Reducing Postweaning Pig Loss

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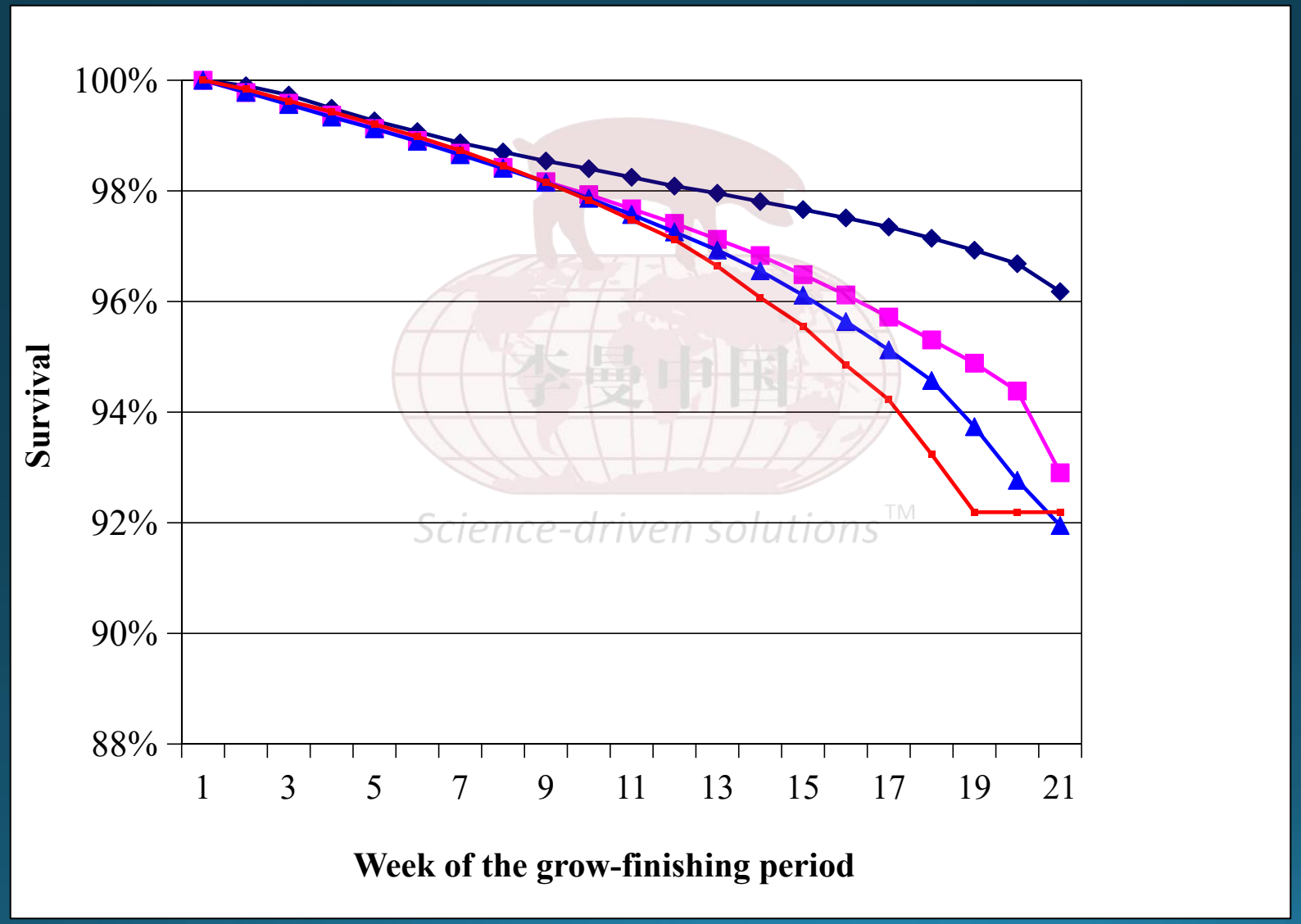
The challenge

- Post weaning pig loss is increasing in the US
- Death and slow growth are not independent, must be evaluated together
- Quality at entry a major concern
- Group and individual characteristics not independent

Survival during the grow-finish period 2018-2021



Four Biological Functions to Flourish

- **F**eed – take in adequate nutrition
- **F**ight – compete and adapt in difficult conditions (disease, heat etc)
- **F**light – avoid difficult adverse conditions
- **R**eproduction – replacement

