



Triumph Foods Integrated Pork Production



Who is Triumph Foods?

- 100% Owned by pork producers
- 5 Member owners
 - 37 Pork producers
 - Allied Producers Cooperative = 33 Producers
- NO outside ownership















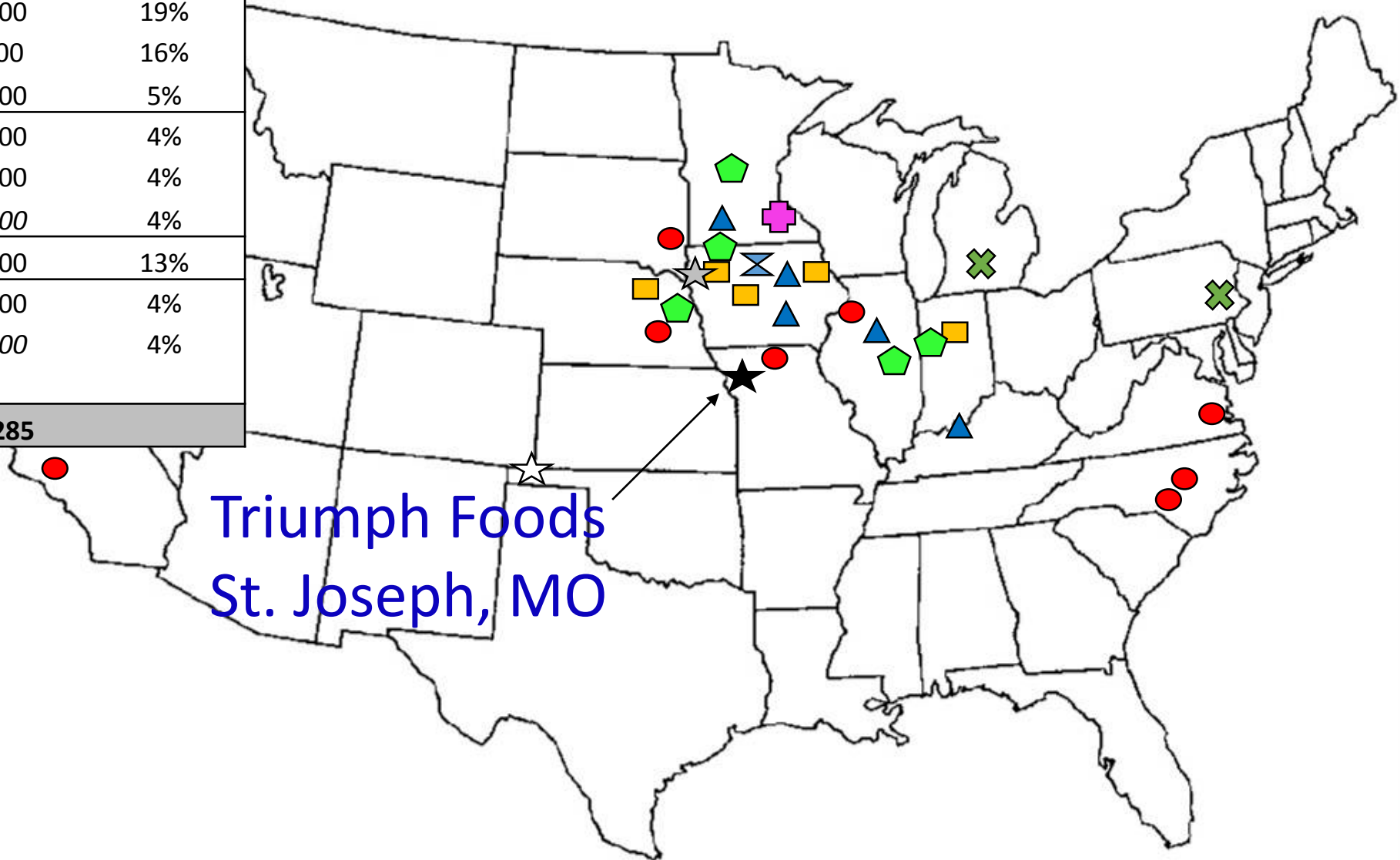
Why was Triumph Foods Organized?

- Pork producers are subject to tremendous volatility and uncertainty
- Pork processing is highly concentrated
- Opportunity for returns with the right strategy



U.S. Barrow and Gilt Processing Plants

Legend	Daily Capacity	Share
	Smithfield	130,300
	JBS	93,000
	Tyson Foods	78,500
	Hatfield Quality Meats	23,700
	Triumph	21,500
	Seaboard	20,500
	STF	20,400
STF Combined		62,400
	Hormel	19,000
	Prestage (estimated capacity)	20,000
	Single Plants	
Total (estimated capacity)		510,285



Triumph Foods
St. Joseph, MO

Triumph + Seaboard = 795,000 Sows

SF

TOP 40 U.S. PORK POWERHOUSES® 2018

2018	Company / Headquarters	# Sows 2018	# Sows 2017
1	Smithfield Foods/WH Group / Smithfield, VA/China (also 147,675 sows in Mexico; 95,100 in Poland; 52,350 in Romania; worldwide total: 1,245,125 sows)	950,000	910,000
2	Seaboard Foods / Shawnee Mission, KS	340,000	325,000
3	Pipestone System / Pipestone, MN	251,000	240,000
4	Iowa Select Farms / Iowa Falls, IA	235,000	207,000
5	The Maschhoffs / Carlyle, IL	204,000	218,000
6	Prestage Farms / Clinton, NC	182,300	175,000
7	Carthage System / Carthage, IL	180,000	175,000
8	JBS / Brazil/Greeley, CO	167,500	166,570
9	Christensen Farms / Sleepy Eye, MN (an owner of Triumph Foods)	142,500	142,500
10	AMVC Management Services / Audubon, IA	135,500	117,500
11	Allied Producers' Cooperative / Westside, IA (an owner of Triumph Foods)	102,500	94,000
12	The Hanor Company / Enid, OK (an owner of Triumph Foods)	100,000	80,000
13	Maxwell Foods / Goldsboro, NC	99,000	101,000
14	Tyson Foods / Springdale, AR	80,000	64,000
15	Clemens Food Group / Hatfield, PA	66,330	62,330
16	TriOak Foods / Oakville, IA	66,000	59,500
17	Schwartz Farms / Sleepy Eye, MN	62,000	62,000
18	Holden Farms / Northfield, MN	60,000	60,000
19	New Fashion Pork / Jackson, MN (an owner of Triumph Foods)	57,000	57,000
20	Pillen Family Farms / Columbus, NE	55,000	55,000
21	Wakefield Pork / Gaylord, MN	54,800	52,400
22	Standard Nutrition Services / Emmetsburg, IA	54,000	47,150
23	Eichelberger Farms / Wayland, IA (an owner of Triumph Foods)	53,000	46,000

Smithfield Foods Inc.

United States — 1,241,000 sows

Smithfield Foods is a \$15 billion global food company and the world's largest pork processor and hog producer. Based in Smithfield Va., the company was started in 1936 by the Luter family. Smithfield employs more than 54,000 people in North America and Europe. The company ships meat exports to 4,600 customers in 40 countries around the globe. Smithfield is a subsidiary of WH Group, and these sow numbers are in addition to WH Group's other company sow production numbers.

Smithfield
Good food. Responsibly.

Triumph Foods

United States — 487,200 sows

Triumph Foods was formed in 2003 by a group of the largest U.S. independent pork producers, with operations beginning in 2006, and it is now the second-largest pork processor in the United States. Its goal was to establish a fully integrated pork industry model. Today, the business includes one processing facility in St. Joseph, Mo., along with a joint venture plant with Seaboard Foods in Sioux City, Iowa, as well as three further processing facilities under Daily's Premium Meats.

Triumph Foods

Wens

China — 1,200,000 sows

Established in 1983, Wens has become a modern agricultural firm, with its main business in livestock farming. Other supporting segments including financial investment, production of agricultural and husbandry equipment, pharmaceuticals, livestock breeding, food processing, promotion of fresh products, etc. Wens produced 22.3 million hogs in 2018. The company's mission is to be a "company plus family farms," and it implements a "one-stop business model" to operate and manage its integrated industrial chain.

WENS GROUP

Zhengbang Group

China — 400,000 sows

Founded in 1996, Zhengbang Group is a national agricultural industrialization-leading enterprise with headquarters in Nanchang City, Jiangxi Province, China. The main scope of business includes animal husbandry, crop planting, agricultural materials marketing, distribution and financing. Zhengbang employs more than 35,800 people and has 315 branches across China. In 2018, the company produced over 5.5 million hogs.

正邦集团
ZHENG BANG GROUP

CP Foods

China — 800,000 sows

The Charoen Pokphand Group is a diversified transnational conglomerate that consists of three core businesses that operate in the agri-food industry, retail and distribution, and telecommunications, as well as involvement in 10 additional industries such as finance, real estate, pharmacy, etc. CP Foods conducts business in more than 100 countries and employs more than 350,000 employees around the world. CP Group's revenue from the agri-food sector totaled \$5.6 million, with 65.6% coming from China and 34.5% from Thailand and Vietnam. In 2018, CP China produced 2.8 million hogs, mainly from the Hubei, Henan and Shanxi provinces.

