BROAD AG OUTLOOK IN A PERIOD OF ELEVATED UNCERTAINTY

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Where Are We Going?

Outline

1. Grain Situation
2. Livestock Situation
3. Overview of Decision Aides/Resources
4. Final Thoughts

Grain Markets

1. GT spends 95% of his time in meat-livestock space

2. See Dan O'Brien (KSU), Chad Hart (ISU), Ben Brown/Scott Brown (Mizzou), Scott Irwin (IL)

2023 Situation

1. World Corn
   - Ending stocks at 9-year low (per Dan O'Brien)

2. World Soybean
   - Ending stocks at 9-year low (per Dan O'Brien)

3. World Wheat
   - Ending stocks at 8-year low (per Dan O'Brien)

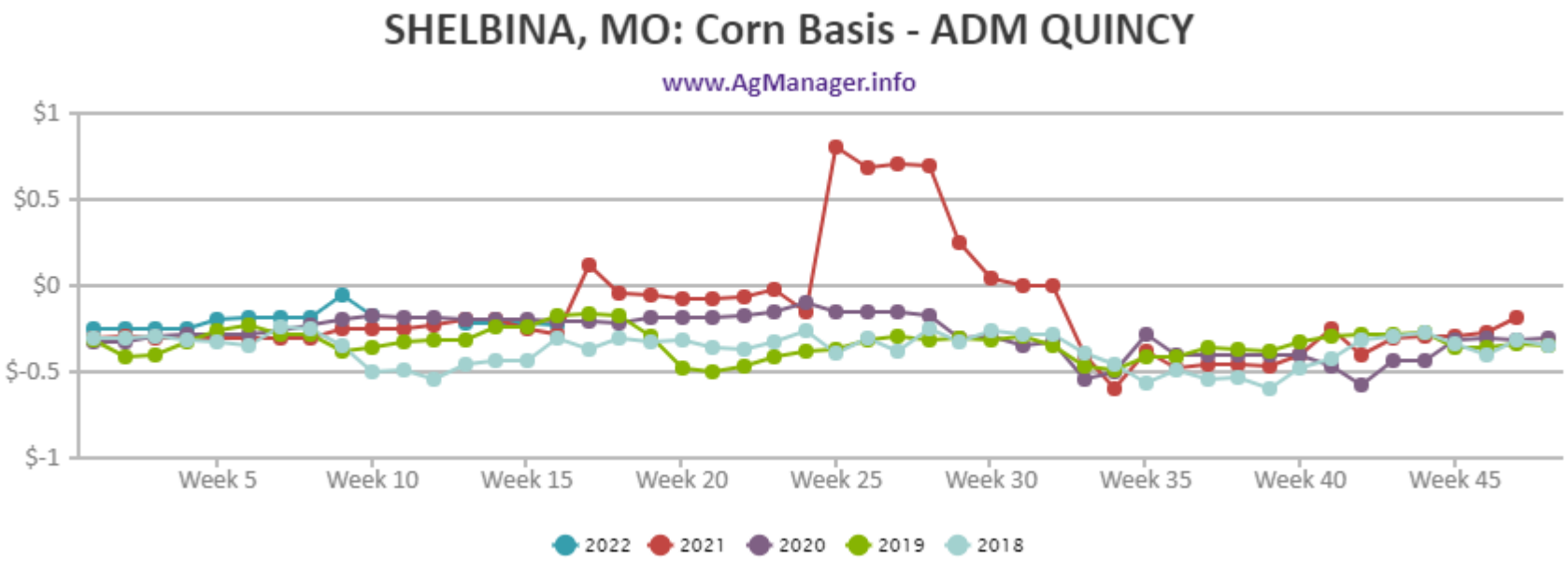
2023 Situation

1. Corn
   - CME Dec 23’ = $5.75/bu (as of 2/27)

2023 Situation

Nearby Basis = Cash Price – Nearby CME Futures Price

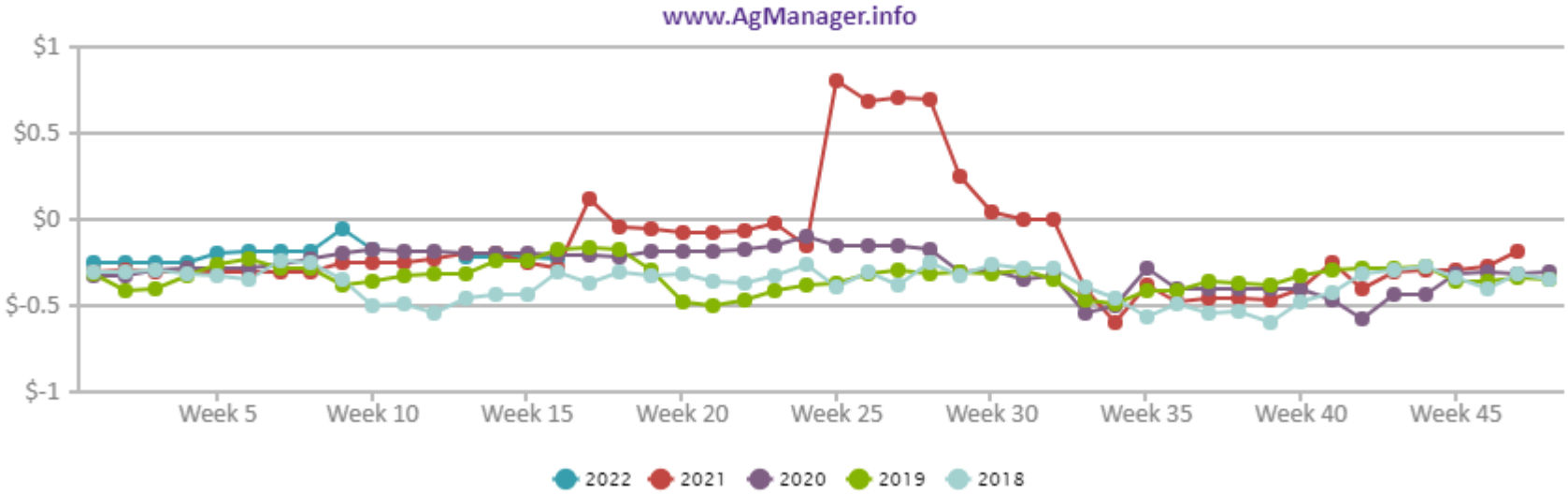
1. Corn
   - CME Dec 23' = $5.75/bu (as of 2/27)



2023 Situation

Nearby Basis = Cash Price – Nearby CME Futures Price

1. Corn
   - CME Dec 23' = $5.75/bu (as of 2/27)
     - **Implies roughly $5.35/bu cash price forecast for early Nov 23**