Optimizing = Coping = Seeking Well-being

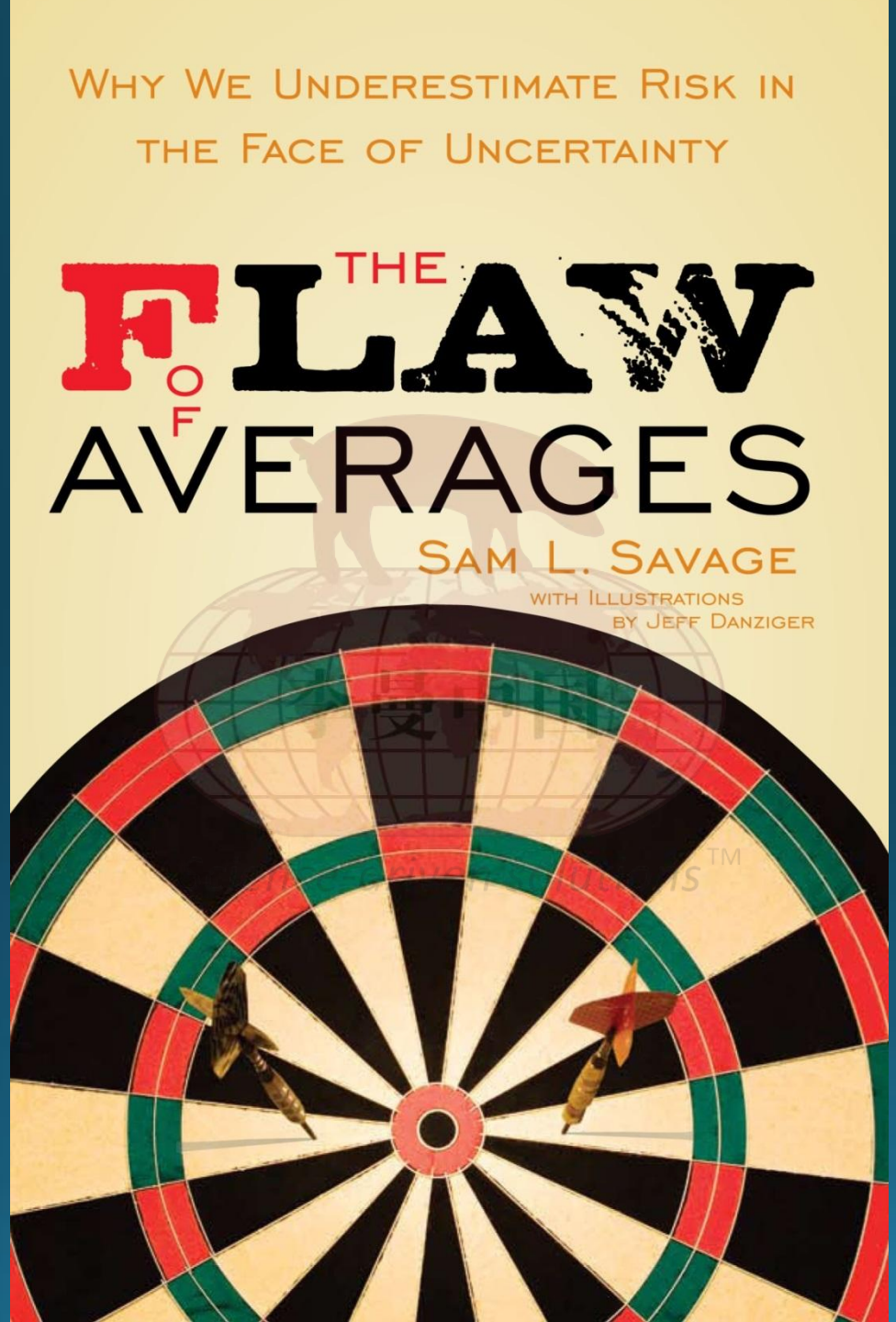
Is it a group or individual pig problem?

