Quality Weaned Pig: A Cornerstone of Growing Pig Excellence

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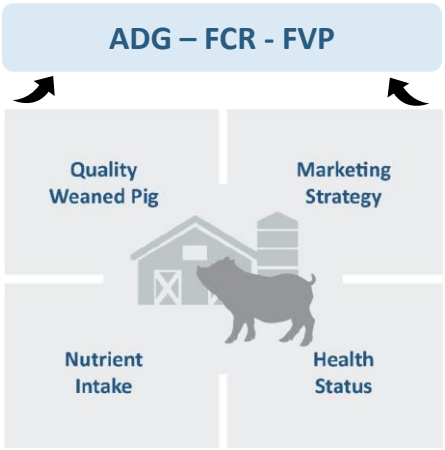
The Cornerstones of Growing Pig Excellence



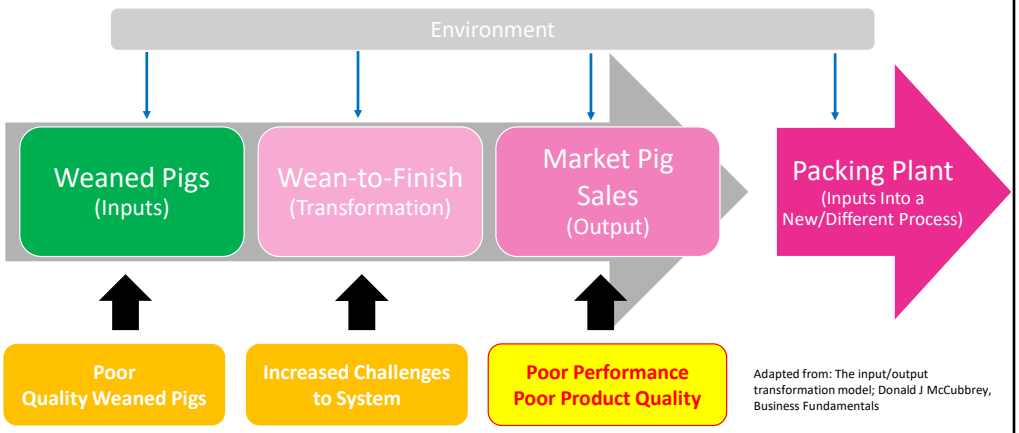
Understanding Quality Weaned Pig (QWP)

How Quality Weaned Pig Can Be Defined?

What is Quality

- Quality is the totality of features and characteristics of a product or service that bear on its ability to satisfy given needs. (American Society for Quality)
- **Quality** is how good something is. If the **quality** of a product is high, then that means that it is fit for its purpose. If the **quality** of an item is low that means that the product may break easily or not work properly.

Production System: Input/Output Transformation Model



Adapted from: The input/output transformation model; Donald J McCubbrey, Business Fundamentals

Definition of ‘Quality Weaned Pig’

Pigs/groups of pigs at weaning, which display a set of defined biological, sanitary and zootechnical characteristics (not just one). These characteristics are indicators of a pig’s potential performance through nursery & grow-finish phases.*

- Weaning Age and Weaned Weight
- Healthy
- Weaning Weight Efficiency (Combination age/weight)
- Thrifty
- Consistency

**Thresholds for each of these characteristics may be different for every flow based upon the goals and constraints. Thus, it is recommended a set metric for each characteristic not be applied to the entire US swine industry.*

Understanding Quality Weaned Pig (QWP)

Why Should Quality Weaned Pig Be Measured?