Week 40 (early Nov) Basis
2021 -$0.40
2020 -$0.40
2019 -$0.33
2018 -$0.48

2023 Situation

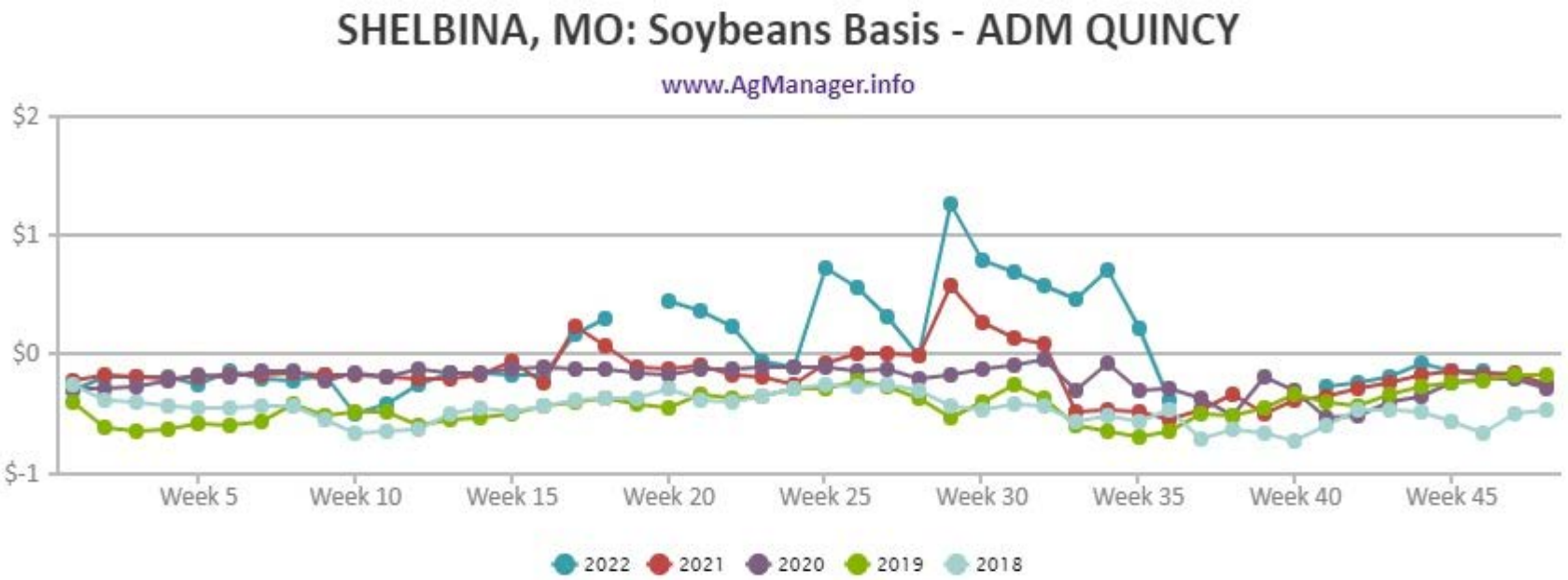
1. Soybeans
   - CME Nov 23’ = $13.70 (as of 2/27)