CPF

BRF

Brazil — 400,000 sows

BRF is one of the largest food companies in the world, with more than 30 brands in its portfolio. BRF is the result of a merger between Sadia and Perdigão, two of the primary food companies in Brazil. As the process was concluded, both Sadia and Perdigão stopped functioning as independent companies and became subsumed as brands under BRF's portfolio.

brf

Seaboard Foods

United States — 340,000 sows

Seaboard Foods is an integrated food company producing and marketing pork both domestically and internationally. Seaboard has processing facilities in Guymon, Okla., and Sioux City, Iowa, as well as further processing at its co-owned facility with Triumph Foods, Daily's Premium Meats. Seaboard has 5,200 employees and operates in numerous states.

SEABOARD foods

Muyuan

China — 680,000 sows

Muyuan Foodstuff Company Ltd. was established in 1992 and formed its pork production business model as "self-farming and multiplication, large-scale integration." Currently, the company has 88 wholly owned subsidiary companies and two joint stock companies. In 2018, the company marketed 11.01 million hogs and established an annual capacity of producing 5 million tons of feed and slaughtering 1 million hogs. The company has formed a completely closed pig production industrial chain integrated with research and development, feed processing, breeding pig multiplication and commercial pig farming.

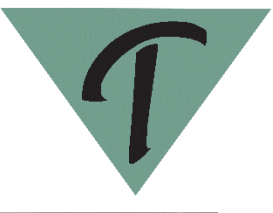
MUYUAN
牧原食品股份有限公司
MUYUAN FOODSTUFF CO., LTD.

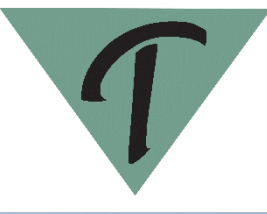
Cooperl

France — 251,000 sows

Cooperl is a private agricultural cooperative with headquarters in the Brittany region of France. The company was founded in 1966 by 24 farmers, and today it has 2,700 members producing 5.5 million pigs. As the leading integrated pork producer in Europe, it has aggressively invested in specialized pig production through feed mills, packing plants and stores.

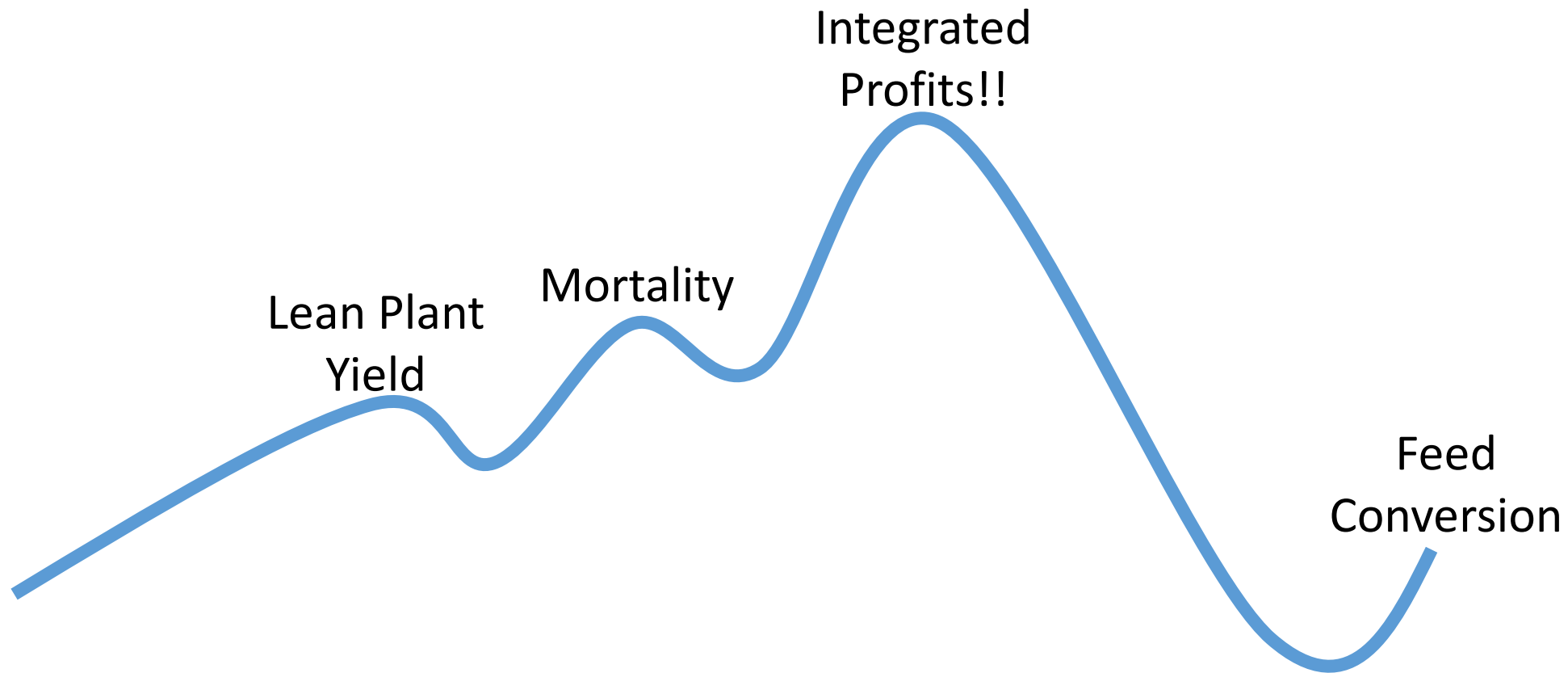
Cooperl
Arc Atlantique







Critical Resource is Trust – Avoid Local Optimization





Market Hog Production Requirements

- All producers must be **PQA Plus** certified
- ONLY approved **genetics** can be used
- ONLY approved **feed ingredients** can be used
- ONLY approved **medications** can be used



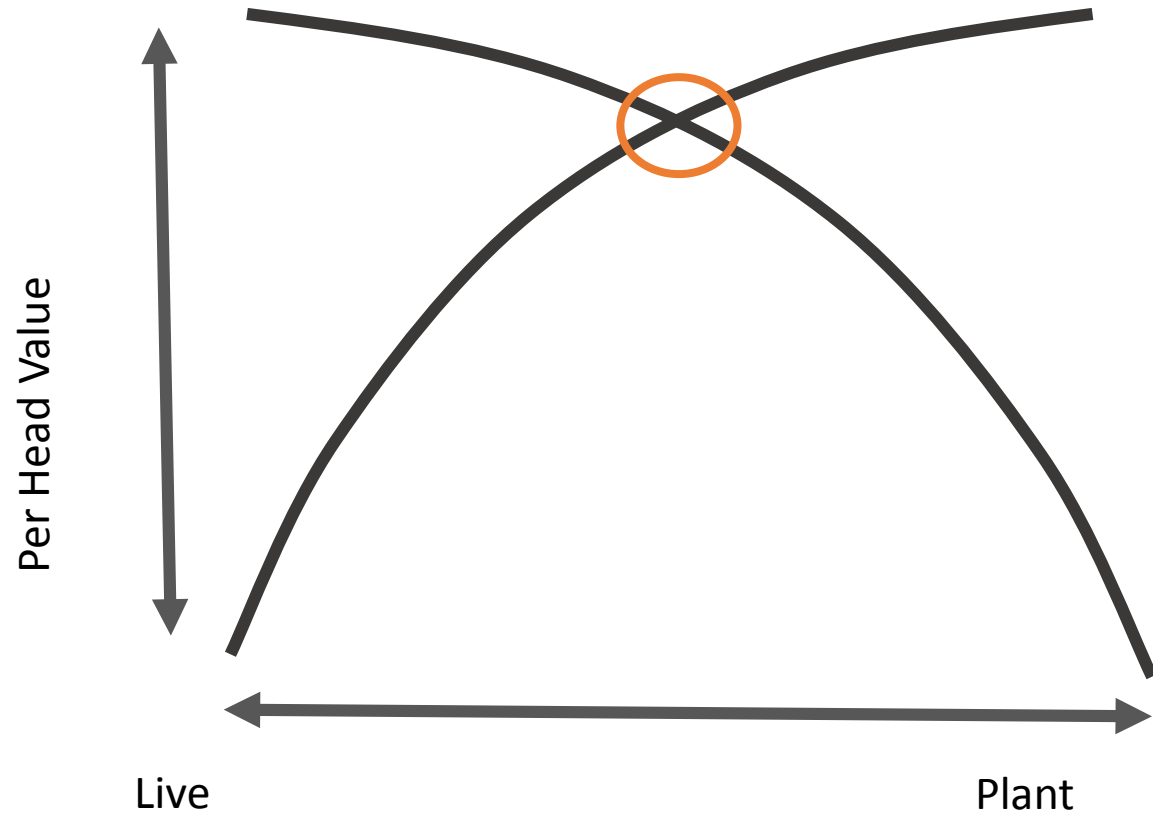
Qualifying Market Hog

- Live weight requirement
 - 215 lbs. to 350 lbs.
- Must be free from defects and comply with our USDA voluntary segregation procedure
- Same criteria since 2006