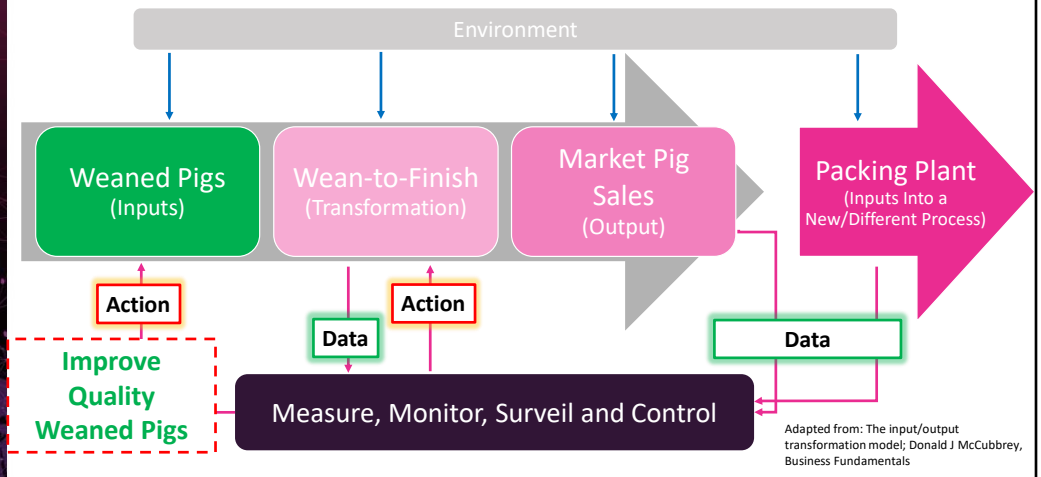
Pig Business and Animal Welfare Improvements

Why Measure QWP?

1. Adjust the early pig care procedures in accord to QWP based on;
   - Weight and Age : Room temperature, Feed intake training procedures, Feed budget, placement plan
   - Health Status: Room temperature, potential medications, immunization program changes or potential production flow changes

2. Feedback to sow unit will allow a continuous improvement process (CIP)
   - Piglet processing improvements related to; tail docking, umbilical hernias or physical defects, lameness, etc
   - Consistent pig flow: Use of NF or WF spaces

Production System: Input/Output Transformation Model



Challenge: **Improve weaned pig weight with same weaning age**

QWP Definition Based on Pig Characteristics

Weaning Age / Weight Framework ✓ Wean at 21-28 days (average 24d) ✓ It isn't recommendable less than 18 days ✓ Aim to wean pigs with no less than 4 kgs ✓ Weaned Weight Efficiency: • Real weaned weight / Targeted weaned age based on weight/age table. Goal is >95%	**Thrifty** ✓ Ability and willingness to eat ✓ Genetic. Ensure: • Genetic source is robust • Multiplier well managed • Index Managed Program ✓ Absence of phenotypic defects such as lameness, umbilical hernia, etc.
Healthy ✓ Sow Units: PRRSV, IAV, Mhyo, PEDV, DCoV & TGEV Negative at least in multipliers and at minimum, stability in rest of system	**Consistency** (across cohorts & output from sow farm) ✓ Respect farrowing room integrity. ✓ Do NOT wean smaller/younger pigs to complete groups nor delay pigs with poor growth rate ✓ Enough pig flow to fill barn/room quickly

Contributors: Will Lopez DVM, PhD. Juan Carlos Pinilla DVM, MS. Justin Holl PhD, Eng. Fernando Gomez MS, Deanne Hemker DVM, MS , Isaiah Spath BS. Sarah Jorgensen.

Weaning Age / Weight Framework

- Wean at 21-28 days (average 24d)
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Thrifty

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- Genetic. Ensure:
  - Genetic source is robust
  - Multiplier well managed
  - Index Managed Program
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Healthy

- Sow Units: PRRSV, IAV, Mhyo, PEDV, DCoV & TGEV Negative status at least in multipliers and at minimum, stability in rest of system

Consistency
(across cohorts & output from sow farm)

- Respect farrowing room integrity.
- Do NOT wean smaller/younger pigs to complete groups nor delay pigs with poor growth rate
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Weaned Pig Quality : Weaning Age

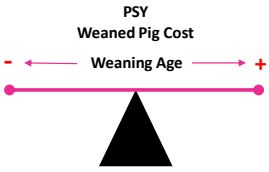
Impact of weaning age in WF performance at 127kgs ($0.29/kg of feed, USD)

	Baseline: 18d	20d	24d
Weaning weight, kgs/pig	5.3	5.8	6.7
Days on feed, days/ pig	155	152	147
Cumulative Feed Intake, kgs/pig	297	293	286
WF Mortality	5.50%	4.72%	3.80%
Total Cost Saving, $/pig	--	$1.69	$4.68
Total Cost Saving*, $/1,200 hd barn		$ 1,932	$5,403