- Atomistic fallacies

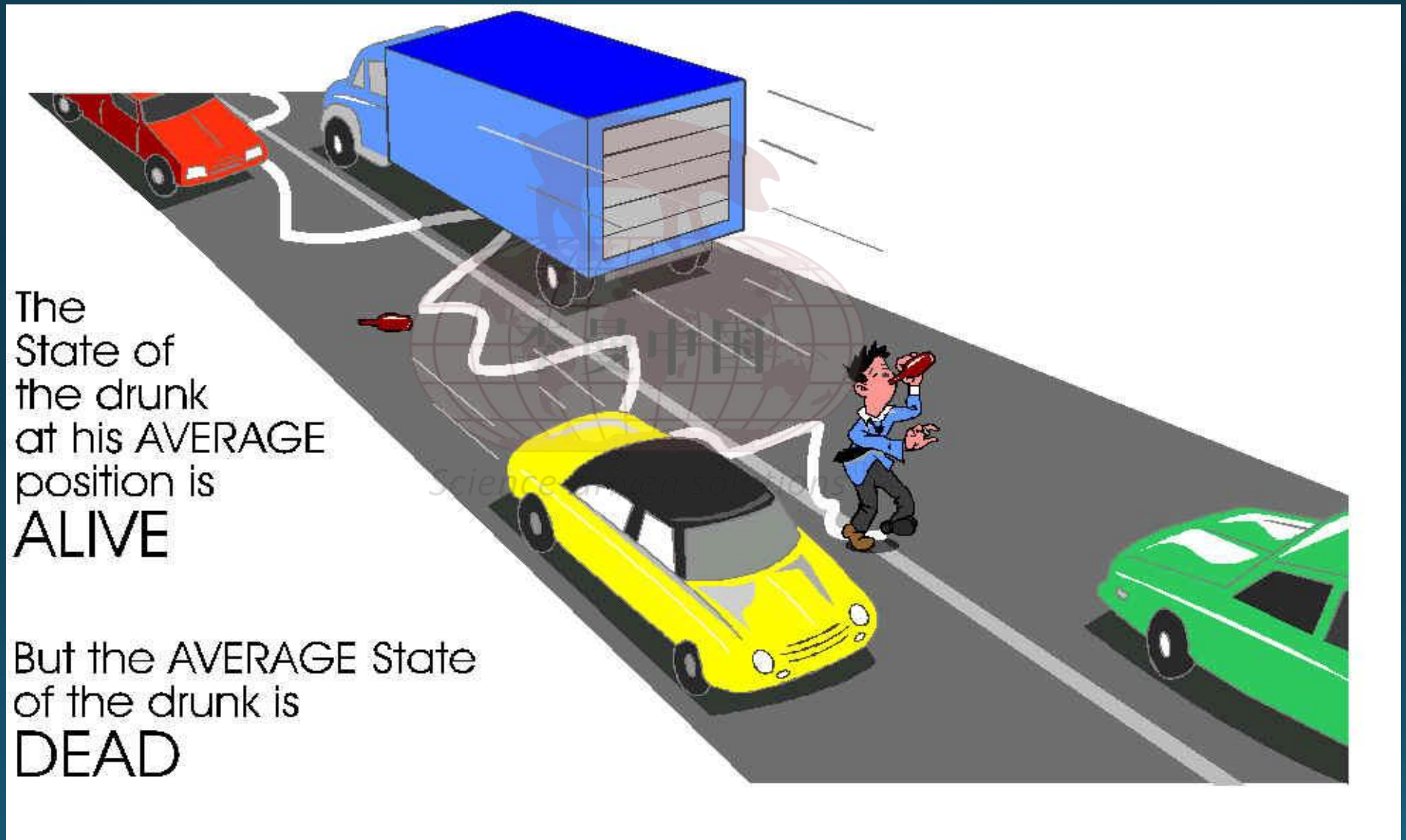
vs

- Ecologic fallacies