Nearby Basis = Cash Price – Nearby CME Futures Price

2023 Situation

1. Soybeans
   - CME Nov 23' = $13.70 (as of 2/27)

Implies roughly $13.34/bu cash price forecast for mid-Nov 23



Week 42 (mid Nov) Basis
2022 -$0.23
2021 -$0.29
2020 -$0.52
2019 -$0.42

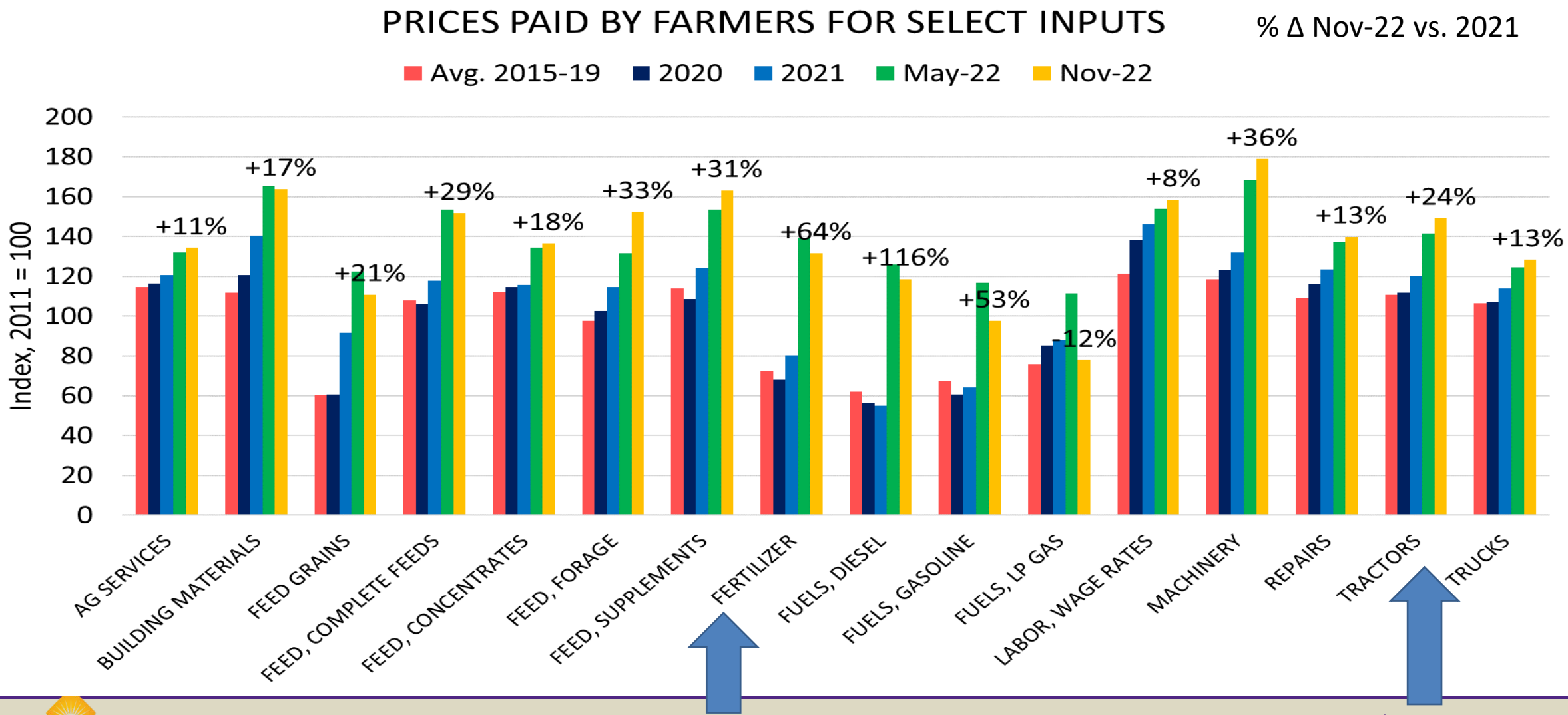
2023 Situation

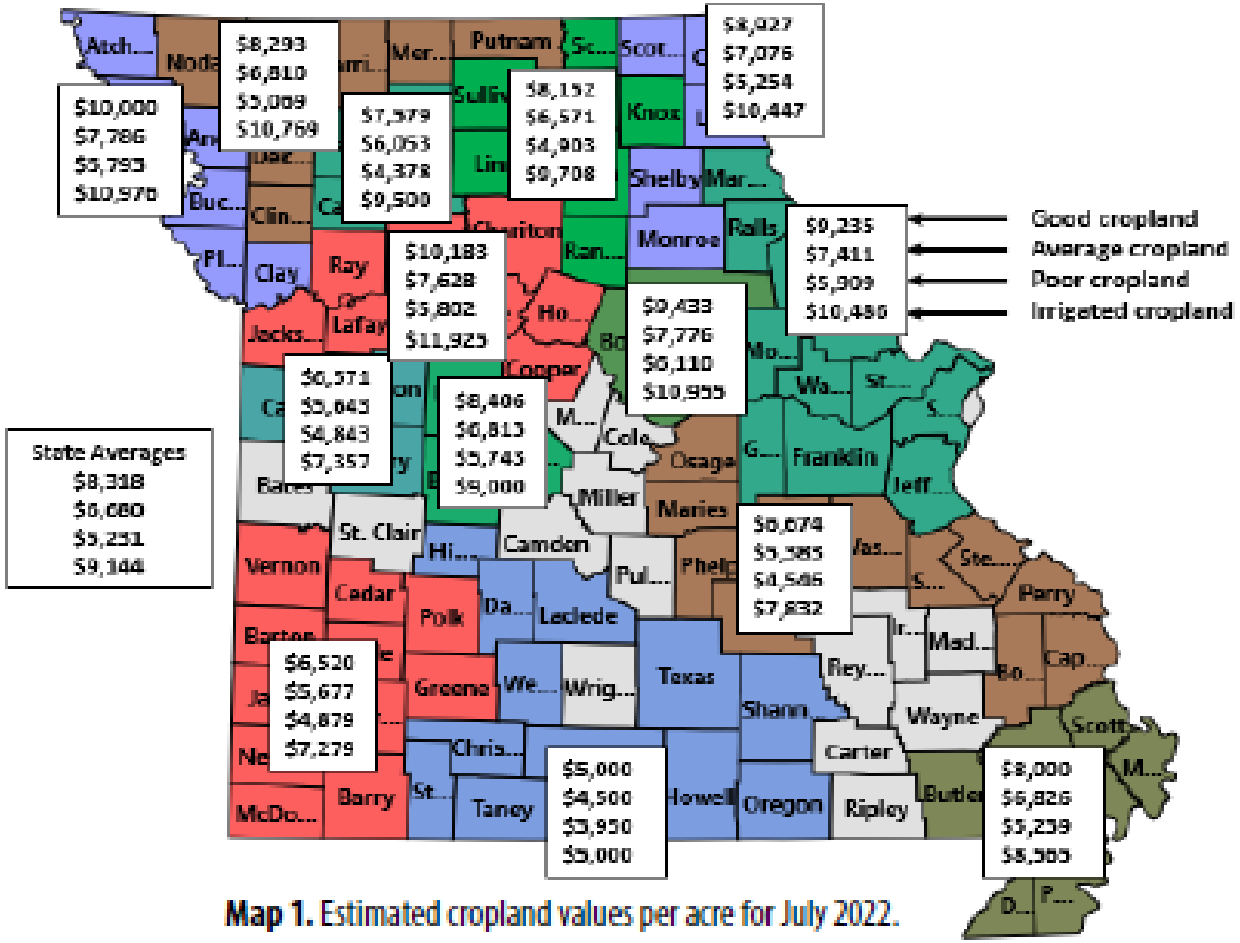
- Soybeans CME Nov 23' = $13.70 (as of 2/27)
- Corn CME Dec 23' = $5.75 (as of 2/27)
  - Implies Soy/Corn ratio of 2.38

2023 Situation

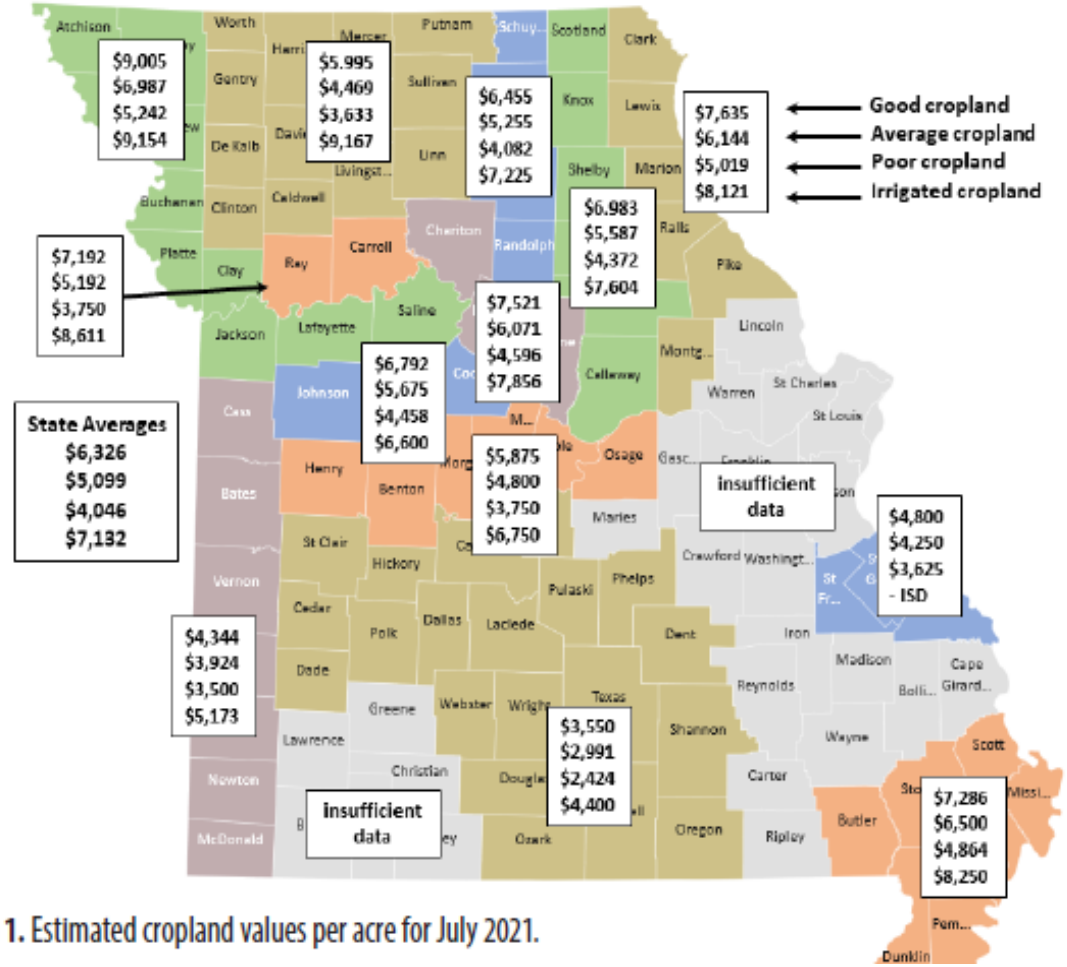
- Soybeans CME Nov 23' = $13.70 (as of 2/27)
- Corn CME Dec 23' = $5.75 (as of 2/27)
  - Implies Soy/Corn ratio of 2.38
    - Historical average per Dan O'Brien of 2.52
      - Currently points to more U.S. Corn acres in 2023
        - Even more if fertilizer prices further decline