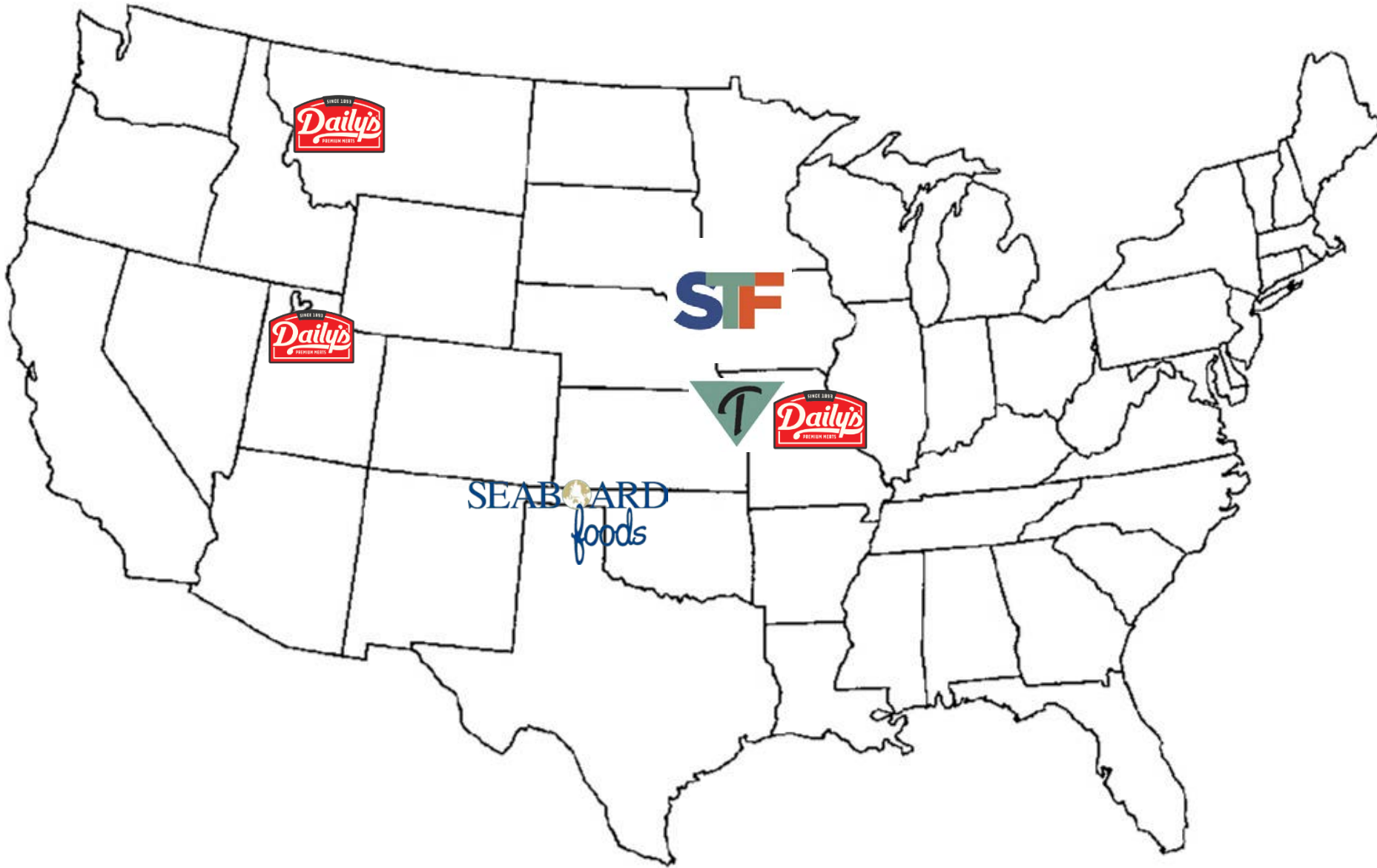


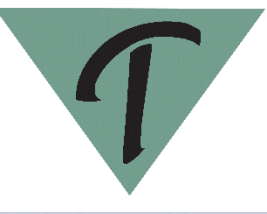
TR4 Program – Custom Genetic Improvement

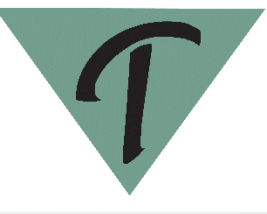
The objective of the TR4 genetic program is to maximize returns over our integrated production system



When the Strategy Works, Keep After It...



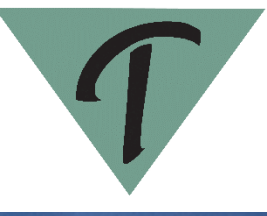


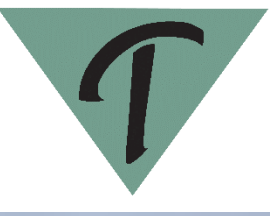


Daily's Premium Meats

- Recent Ownership History:
 - 2005 – Acquired by Seaboard Foods
 - 2014 – Triumph purchased 50% interest from Seaboard Foods
- Products
 - Primarily raw and precooked bacon







Seaboard Triumph Foods

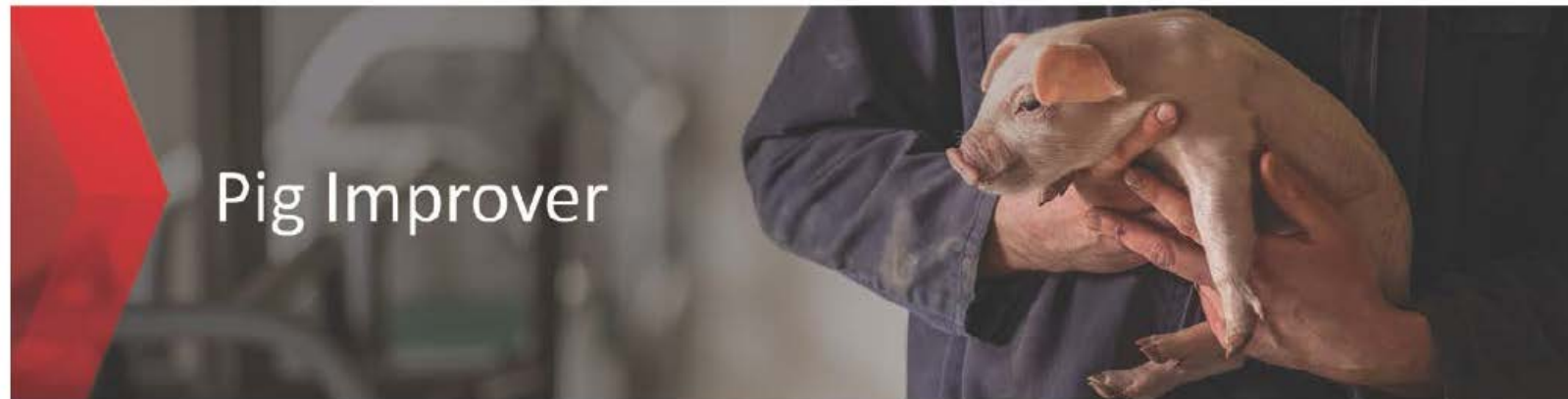
- Equal partnership among Seaboard and Triumph
- Located in Sioux City, IA
- Commenced Operations in 2017





Example of a Core Integrated Strategy...

