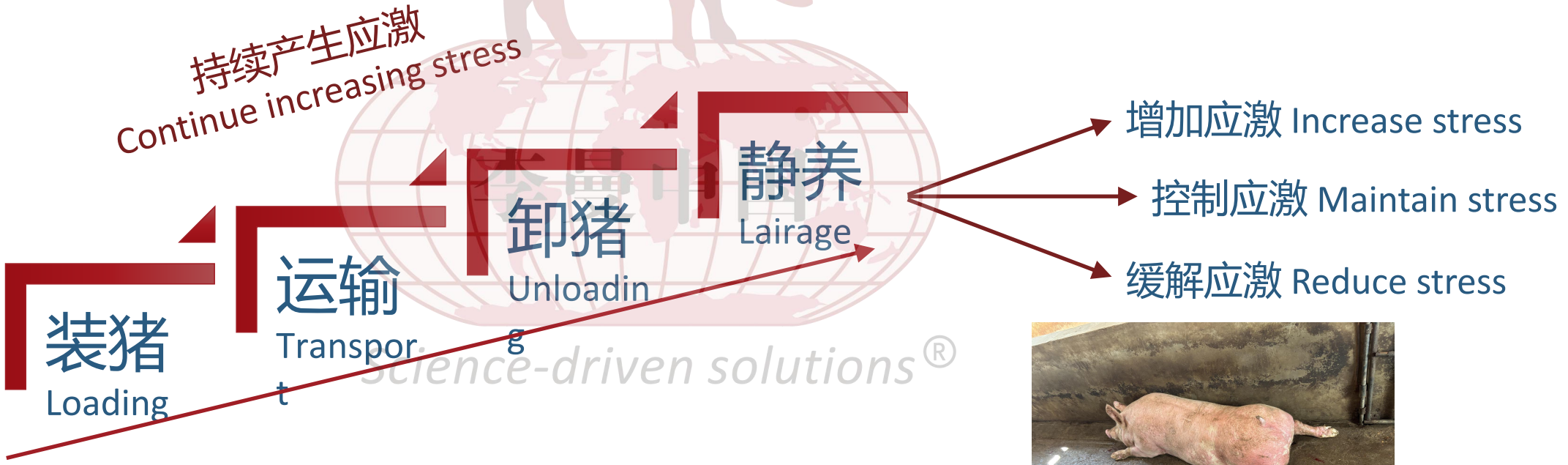
金属坡面容易导致猪只滑倒
Metal surface can cause pigs to fall

4. 育肥猪出栏管理 – 静养

Management of pig marketing: lairage

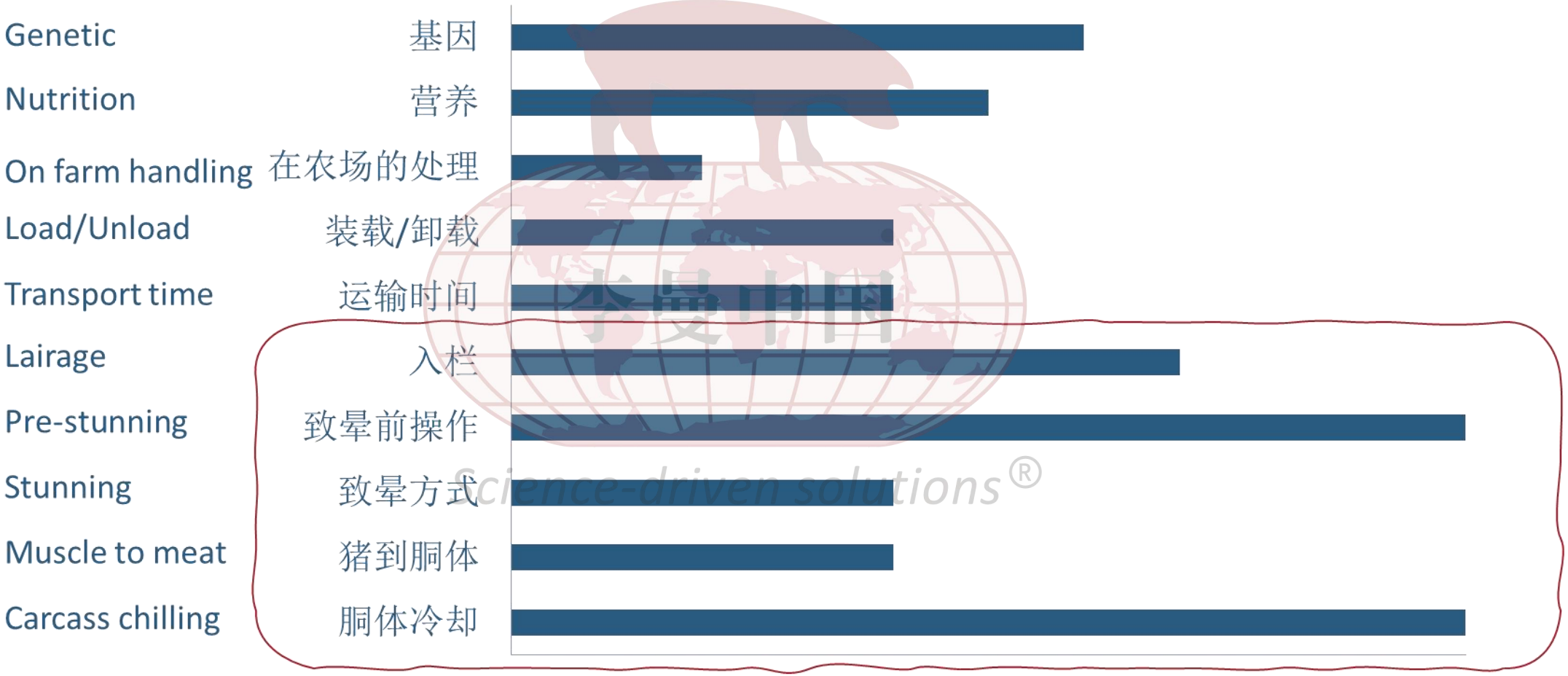
在待宰圈中休息有助于缓解猪在运输过程中出现的应激反应。

Rest in lairage can reduce stress during transportation



5. 宰前管理 – 屠宰厂管理

Management of pig marketing: pre- and post-harvest management

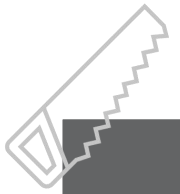


从生猪到猪肉全流程管理关键点

Critical management points from pig to pork

- **不控料**导致屠宰率低
  No feed withdrawal leads to low slaughter yield
- 农场**赶猪方式不规范**导致鞭伤、跛脚、应激
  Improper pig handling leads to whip marks, lameness and stress

- **运输密度过大**易导致损伤、应激、甚至死亡
  High loading density can cause injury, stress and death.
- 使用**错误的工具**赶猪导致损伤和应激
  Use improper tools to move pigs can cause injury and stress



- **待宰圈条件差、静养时间短**易导致猪只应激、降低肉品品质
  Poor lairage condition and short lairage time can cause stress and reduce pork quality
- **屠宰线上操作**（击晕、放血、冷却等）会对最终呈现的肉品品质有影响（渗水发白）Slaughter practices (stunning, exsanguination and chilling) can affect pork quality

谢谢！

Thank you!

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