Look Beyond Expected Sales Price & Revenue





Map 1. Estimated cropland values per acre for July 2022.



Map 1. Estimated cropland values per acre for July 2021.

State Average (Avg Cropland)
$6,680 in 2022 vs $5,099 in 2021
= +31%

Longer-Term Grain Market Situation

1. At some point markets will gain confidence in larger crops, rebuilding of stocks, and hence push crop prices lower

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2. Geo-politics
    1. Ukraine-Russia: currently depressed Ukraine grain exports may change course
    2. China-World relations: key to broader macroeconomic situation and commodity demand

Longer-Term Grain Market Situation

1. At some point markets will gain confidence in larger crops, rebuilding of stocks, and hence push crop prices lower

2. Geo-politics
    1. Ukraine-Russia: currently depressed Ukraine grain exports may change course
    2. China-World relations: key to broader macroeconomic situation and commodity demand

3. U.S. is blessed with waterway system that underpins large exports
    1. Reinvestment in physical infrastructure remains key

Meat-Livestock Markets

BEEF-CATTLE OUTLOOK

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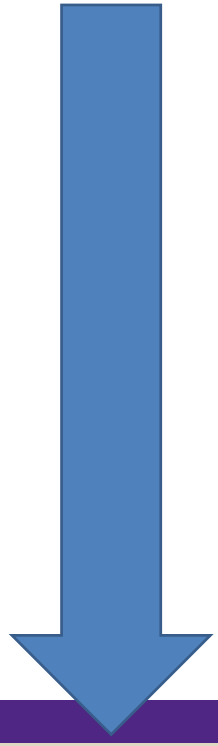
Take-Home Summary

1. Supply Dynamics, Switching to Support Higher Cattle Prices

2. Beef Demand (Domestic & Export) Has Been Solid But Weakened as 22' Ended

Quarterly Forecasts (LMIC: 2/7/23)

Year Quarter	Comm'l Slaughter	% Chg. from Year Ago	Average Dressed Weight	% Chg. from Year Ago	Comm'l Beef Production	% Chg. from Year Ago
2022						
I	8,405	1.5	835.6	0.3	7,022	1.8
II	8,669	1.9	815.4	-0.3	7,069	1.5
III	8,756	2.7	816.2	-0.3	7,147	2.4
IV	8,493	-0.5	830.5	-0.3	7,053	-0.7
Year	34,322	1.4	824.3	-0.2	28,290	1.2
2023						
I	8,260	-1.7	823.8	-1.4	6,805	-3.1
II	8,284	-4.4	812.2	-0.4	6,728	-4.8
III	8,223	-6.1	818.3	0.3	6,729	-5.8
IV	8,133	-4.2	834.5	0.5	6,787	-3.8
Year	32,900	-4.1	822.2	-0.3	27,049	-4.4
2024						
I	7,516	-9.0	828.4	0.6	6,226	-8.5
II	7,547	-8.9	818.0	0.7	6,174	-8.2
III	7,758	-5.6	827.6	1.1	6,421	-4.6
IV	7,601	-6.5	843.5	1.1	6,411	-5.5
Year	30,422	-7.5	829.4	0.9	25,232	-6.7

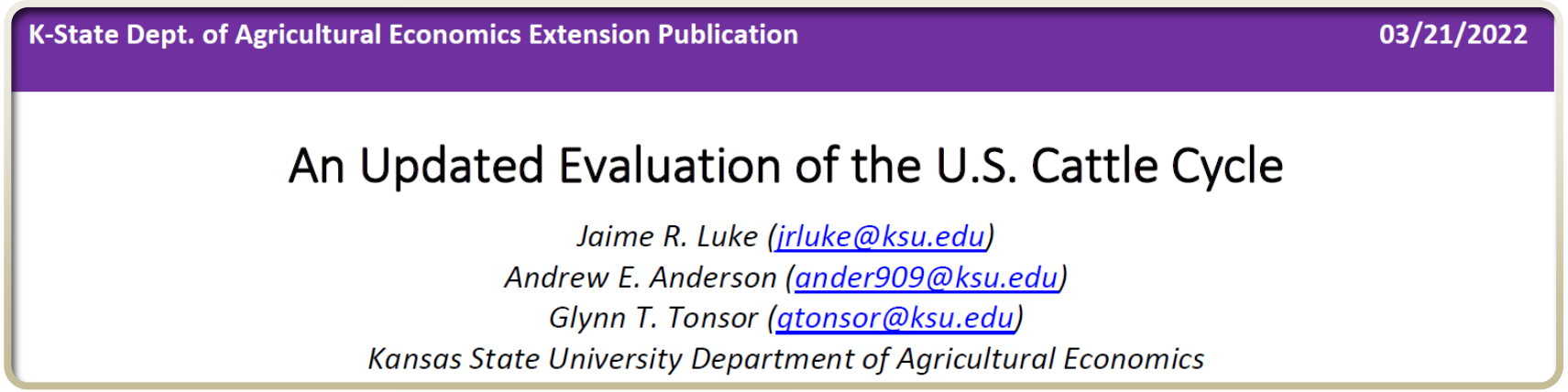


Quarterly Forecasts: Cattle (LMIC: 2/7/23)