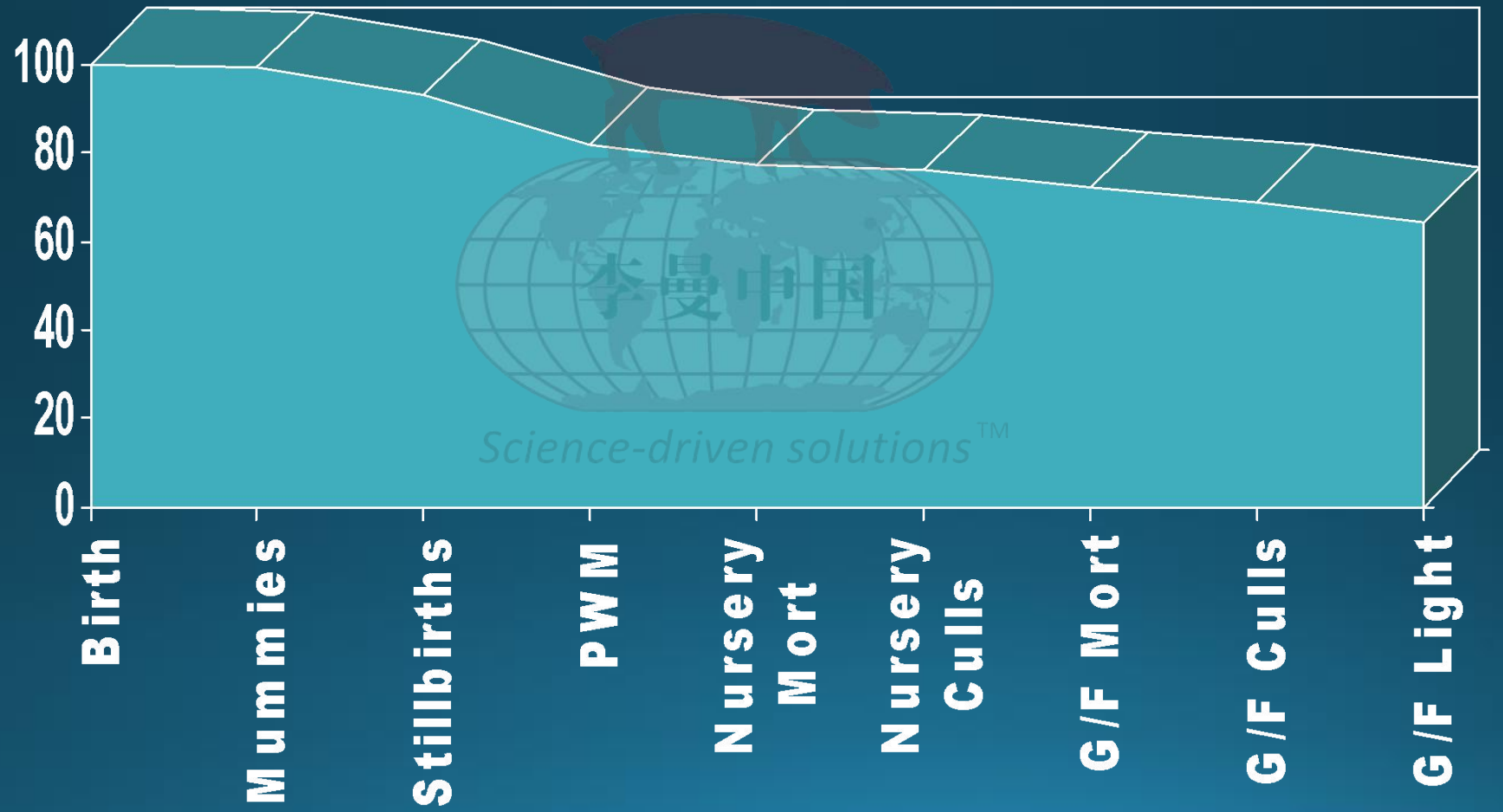
- The problem is it is both
- Huge variation in week to week farm performance