...Big Pigs



Why Heavy Weights are the Future of Pig Production



2017 Global Pork Production



Pigs weights are a GLOBAL discussion across both the scientific community and industry

Influence of Slaughter Weight on Growth and Carcass Characteristics of Heavy Pigs

F. Cisneros
Departamento de

quality

son Kang¹ |

F. Wu,* K. R. Vierck,* J. M. DeRouchey,² T. G. O'Quinn,*
M. D. Tokach,* R. D. Goodband,* S. S. Dritz,[†] and J. C. Woodworth*

*Department of Animal Science, Kansas State University, Manhattan 66506; and [†]Department of Diagnostic Medicine/Pathobiology, College of Veterinary Medicine, Kansas State University, Manhattan 66506

R. O. SHULER, T. D. FAIR, R. W. SHANDRICK AND L. E. LUCAS
University of Nebraska, Lincoln²

Veterinary World, 2010, Vol.3(11):509-511

RESEARCH

Effect of slaughter weight on slaughter performance of a native swine breed "Ghungroo" of Duars Valley and allied zone

Anupam Khan, Dipanwita Patra, Gopal Patra and Subhasish Biswas*

ology,
Kolkata, 700037, India
ghoo.co.in

Arq. Bras. Med. Vet. Zootec., v.67, n.4, p.1166-1174, 2015

Meat quality and cut yield of pigs slaughtered over 100kg live weight

[Qualidade de carne e rendimento de cortes de suínos abatidos acima de 100kg de peso vivo]

T.M. Bertol¹, E.A. Oliveira², A. Coldebella¹, V.L. Kowski¹,
A.J. Scandolera³, M.B. Warpechowski³

Effect of Slaughter Weight on Carcass Characteristics and Economics of Pig Production

Makauki¹, A.F. and F.P. ²Lekule*

¹ Development Studies Institute, Sokoine University of Agriculture, P.O. Box 3024, Chuo Kikuu, Morogoro

² Department of Animal Science and Production, Sokoine University of Agriculture, P.O. Box 3004 Chuo Kikuu, Morogoro

Photo: <http://www.fao.org/faostat/en/#data/QA/visualize>



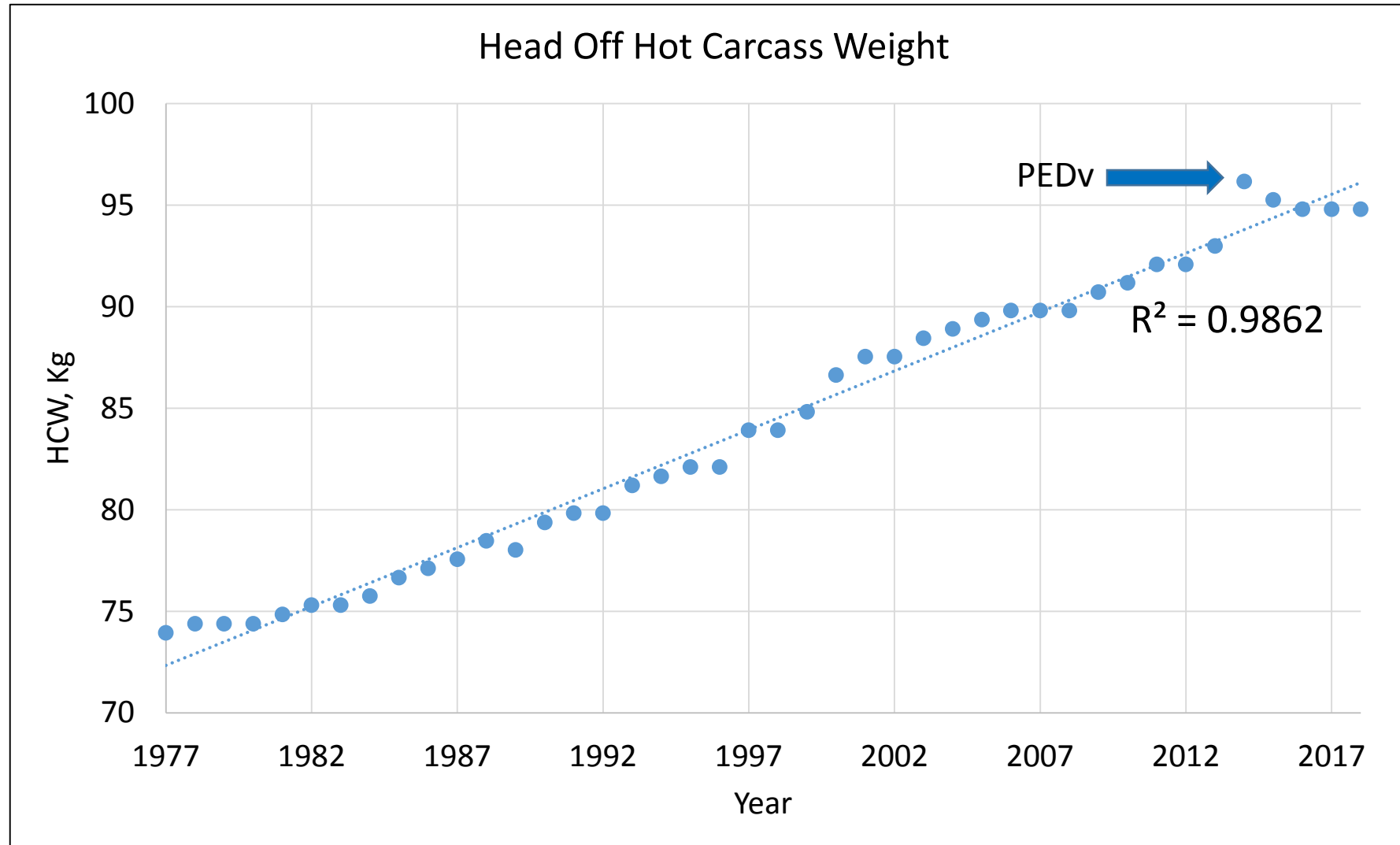
Why the Focus on Heavy Market Weights?

- The math makes sense:

$$\begin{array}{|c|} \hline \text{Increased Margin} \\ \text{from Heavy Weight} \\ \text{Pigs} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Sales Value} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Sum of Farm and} \\ \text{Plant Costs} \\ \hline \end{array}$$

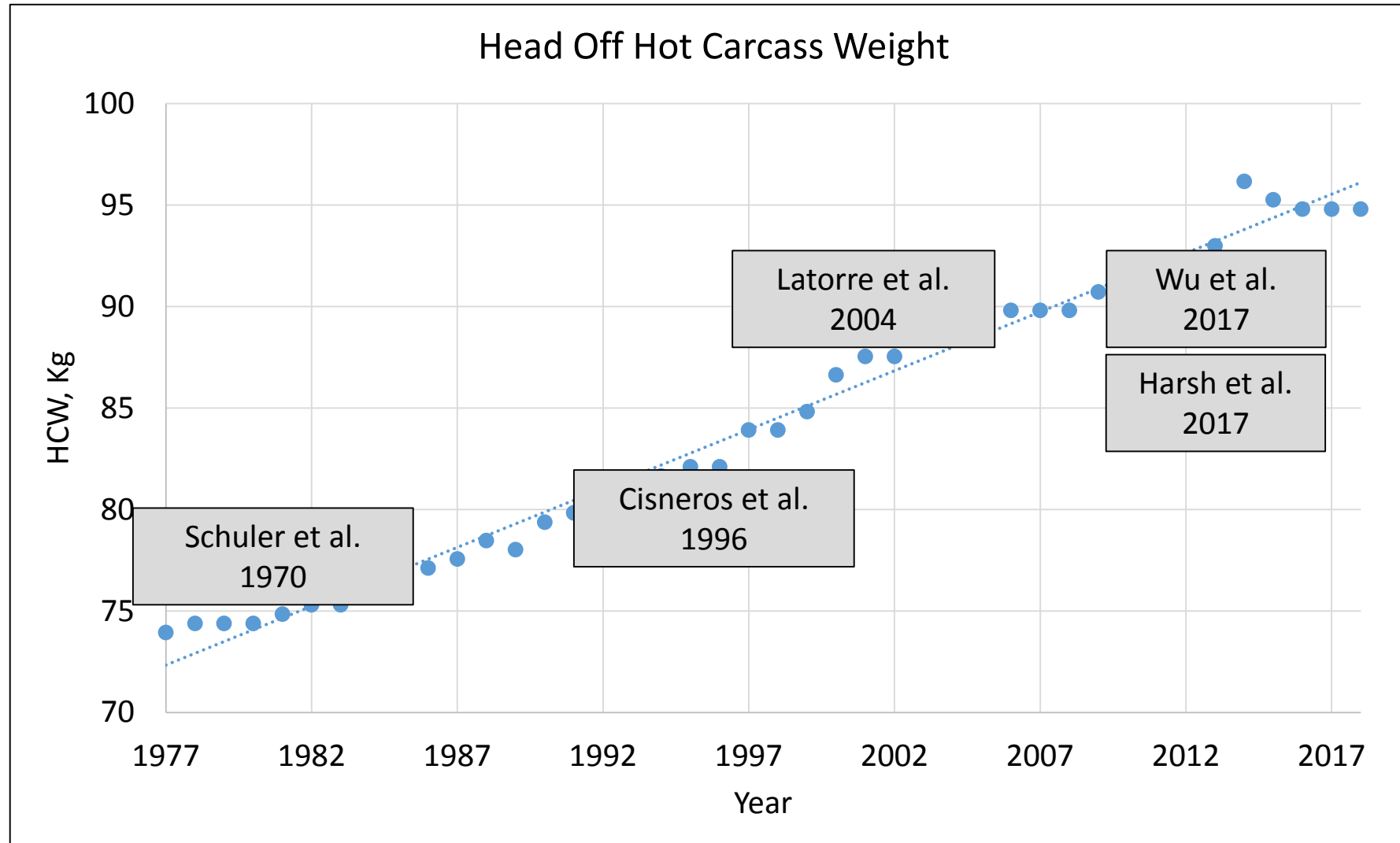
- Can we achieve increased margin without deteriorating product quality?