Year Quarter	Live Sltr. Steer Price 5-Mkt Avg	% Chg. from Year Ago	Feeder Steer Price Southern Plains 7-800#	5-600#
2022				
I	139.25	23.3	160.00	193.66
II	141.93	17.5	160.49	188.43
III	143	16.2	178	192
IV	153	13.7	177	192
Year	144	17.2	169	191
2023				
I	155-156	11.7	181-182	211-212
II	158-162	12.7	178-183	213-218
III	152-162	9.5	183-188	208-213
IV	150-160	1.3	185-195	220-230
Year	155-157	8.0	183-185	214-216
2024				
I	160-175	7.7	190-200	230-240
II	165-180	7.8	188-198	222-232
III	163-178	8.6	190-205	233-248
IV	167-182	12.6	187-202	243-258
Year	165-175	9.0	190-200	233-243

Data Source: Livestock Marketing Information Center

Context on Beef Cow Herd Dynamics



K-State Dept. of Agricultural Economics Extension Publication 03/21/2022

An Updated Evaluation of the U.S. Cattle Cycle

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Andrew E. Anderson (ander909@ksu.edu)
Glynn T. Tonsor (gtonsor@ksu.edu)
Kansas State University Department of Agricultural Economics

- https://www.agmanager.info/livestock-meat/production-economics/updated-evaluation-us-cattle-cycle

KSU – Beef Replacement Tool

https://www.agmanager.info/livestock-meat/production-economics/ksu-beef-replacement

Always good to “push the pencil” on decisions such has what to pay in herd expansion/rebuild efforts

KSU-Beef Replacements

An Excel spreadsheet program to evaluate the economic value of purchasing beef replacement females.

AgManager.info

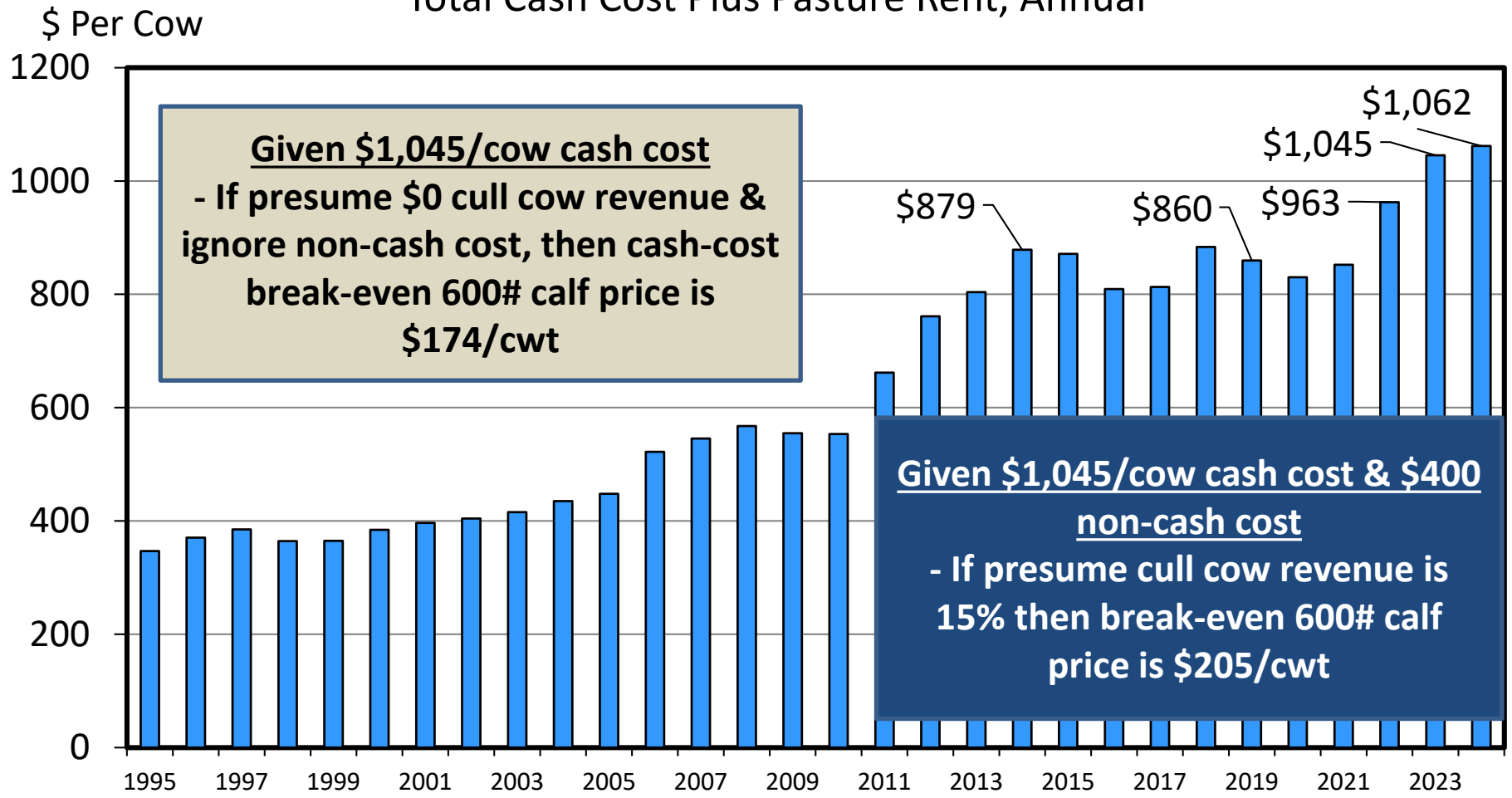
Version- 1.30.2023

INTRODUCTION

A spreadsheet program to calculate the net present value of purchasing replacment heifers given expectations for calf selling price, weaning weights, cull cow price, and a target rate of return on investment.