Why We Underestimate Risk in the Face of Uncertainty
THE FLAW OF AVERAGES
Sam L. Savage
with Illustrations by Jeff Danziger

The Flaw of Averages



Attrition



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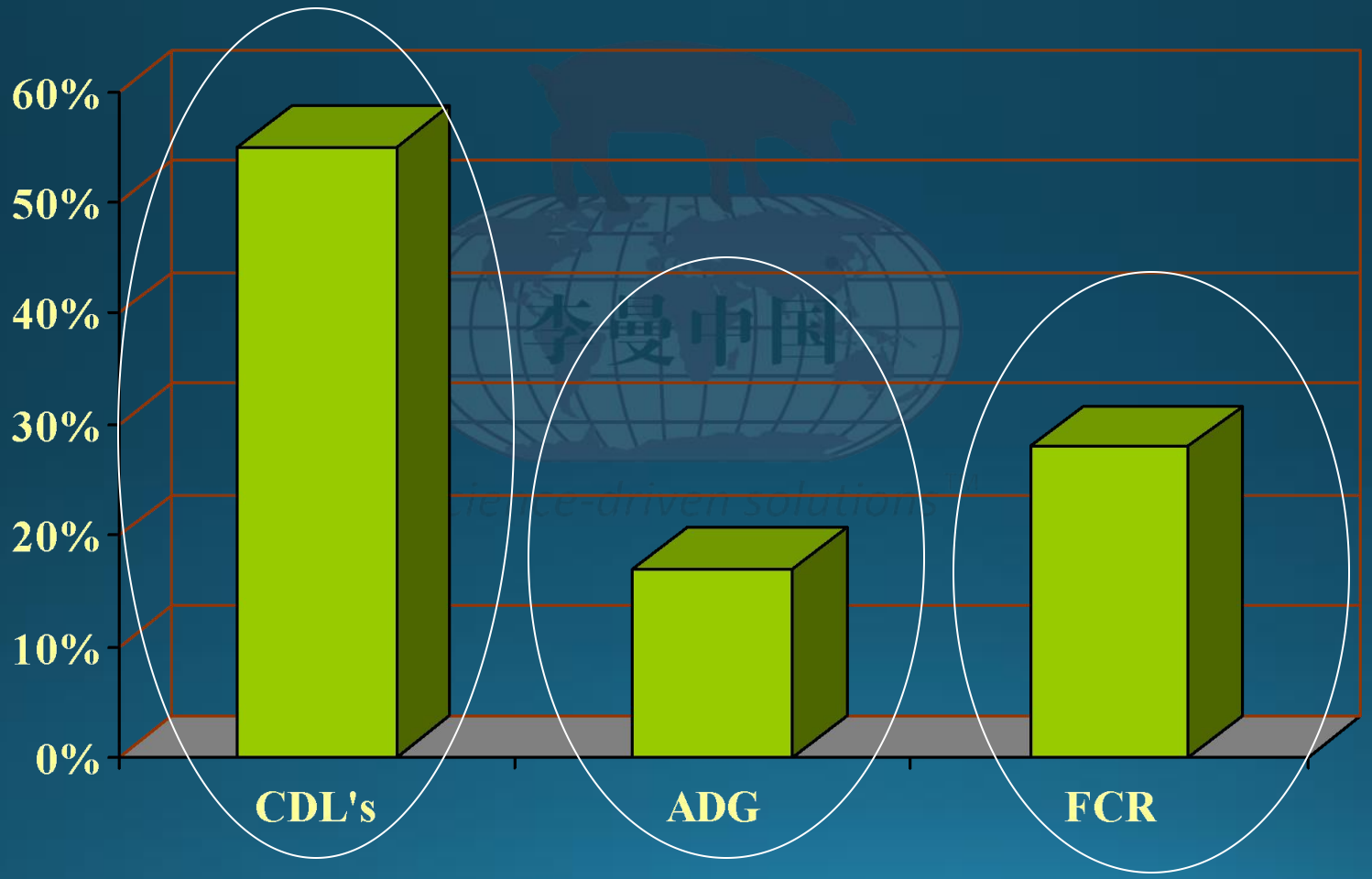
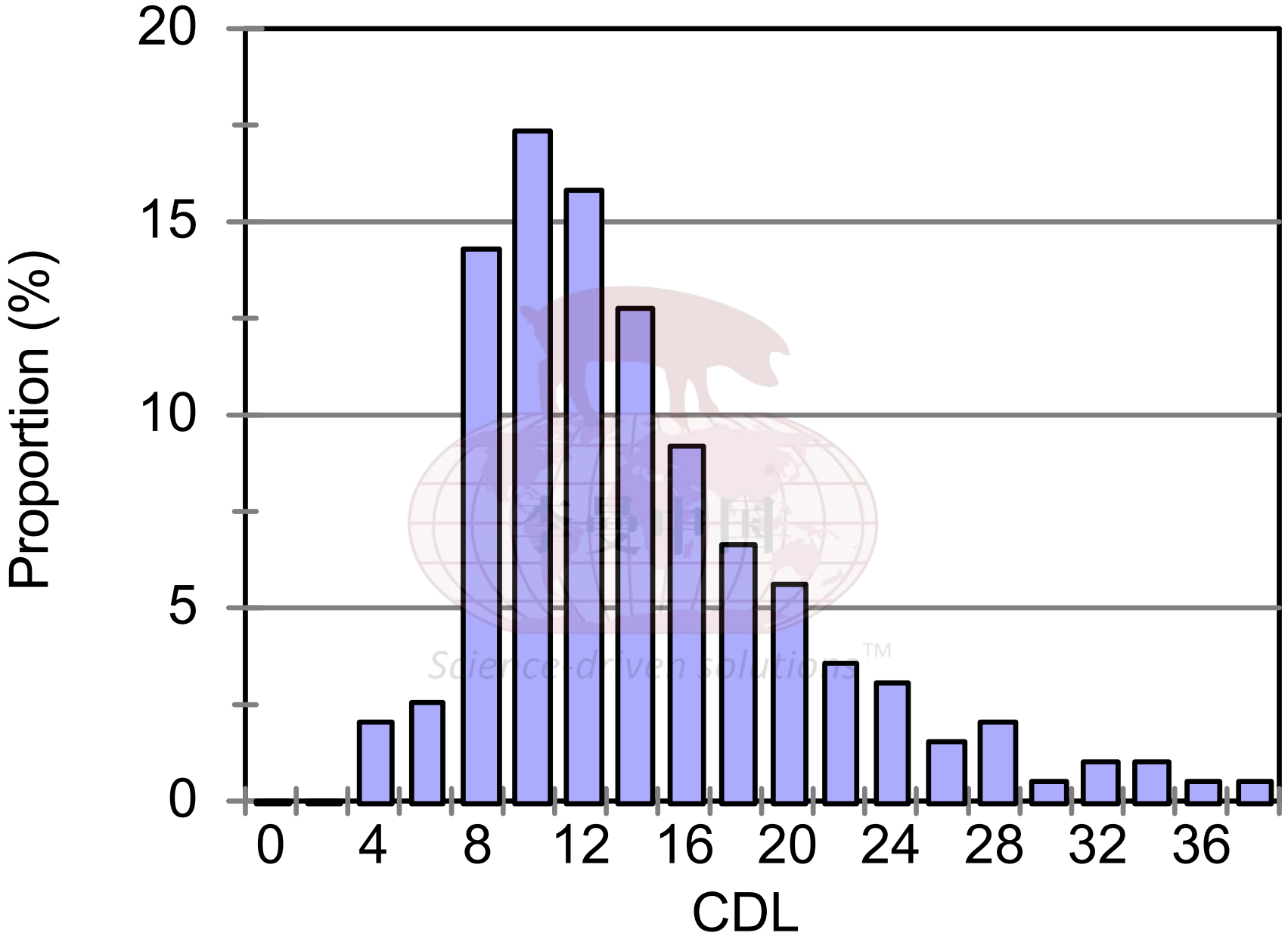
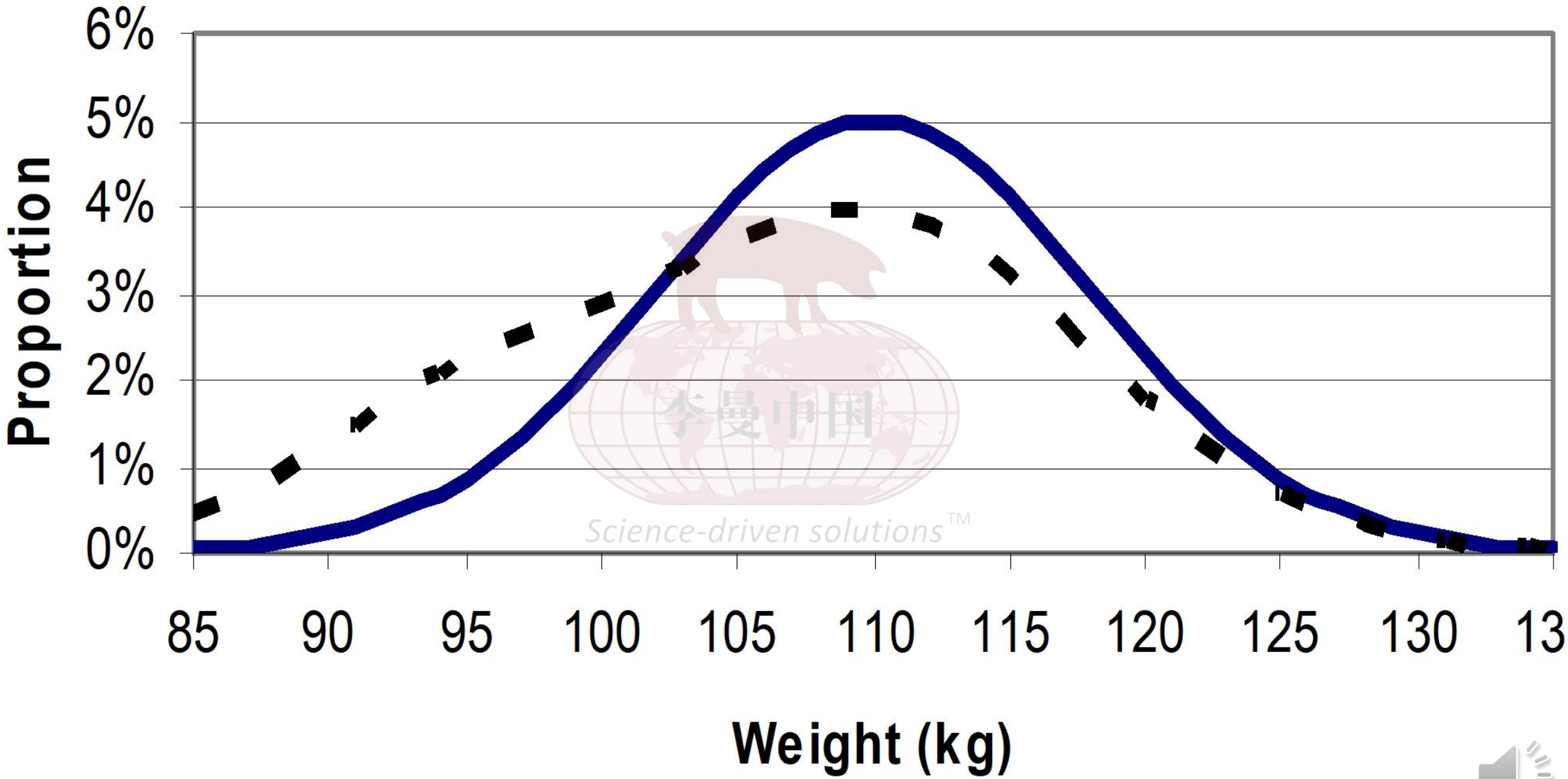
Components of variation of profits (excluding base price) (Cull, deads and lightweights (CDL))