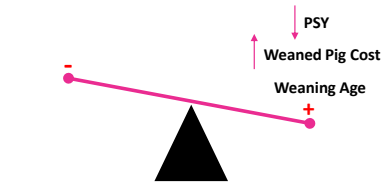
Based on: Dean Boyd 2015, Main 2004, and PIC internal results 2016

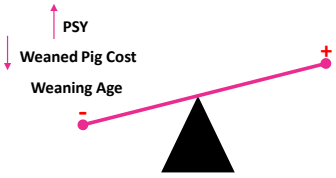
*Note: Cost saving don't consider the investment or inventory reduction in sow unit to increase the weaning age

Weaning Age Balance



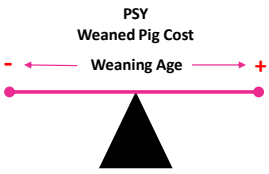
1. Same sow inventory and same farrowing crates



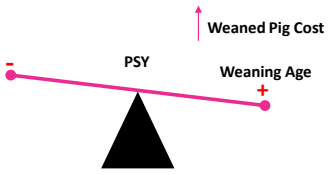


Is there payback by WF performance?

Weaning Age Balance



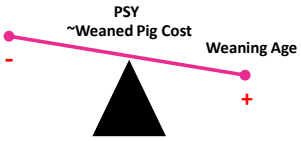
1. Sow inventory reduction and same farrowing crates
2. Same sow inventory and more farrowing crates



Is there payback by WF performance?

Weaning Age Balance

Deal: "Increase the weaning age keeping Pig Cost and PSY"



Example
Reduce the weaning age variation

Reduce piglet age spread in farrowing houses

Increase weaning events/wk

Weaned Pig Quality : Weaned Weight

Impact of weaning weight in WF performance at 127kgs ($0.29/kg of feed, USD)

	4 kgs	5.4 kgs	6.1 kgs
Days on feed, days/ pig	Extra 9-10	Baseline	4-5 Less
Cumulative Feed Intake, kgs/pig	Extra 8-9		4.5-5.4 less
WF Mortality	+ 1.31%		- 0.72%
Total Cost Saving, $/pig	+ $5.0		- $3.0

Note: based on PIC internal results 2016. WF mortality baseline is 5.5%.

Weaned Weight Balance

Deal: "Increase the weaned weight at same weaning age"

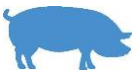
Example

Reduce the weaned weight variation at same age

- Improve Birth Weight
- Maternal ability
- Good Health (i.e. no scours)
- Excellent Farrowing Procedures
- Colostrum: Quality and Quantity

Weaned Pig Quality

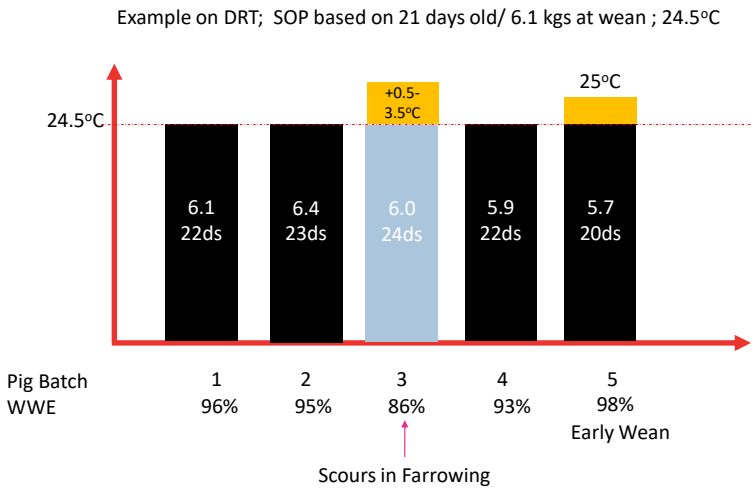
Weaned Age/Weight

	Field Result	Goal	*Weaned Weight Efficiency*
	5.9 kgs at 19 ds	5.5kgs/19ds	**103%**
	Who Is Better?		 Goal >95%
	6.6 kgs at 25 ds	7.4kgs/25ds	**89%** **Same WF procedures?**