Heavy Weights are Not a Recent Trend in the U.S.





Studies for Discussion





Science has focused on this trend for some time

Trait	Slaughter Weight				Std Dev
	45.5 Kg	68.2 Kg	90.9 Kg	113.6 Kg	
Back Fat, cm	2.01 ^a	2.88 ^b	3.57 ^c	4.02 ^d	0.15
Loineye Area, cm	14.76 ^a	19.81 ^b	23.45 ^c	25.87 ^d	0.38
Marbling Score	1.27 ^a	1.56 ^b	2.02 ^c	2.70 ^d	0.62
Color Score	2.42	2.17	2.24	2.58	0.56
Shear Force, Kg/1.9 cm	5.43	5.23	4.92	5.08	3.07

^{abcd} means with differing superscripts differ at $P<0.05$

Within increasing slaughter weight carcass were heavier
muscled and fatter



Science has focused on this trend for some time

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^{abcd} means with differing superscripts differ at $P<0.05$

Color and tenderness were not impacted by slaughter weight



Heavy Weights of the 1990s

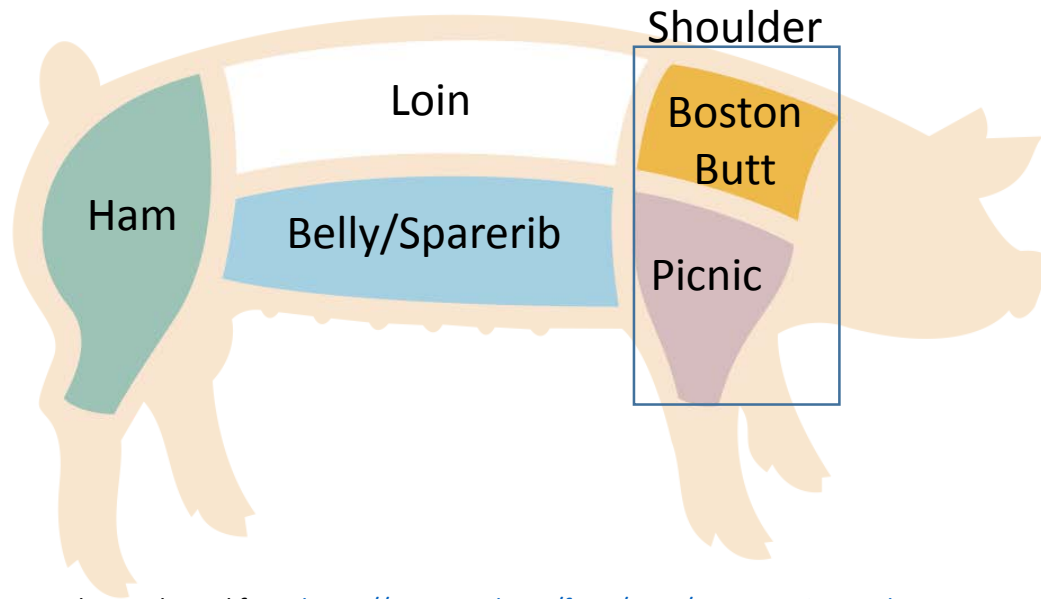


Photo adapted from: <https://www.pork.org/facts/stats/consumption-and-expenditures/typical-market-pig-today/>

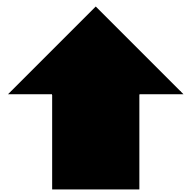
Live Weight Range Evaluated: 100 – 160 kg

- Percentage of loin increased with increasing weight
- Percentage of ham, shoulder, and sparerib decreased with increasing weight
- Weight of trimmed boneless cuts increased with increased slaughter weight
 - Reduced when calculated as a percentage of side weight
- Increased processed belly/bacon yield with increased weight



Heavy Weights of the 1990s

Limited, small changes in Pork Quality were reported, regression equations indicated:



Slaughter Weight =

Interpreting β : For every 1 kg change in live slaughter weight, a trait is predicted to move x units

↓ Color ($\beta = -0.006$)

↓ Firmness ($\beta = -0.009$)

↓ 24 hr pH ($\beta = -0.002$)

↑ Drip Loss ($\beta = 0.029$)

↓ Sensory Tenderness Score ($\beta = -0.006$)

- Higher Score Preferred
- Non-significant WBSF

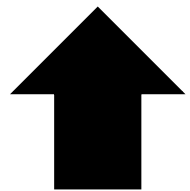
↓ Moisture ($\beta = -0.035$)

↑ Marbling/IMF ($\beta = 0.027$)



Heavy Weights of the 1990s

Limited, small changes in Pork Quality were reported, regression equations indicated:



Slaughter Weight =

Interpreting β : For every 1 kg change in live slaughter weight, a trait is predicted to move x units

If we looked at a 20 kg increase in weight this would result in...

↓ Color ($\beta = -0.006$)

-0.12 Subjective Color Units

↓ Firmness ($\beta = -0.009$)

-0.18 Subjective Firmness Units

↓ 24 hr pH ($\beta = -0.002$)

-0.04 pH Units

↑ Drip Loss ($\beta = 0.029$)

+0.58%

↓ Sensory Tenderness Score ($\beta = -0.006$)

- Higher Score Preferred
- Non-significant WBSF

-0.12 Subjective Units

↓ Moisture ($\beta = -0.035$)

-0.70%

↑ Marbling/IMF ($\beta = 0.027$)

0.54%



Heavy Weights of the Early 2000s

	Slaughter Weight, kg					Linear Response to Slaughter Weight	
	116	124	133	SEM	P-value	R ²	P-value
Initial Weight, kg	74.9	74.7	74.8	0.43	0.94		
Final Weight, kg	116.2	124.4	133.5	1.30	0.001		
<u>From 75 kg to Slaughter</u>							
ADG, g/d	843 ^a	788 ^b	769 ^b	18.5	0.05	0.59	0.01
ADFI, kg/d	2.69	2.56	2.68	0.056	0.23		
G:F, kg	0.313 ^a	0.309 ^a	0.287 ^b	0.003	0.001	0.61	0.001

^{ab} Means with differing superscripts differ at P < 0.05

- ADG was decreased by 38 g/d for every 10 kg increase in slaughter weight
- G:F decreased 0.01 kg for every 10 kg increase in slaughter weight



Heavy Weights of the Early 2000s

	Slaughter Weight, kg					Linear Response to Slaughter Weight	
	116	124	133	SEM	P-value	R ²	P-value
Carcass Weight, kg	89.8 ^c	96.4 ^b	105.1 ^a	0.95	0.001	0.87	0.001
Carcass Yield, %	77.3 ^b	77.7 ^b	78.6 ^a	0.21	0.001	0.60	0.001
Backfat, mm	22.1 ^b	25.7 ^a	27.0 ^a	0.63	0.001	0.79	0.001
Loin L*	51.5 ^a	49.9 ^b	47.3 ^c	0.55	0.001	0.21	0.05
Loin Marbling/IMF, %	2.5	2.6	2.7	0.22	0.85		
Shear Force, Kg	7.9	8.3	8.1	3.7	0.70		

^{ab} Means with differing superscripts differ at P < 0.05

- Heavier pigs produced darker product
- No impact on marbling or tenderness

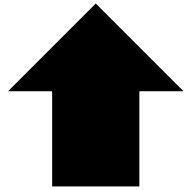


2017 – What Do We Know So Far?

- Literature review conducted by Kansas State University
- Evaluated Three Key Areas:
 - Growth Performance
 - Carcass Composition/Subprimal Yield
 - Pork Quality
- Heavy weight market > 130 kg



2017 – Growth Performance



Increasing slaughter weight by
10 Kg resulted in:

- Decreased cumulative ADG
 - 8 of 14 studies
 - Range: 3.6 to 54.9 grams
- Increased ADFI
 - 11 of 13 studies
 - Range: 52.7 to 163.3 grams
- Reduction in cumulative gain to feed
 - 14 of 14 studies
 - Range: -0.017 to -0.03

2017 – Average Subprimal Yield/Carcass Composition



- +0.41% Yield
- +1.8 mm Backfat
- -0.78% Fat-free lean
- +1.9 cm² Loin muscle area
- +2.2 cm Carcass length