20
15
10
5
0
Proportion (%)
0
4
8
12
16
20
24
28
32
36
CDL



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Comparison of High vs Low Mortality Rate groups

- Classically a retrospective analysis
- Often disease-focused
- Location can be a factor
- How about:
  - Gilt progeny
  - Proportion lightweights
  - Level of cross-fostering
  - Location

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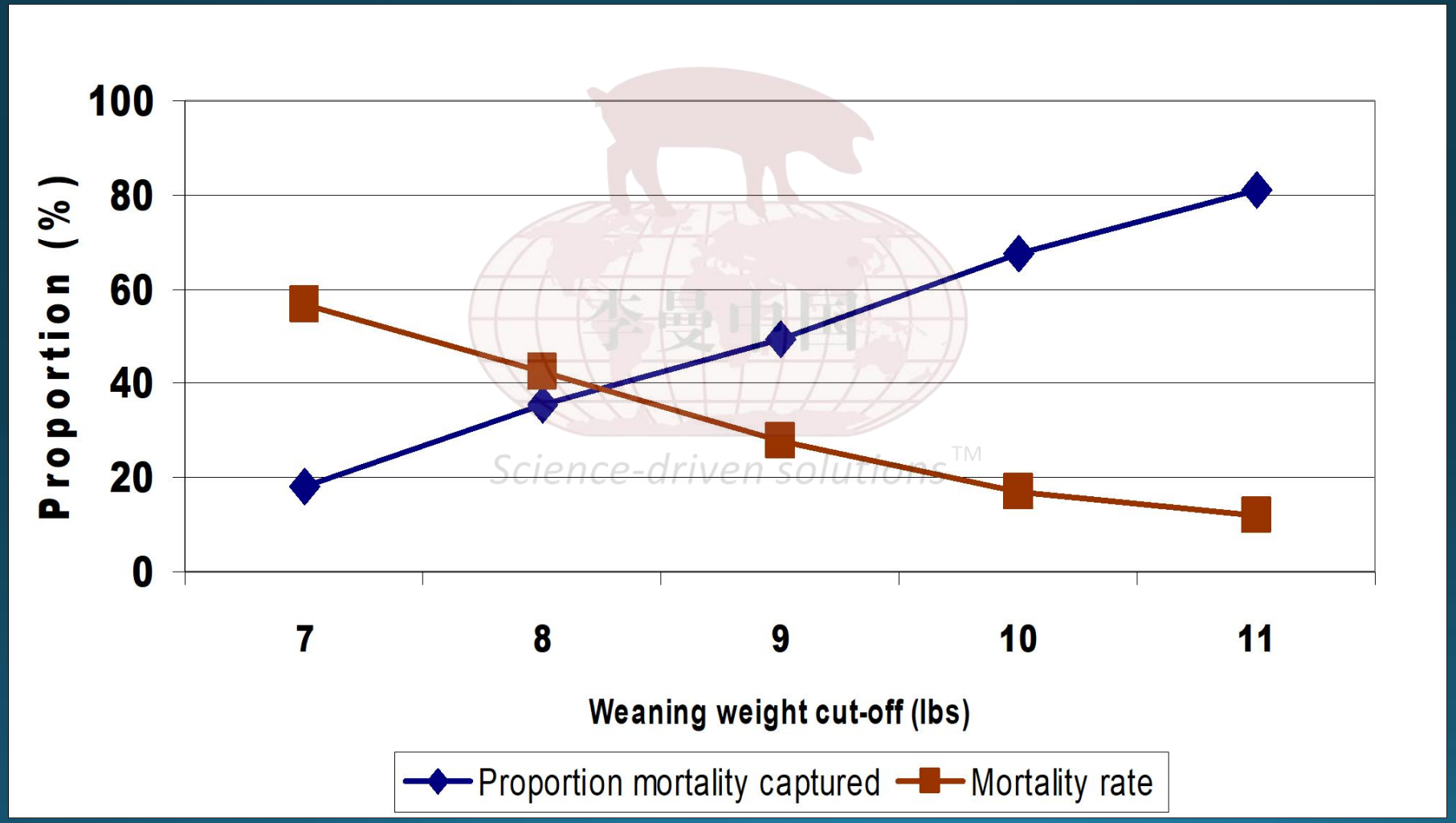
Example:

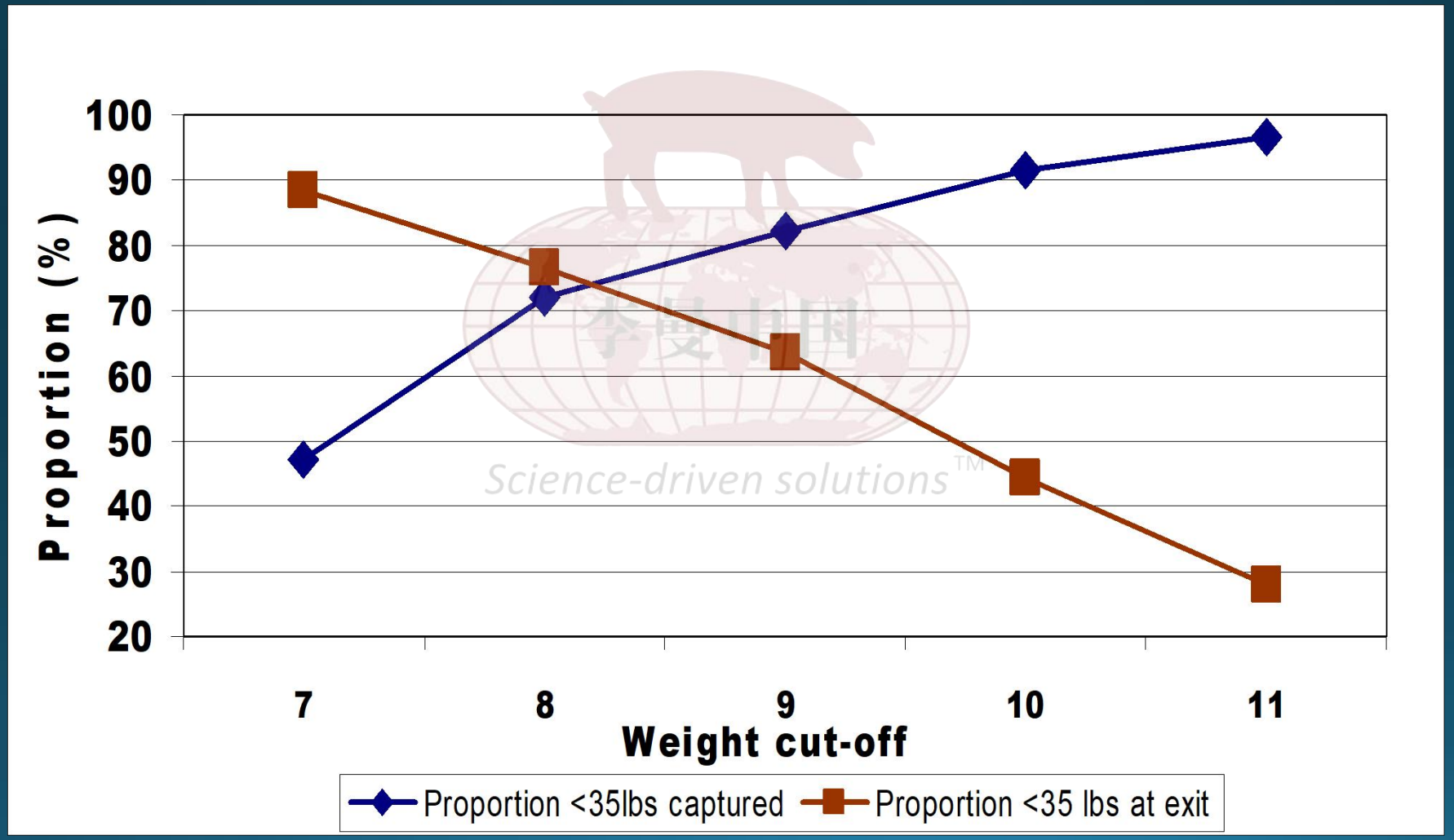
- What predicts a high mortality nursery?
  - Low mortality groups had an average of 19% gilt litters, 6% <8 lbs, 7% <15 days of age
  - High mortality groups had a 37% proportion gilt litters, 14% <8lbs, 11% <15 days of age

- Question: how can an 18% increase in gilt litters double the mortality rate?

Mortality


100
80
60
40
20
0
Proportion (%)
7
8
9
10
11
Weaning weight cut-off (lbs)
Proportion mortality captured
Mortality rate

Low exit weight



Example of barrows <8 lbs at entry vs < 35 lbs or dead at exit

Entry/Exit Wts	<35 lbs	>35 lbs	Totals
< 8 lbs	85	110	195
> 8 lbs	118	828	946
Totals	203	938	1141

Lightweight/dead rates: < 8 lbs: 45% >8 lbs: 12%
Overall Rate: 18%
OR: 3.6
PAF = 18% - 12% = 6%

Classes of pigs for treatment

Pigs	Atomistic	Ecologic	Financial
Unsustain-able Euthanize	Likelihood of success is too low to maintain	Damage to population is too high to maintain	Negative value pig
Marginal Euthanize or treat	Unsustainable unless treated	High damage unless treated	Low value pig
Needy Treat	Low value unless treated	Damage potential affected by treatment	Higher value – treatment
Tough Enjoy	Not affected by treatment	Not affected by treatment	High value pig

Challenges on CDL's

- Reluctance to combine mortality and growth rate
- Study designs assume normality and minimized initial variation
- No textbook on runts
- Few records
- Controversial place in welfare measurement

- No place on profit and loss statements as an opportunity cost
  - Undervalued veterinary interventions

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