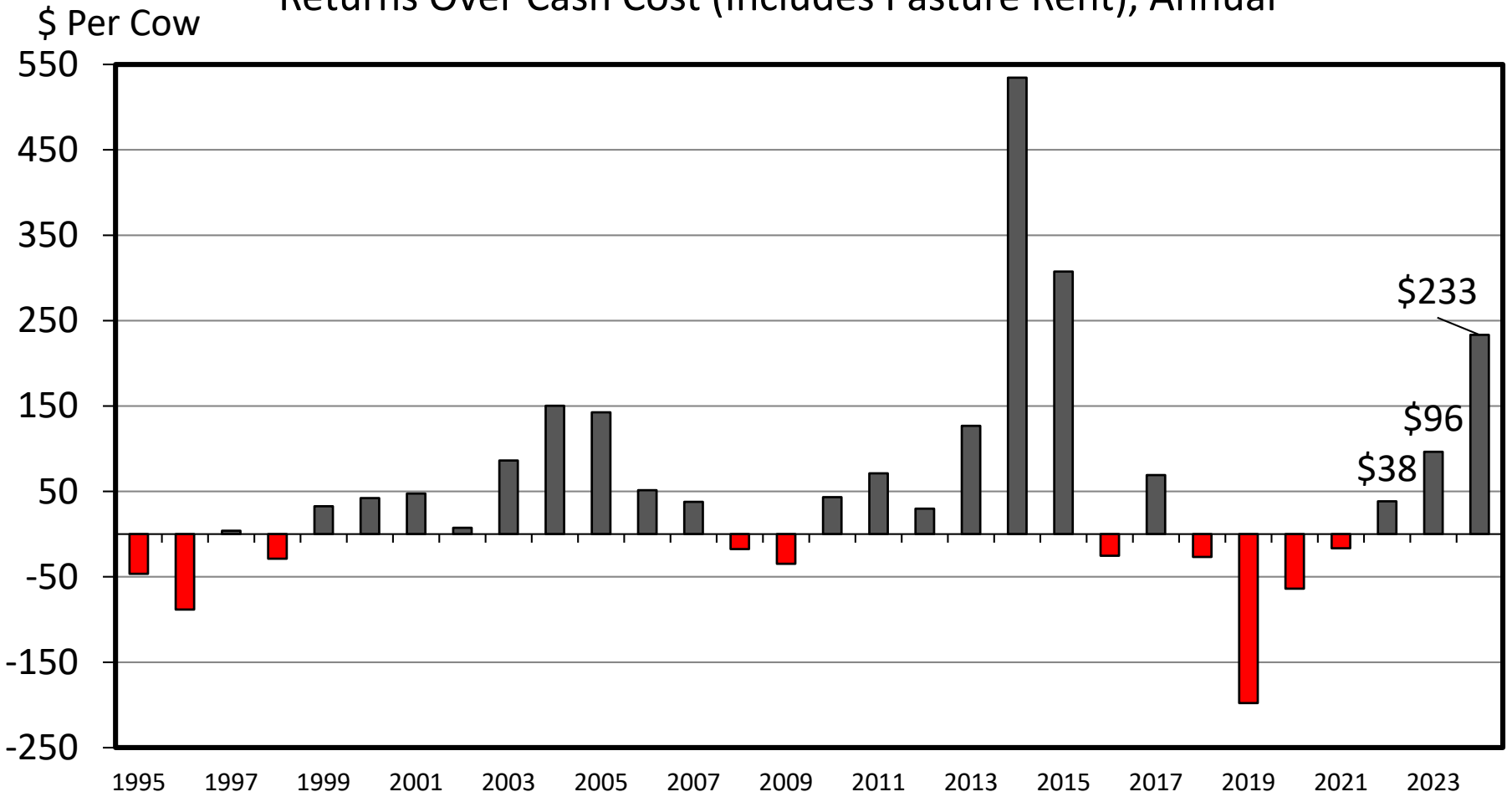
ESTIMATED AVERAGE COW CALF COSTS

Total Cash Cost Plus Pasture Rent, Annual



ESTIMATED AVERAGE COW CALF RETURNS

Returns Over Cash Cost (Includes Pasture Rent), Annual



Want Feeder Cattle Price, Basis, & VOG Projections?
Use BeefBasis.com

Palmyra, MO FALL CALF Market, as of 2/27

10/25/2023 Sell @ Weaning @ 600 lbs

- *Expected Cash Price: $235/cwt*

KSU-Feeder Cattle Risk Management Tool

https://www.agmanager.info/k-state-feeder-cattle-risk-management-tool

INTRODUCTION

This spreadsheet was developed as a decision-aid tool for producers interested in managing feeder cattle price risk. It can be used to compare the Expected Net Selling Price using alternative risk management tools available for pricing feeder cattle.

INSTRUCTIONS FOR THE !

Be sure to **"Enable Content"** and **"Enable Macros"** for the spreadsheet to function correctly.
In the Comparison sheet all blue numbers are input by the user. All black numbers are calculated using data provided by the user. The spreadsheet automatically recalculates every time an additional input is entered. Thus, it is important to wait until all data have been entered and reviewed before interpreting any of the calculated results (i.e., black numbers). Most of the input cells (i.e., blue number) have a red diamond in the upper right hand corner of the cell. By moving your mouse cursor over this diamond, a brief description of

FOR MORE INFORMATION:

To learn more about managing price risk and using LRP insurance visit www.AgManager.info or click on the following link

P Insurance Informat Price Risk Management Information

Updated by:

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ACKNOWLEDGEMENTS:

This spreadsheet was originally developed by Kevin Dhuyvetter, Ph.D., Agricultural Economist, Kanasas State University. The authors gratefully acknowledge funding provided by USDA's Risk Management Agency (RMA) for initial development of this feeder cattle risk management tool.

KANSAS STATE UNIVERSITY Agricultural Economics RMA

Always good to reassess your situation

e.g. changes in LRP make that more attractive to some…

Historical and Projected Kansas Feedlot Net Returns (as of 2/9/23')

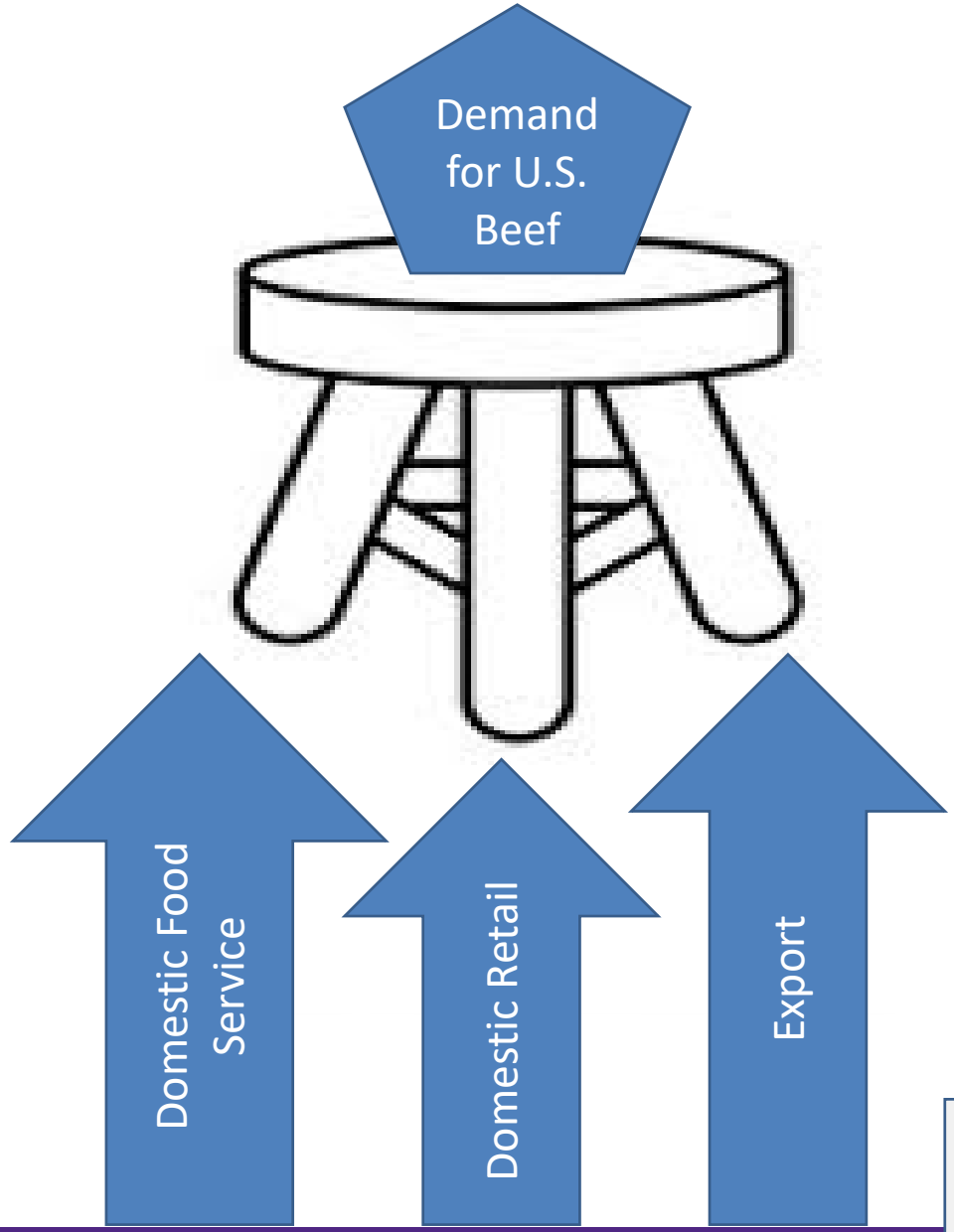
(http://www.agmanager.info/livestock/marketing/outlook/newsletters/FinishingReturns/default.asp)