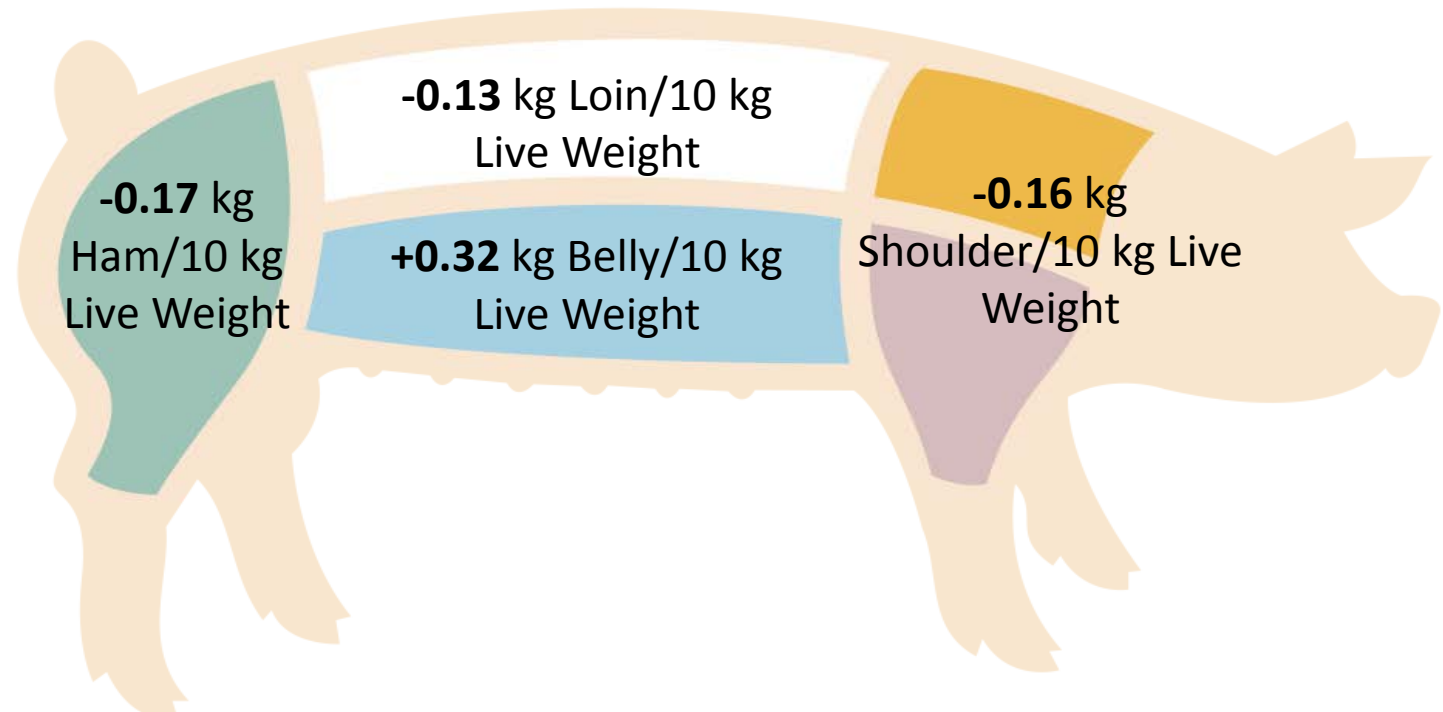


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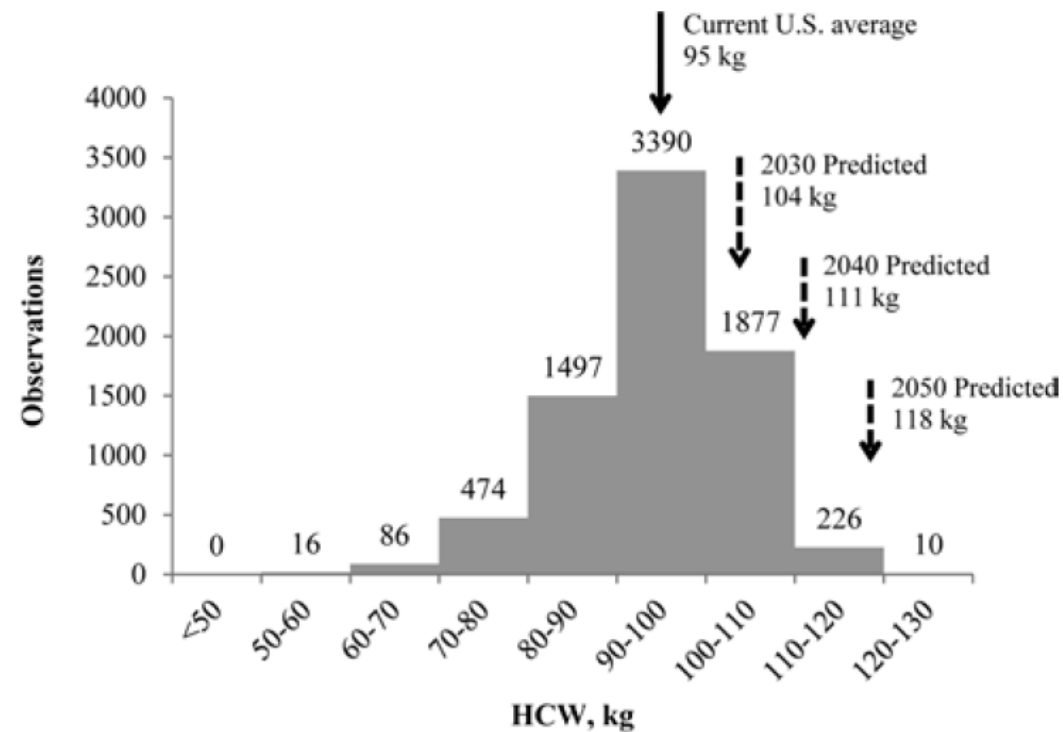


2017 – Pork Quality and Heavy Weight Pigs

- Little agreement among data
- L^*
 - N = 6 studies indicate an inverse relationship with weight
 - N = 4 studies indicate a positive relationship with weight
- Ultimate pH
 - N = 7 studies indicate an inverse relationship with weight
 - N = 2 studies indicate a positive relationship with weight
- Warner Bratzler Shear Force
 - N = 3 studies indicate an inverse relationship with weight
 - N = 6 studies indicate a positive relationship with weight

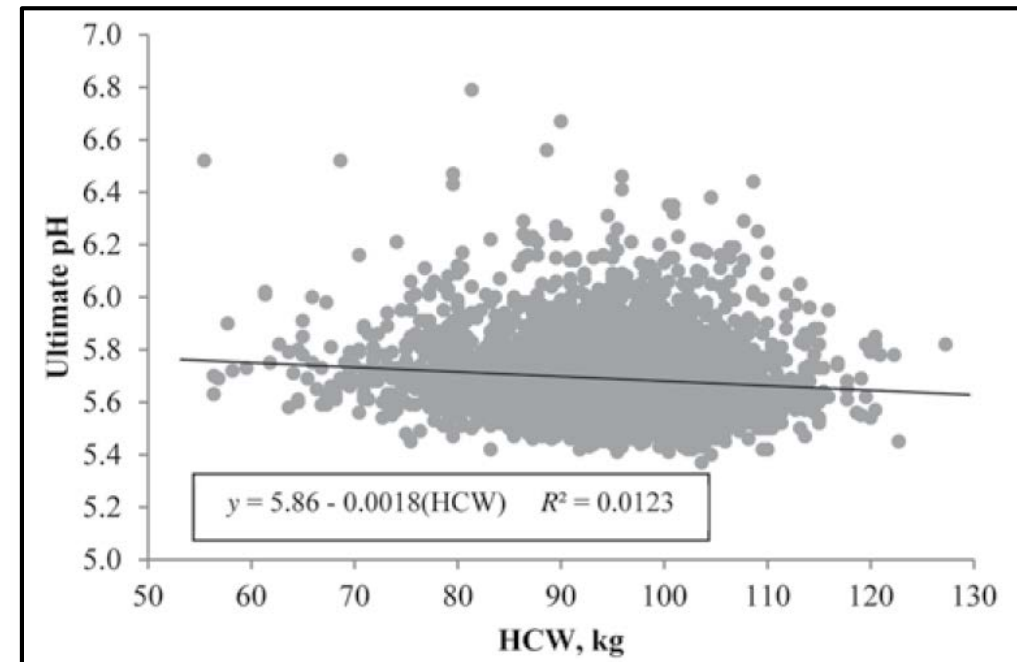
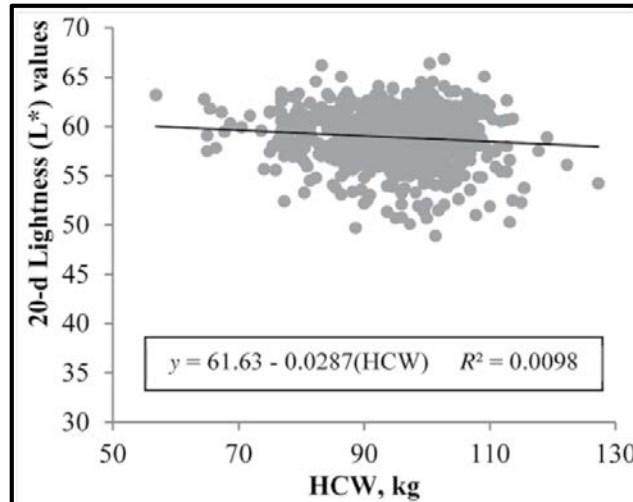
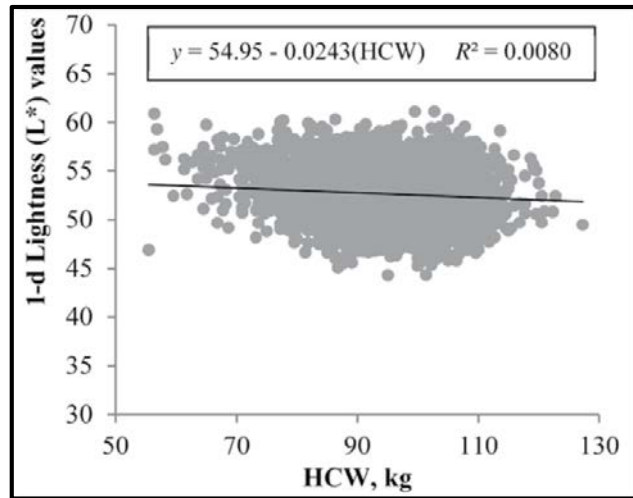