Weaned Weight Table Reference

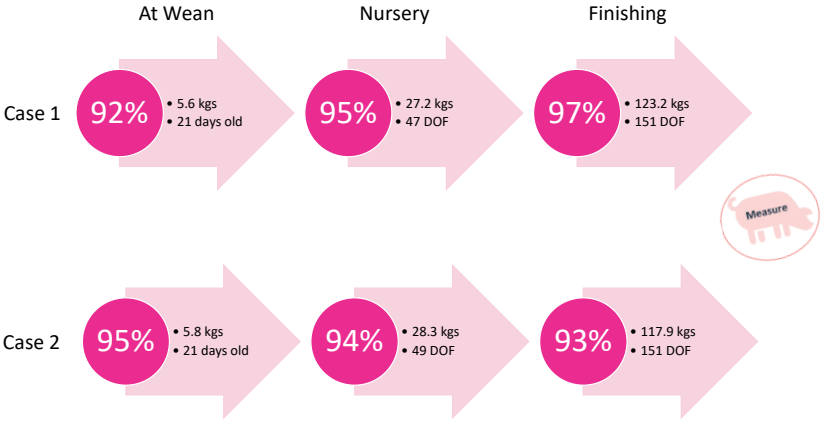
Age	Weight, kgs	Age	Weight, kgs
18	5.3	**24**	7.0
19	5.5	**25**	7.4
20	5.8	**26**	7.7
21	6.1	**27**	8.1
22	6.4	**28**	8.4
23	6.7		

Weaning Weight Efficiency



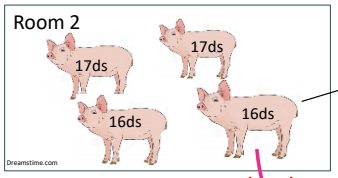
Weight Efficiency

Comparison & Evaluation



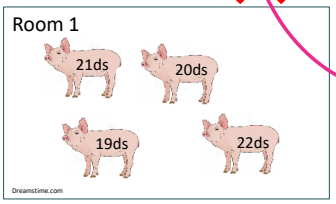
Weaned Pig Quality : Consistency

Room Integrity



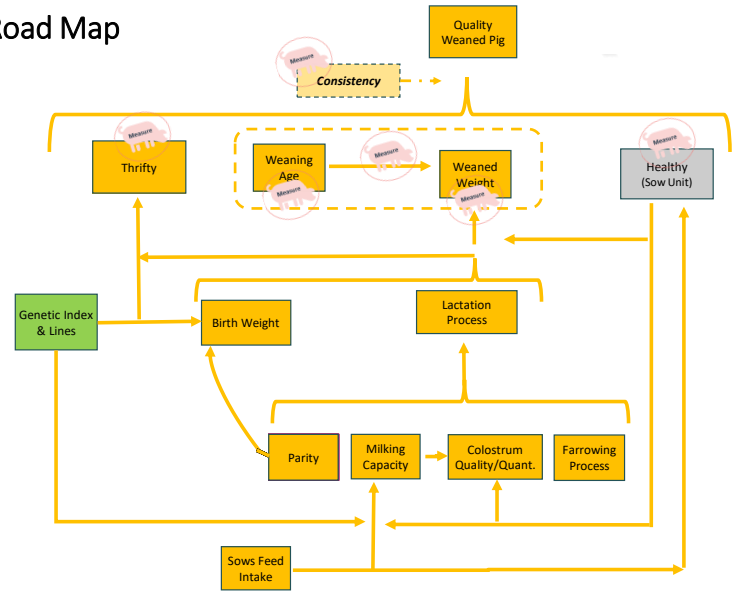
Immunity Challenges
Digestive System Challenges

Don't pick pigs from other rooms just to complete the weaned pig batch



Weaned Pigs

QWP Road Map



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Final remarks

- QWP is the start point of the growing pig excellent journey and it can't be improved if it is not measured
- QWP is one of the four WF performance cornerstones, therefore its status will allow to adjust the WF SOP and WF performance expectations
- It is easy increase the weaning age to improve the weaned weight; however, the whole picture need to be reviewed from the economic point of view.

"Quality Weaned Pig" Connects Performance at the Sow Unit with that of the Wean to Finish Production Phase to improve business performance as a whole