Dec 22': +$85/steer

Table 1. Projected Values for Finishing Steers in Kansas Feedyards*

Closeout Mo-Yr	Net Return	FCOG**	Fed Price	Fed Futures	Fed Basis	Feeder Price	Breakeven FCOG**	Breakeven Fed Price	Breakeven Feeder Price
Jan-23	47.09	141.25	156.26	157.36	-1.09	158.39	148.13	153.01	164.57
Feb-23	35.14	141.18	163.94	163.63	0.31	172.67	146.52	161.50	177.16
Mar-23	90.34	139.79	167.50	163.63	3.87	172.94	153.57	161.05	185.06
Apr-23	113.92	134.45	165.71	159.53	6.18	170.90	152.15	157.36	186.69
May-23	211.48	127.54	167.76	159.53	8.24	168.50	159.38	152.64	197.31
Jun-23	118.54	124.21	162.33	158.58	3.75	172.80	142.45	153.80	188.80
Jul-23	49.72	120.05	158.60	158.58	0.03	177.82	127.78	155.03	184.45
Aug-23	85.85	118.72	163.20	162.83	0.38	183.31	131.74	157.15	194.62
Sep-23	29.38	117.90	163.92	162.83	1.09	191.73	122.43	161.84	195.55
Oct-23	36.15	117.44	169.29	166.68	2.61	199.97	123.07	166.73	204.64

Beef Demand Patterns



See Nov 22' Extended Discussion w/ Matt Perrier on Practically Ranching: https://www.buzzsprout.com/1995747/11686340

Monthly Meat Demand Monitor, Methods, and Supporting Information

Home / Livestock & Meat / Meat Demand / Monthly Meat Demand Monitor [Survey Data]

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- Projected Feeder Cattle Prices
- Cattle Finishing Returns
- Meat Demand
  - Meat Demand Research Studies
  - Monthly Domestic Meat Demand Indices [USDA/BLS Data]
  - Monthly Export Meat Demand Indices [USDA/BLS Data]
  - **Monthly Meat Demand Monitor [Survey Data]**

Monthly Meat Demand Monitor [Survey Data]

Add to Favorites

The Meat Demand Monitor (MDM) project is funded in-part by the beef checkoff and the pork checkoff. Monthly reports and supporting documentation are available here.

BEEF Funded in part by the Beef Checkoff.

K-STATE Research and Extension

pork checkoff

Monthly Meat Demand Monitor

Title	Author	Date	Downloads
Meat Demand Monitor - August 2020	Tonsor	September 4, 2020	Downloads
Meat Demand Monitor - July 2020	Tonsor	August 4, 2020	Downloads
Meat Demand Monitor - February-June 2020 Summary Report	Tonsor	July 27, 2020	Downloads
Meat Demand Monitor - June 2020	Tonsor	July 2, 2020	Downloads
Meat Demand Monitor - May 2020	Tonsor	May 29, 2020	Downloads
Meat Demand Monitor - Coronavirus (COVID-19) Impact on U.S. Meat Demand:	Tonsor	May 12, 2020	Downloads