2017 – University of Illinois HCW Study



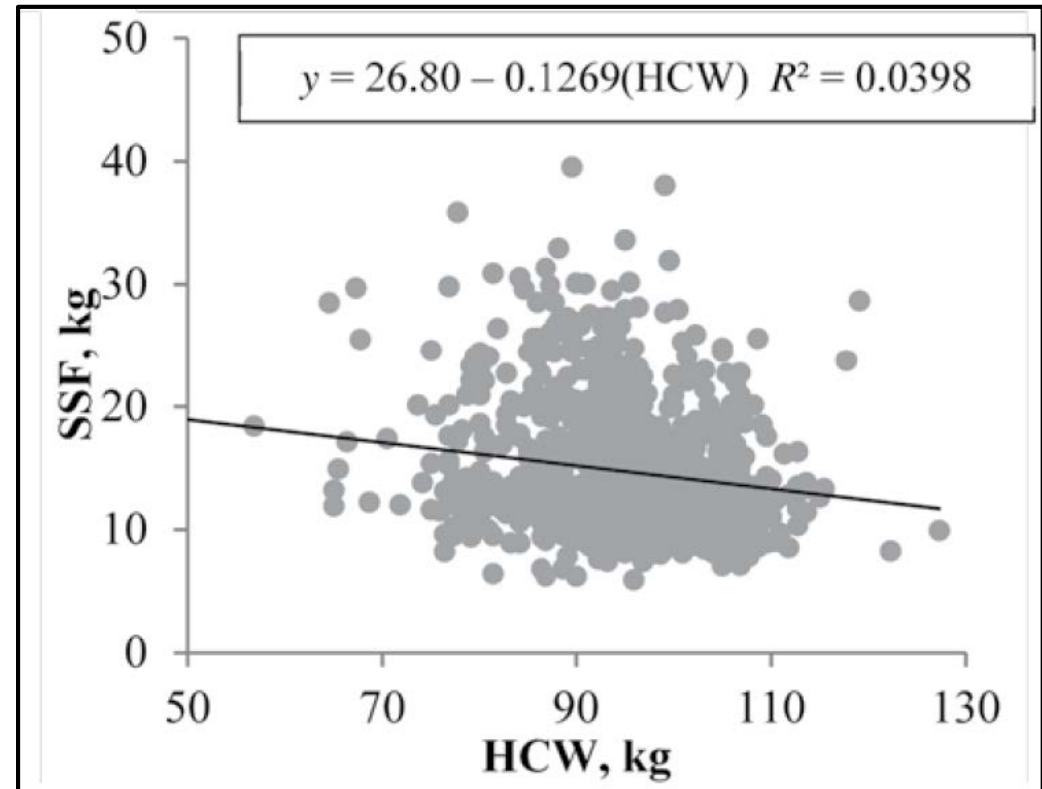
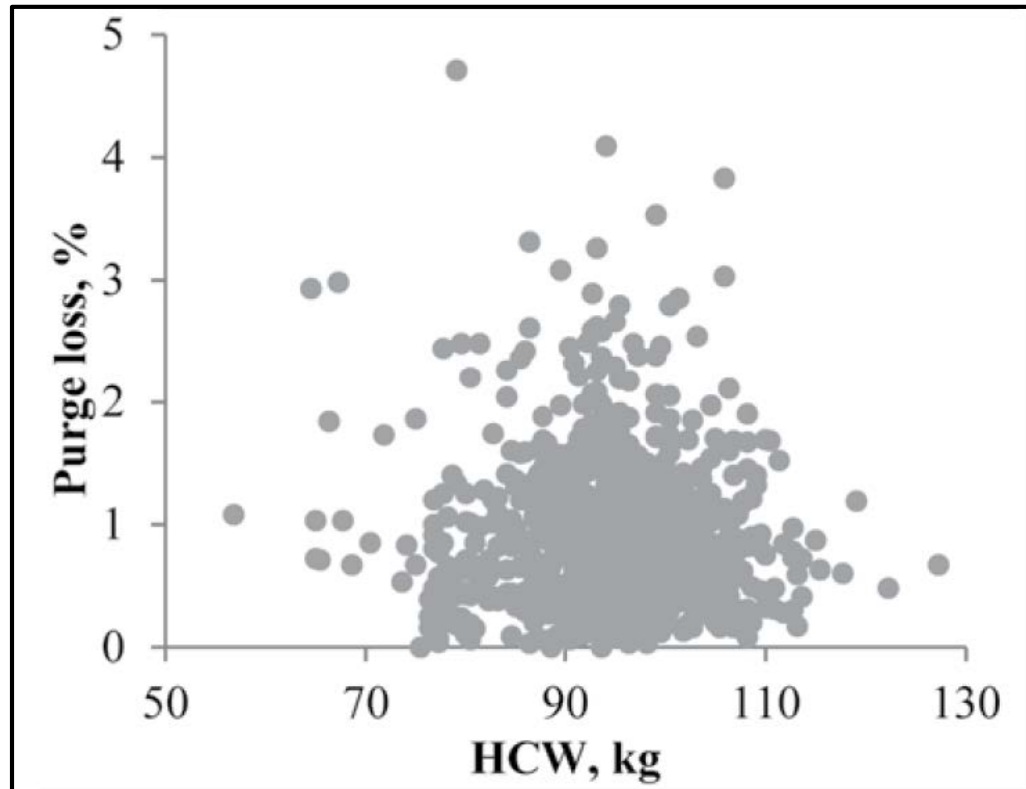


2017 – University of Illinois HCW Study - Loin



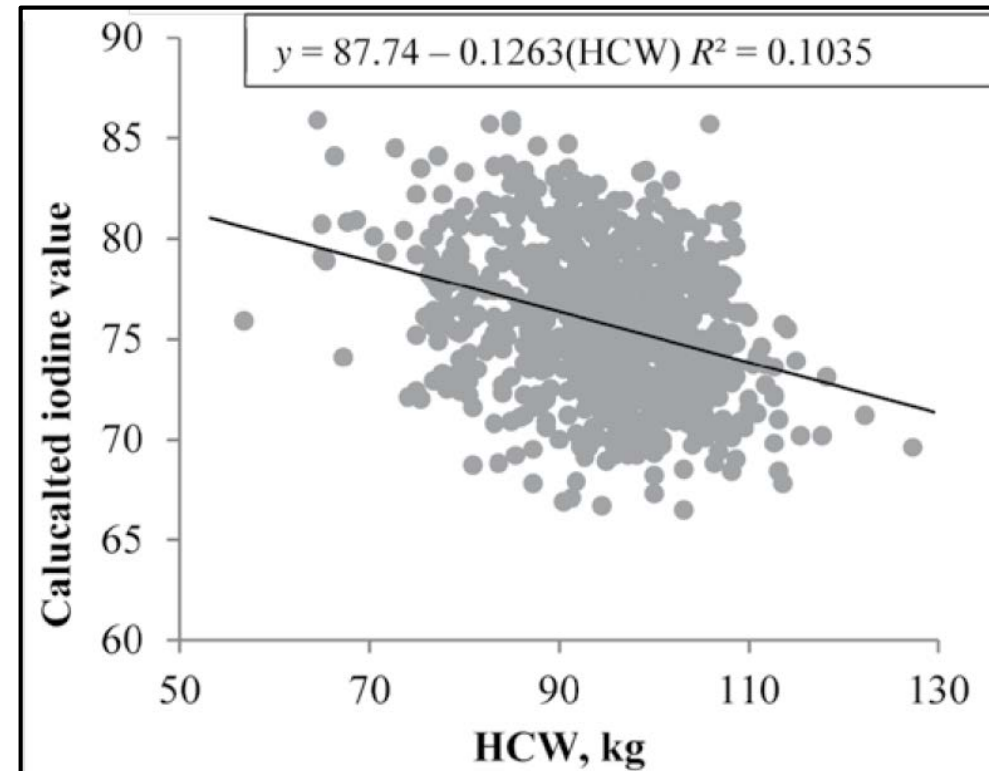
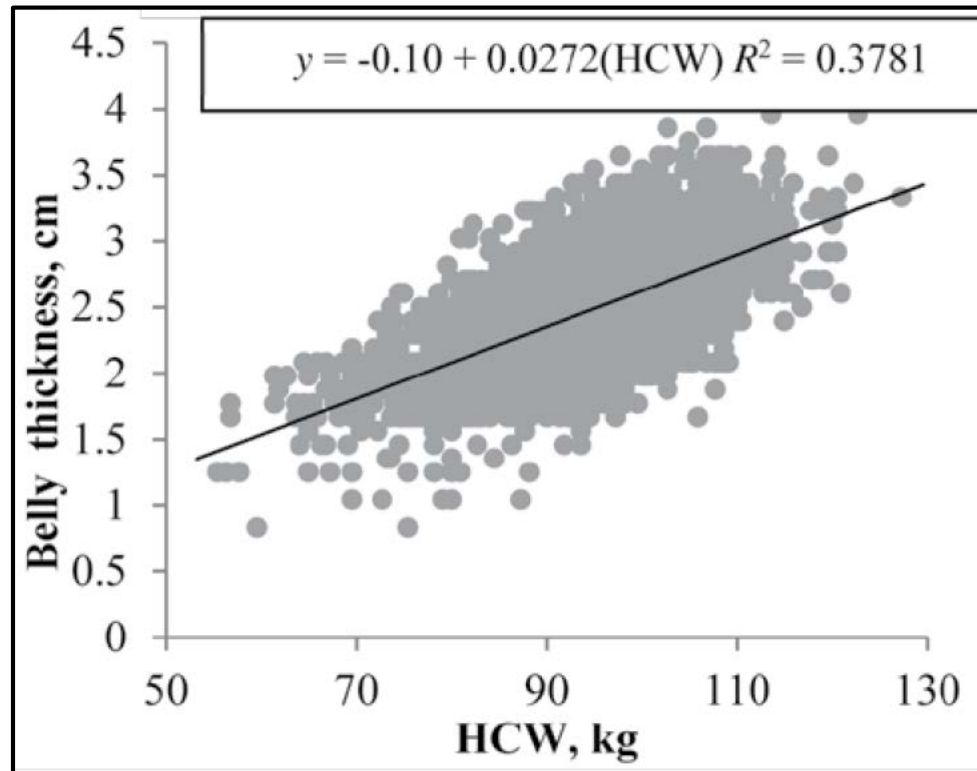


2017 – University of Illinois HCW Study - Loin





2017 – University of Illinois HCW Study - Belly





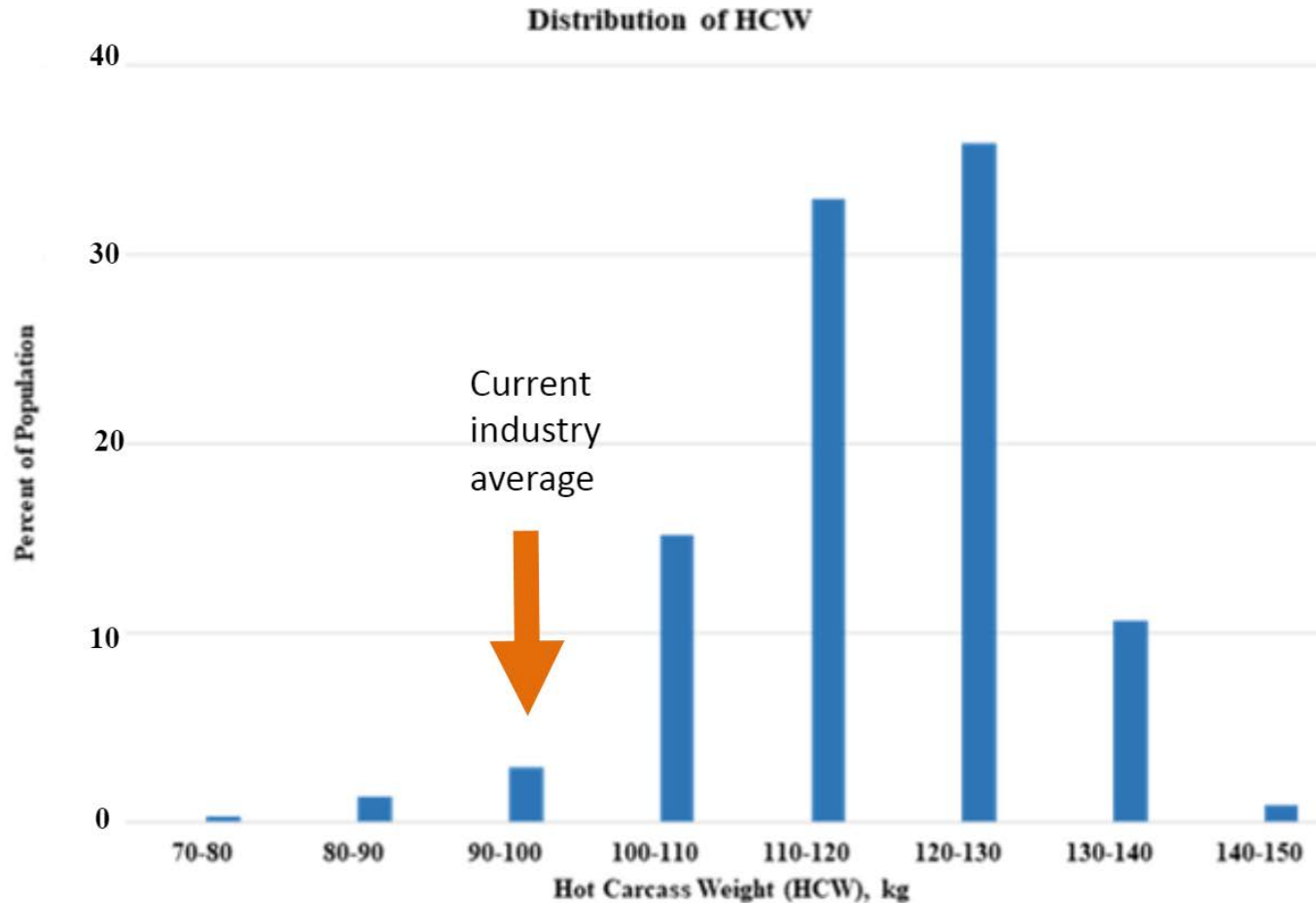
National Pork Board Funded Grant

- Multi-institutional
 - Kansas State
 - University of Illinois
 - USDA Meat Animal Research Center
- Project Webinar conducted in August 2019
- PIC 327 x Camborough

The screenshot displays a webinar interface with a blue background. At the top, it reads "National Hog Farmer" and "Sponsored by pork checkoff". The main title is "Are Heavier Pig Market Weights Better?". Below the title, there is a "Media Player" section with a play button and a progress bar showing "00:17/62:51". To the right of the media player is a "Q&A" section with a text input field labeled "Enter your question" and a "Submit" button. Below the Q&A section is a "Resource List" section. On the right side of the interface, there is a "Slides" section showing the same title and a "Twitter" section with the "NHF" logo and the handle "@NHF_Magazine". The bottom of the interface features a "National Hog Farmer" logo and a background image of a pig farm.



National Pork Board Funded Grant





National Pork Board Funded Grant

Trait	R ²	P-value
Loin depth, mm	0.1278	<0.0001
Fat depth, mm	0.2097	<0.0001
Percent lean, %	0.2352	<0.0001
Iodine value	0.0700	<0.0001
Loin pH, 1 day		Not Significant
Loin pH, 14 day		Not Significant
Loin L*, 1 day		Not Significant
Ham pH, 1 day		Not Significant
Ham L*, 1 day		Not Significant

- Carcass composition traits were significantly related
 - Account for between 13% and 24% of variability
- HCW accounted for 7% of variability in iodine value
- No relationship among HCW and quality traits presented



National Pork Board Funded Grant

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National Pork Board Funded Grant

HCW	Slice Shear Force, kg	
	71 °C	63 °C
<112, kg	11.9 ^a	10.7 ^a
112-119.3 kg	10.9 ^b	10.1 ^b
119.3-127.5 kg	10.4 ^b	10.2 ^{ab}
≥125.7 kg	10.5 ^b	10.3 ^{ab}

^{ab} Means with column differ at $P < 0.05$



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- Consumer Visual Panels

- Chops from heavier carcasses were found to be more desirable
- Chop thickness impacted purchasing decision

- Consumer Sensory Panels

- No negative discrimination against chops as HCW increased
- As HCW increased palatability scores and overall like subsequently increased



Some Considerations for Regional Differences





Conclusions

- Heavy weight pigs make sense:
 - Production economics
 - Plant economics
 - Quality remains consistent
- We have shown consistently that we can increase weights of pigs
- Cooperation with PIC on heavy weight pigs only increases success



Thank you!