PORK ECONOMICS

ASSESSING OUTLOOK IN A PERIOD OF ELEVATED UNCERTAINTY

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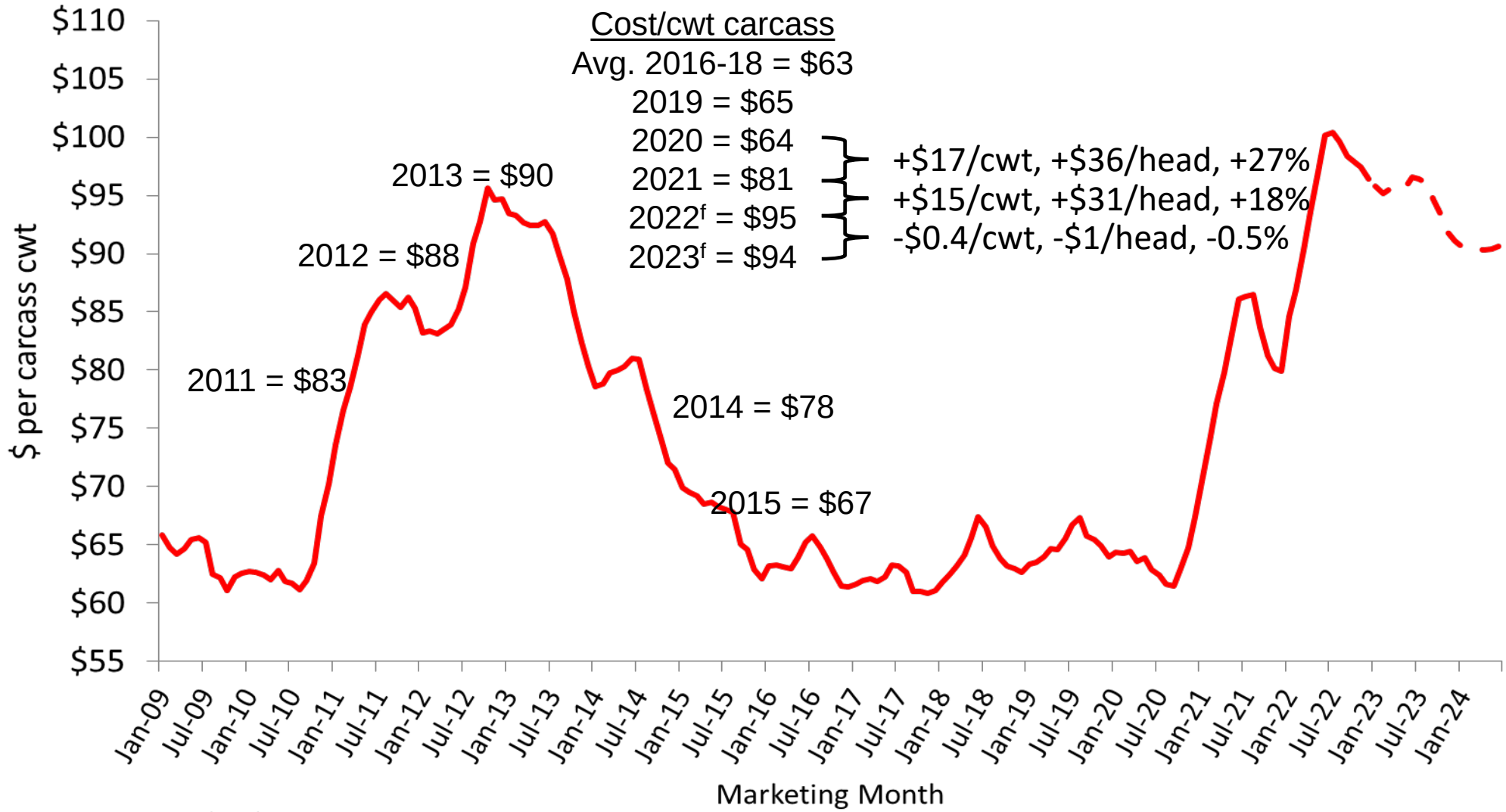
QUARTERLY COMMERCIAL HOG SLAUGHTER, PORK PRODUCTION, PER CAPITA PORK DISAPPEARANCE AND NATIONAL BASE HOG PRICE (LMIC 2/23/23)

Year Quarter	Comm'l Slaughter (1,000 Head)	% Chg. from Year Ago	Average Carcass Weight (Lbs.)	% Chg. from Year Ago	Comm'l Pork Production (Mil. Lbs.)	% Chg. from Year Ago	Per Capita Consumption (Retail Wt.)	% Chg. from Year Ago	Carcass Price National Wtd Avg Base ($/Cwt.)	% Chg. from Year Ago
2020										
I	34,479	8.2	215	0.3	7,426	8.9	13.2	0.8	61.29	5.1
II	29,198	-5.6	217	1.1	6,313	-4.6	11.6	-7.5	58.79	-25.3
III	33,374	4.0	211	1.1	7,048	5.1	13.2	2.8	57.87	-18.0
IV	34,512	-1.5	218	1.9	7,515	0.5	14.0	0.4	68.57	10.3
Year	131,563	1.3	215	1.1	28,303	2.5	51.9	-0.8	61.63	-8.6
2021										
I	33,421	-3.1	218	1.2	7,292	-1.8	13.1	-0.7	75.79	23.7
II	31,120	6.6	215	-0.9	6,668	5.6	11.8	1.6	104.84	78.3
III	31,167	-6.6	210	-0.6	6,530	-7.4	12.2	-7.4	99.68	72.2
IV	33,278	-3.6	216	-0.9	7,185	-4.4	13.9	-0.3	77.73	13.4
Year	128,986	-2.0	215	-0.3	27,675	-2.2	51.0	-1.8	89.51	45.2
2022										
I	31,603	-5.4	218	0.2	6,904	-5.3	13.1	0.2	88.74	17.1
II	30,618	-1.6	217	1.2	6,639	-0.4	12.4	5.3	101.10	-3.6
III	30,961	-0.7	211	0.6	6,533	0.0	12.4	1.0	106.34	6.7
IV	32,133	-3.4	216	-0.2	6,919	-3.7	13.0	-6.5	87.02	12.0
Year	125,315	-2.8	216	0.5	26,994	-2.5	50.9	-0.2	95.80	6.7

QUARTERLY COMMERCIAL HOG SLAUGHTER, PORK PRODUCTION, PER CAPITA PORK DISAPPEARANCE AND NATIONAL BASE HOG PRICE (LMIC 2/23/23)

Year Quarter		Comm'l Slaughter (1,000 Head)	% Chg. from Year Ago	Average Carcass Weight (Lbs.)	% Chg. from Year Ago	Comm'l Pork Production (Mil. Lbs.)	% Chg. from Year Ago	Per Capita Consumption (Retail Wt.)	% Chg. from Year Ago	Carcass Price National Wtd Avg Base ($/Cwt.)	% Chg. from Year Ago
2022											
I		31,603	-5.4	218	0.2	6,904	-5.3	13.1	0.2	88.74	17.1
II		30,618	-1.6	217	1.2	6,639	-0.4	12.4	5.3	101.10	-3.6
III		30,961	-0.7	211	0.6	6,533	0.0	12.4	1.0	106.34	6.7
IV		32,133	-3.4	216	-0.2	6,919	-3.7	13.0	-6.5	87.02	12.0
Year		125,315	-2.8	216	0.5	26,994	-2.5	50.9	-0.2	95.80	6.7
2023											
I	a	32,149	1.7	219	0.2	7,036	1.9	13.0	-0.7	86-88	-2.0
II	b	30,376	-0.8	218	0.3	6,623	-0.2	12.3	-0.5	99-102	-0.6
III		30,805	-0.5	212	0.1	6,516	-0.3	12.1	-2.0	103-107	-1.3
IV		32,224	0.3	217	0.5	6,982	0.9	12.9	-0.7	85-90	0.6
Year		125,553	0.2	216	0.3	27,156	0.6	50.4	-1.0	92-98	-1.0
2024											
I		32,415	0.8	220	0.4	7,122	1.2	13.1	0.5	83-89	-1.1
II		30,643	0.9	219	0.4	6,711	1.3	12.4	0.3	96-103	-1.0
III		31,189	1.2	212	0.2	6,608	1.4	12.2	0.5	100-108	-1.0
IV		32,678	1.4	218	0.6	7,122	2.0	13.1	1.4	82-91	-1.1
Year		126,925	1.1	217	0.4	27,563	1.5	50.7	0.7	90-98	-1.1

BREAKEVEN—FARROW TO FINISH, IOWA

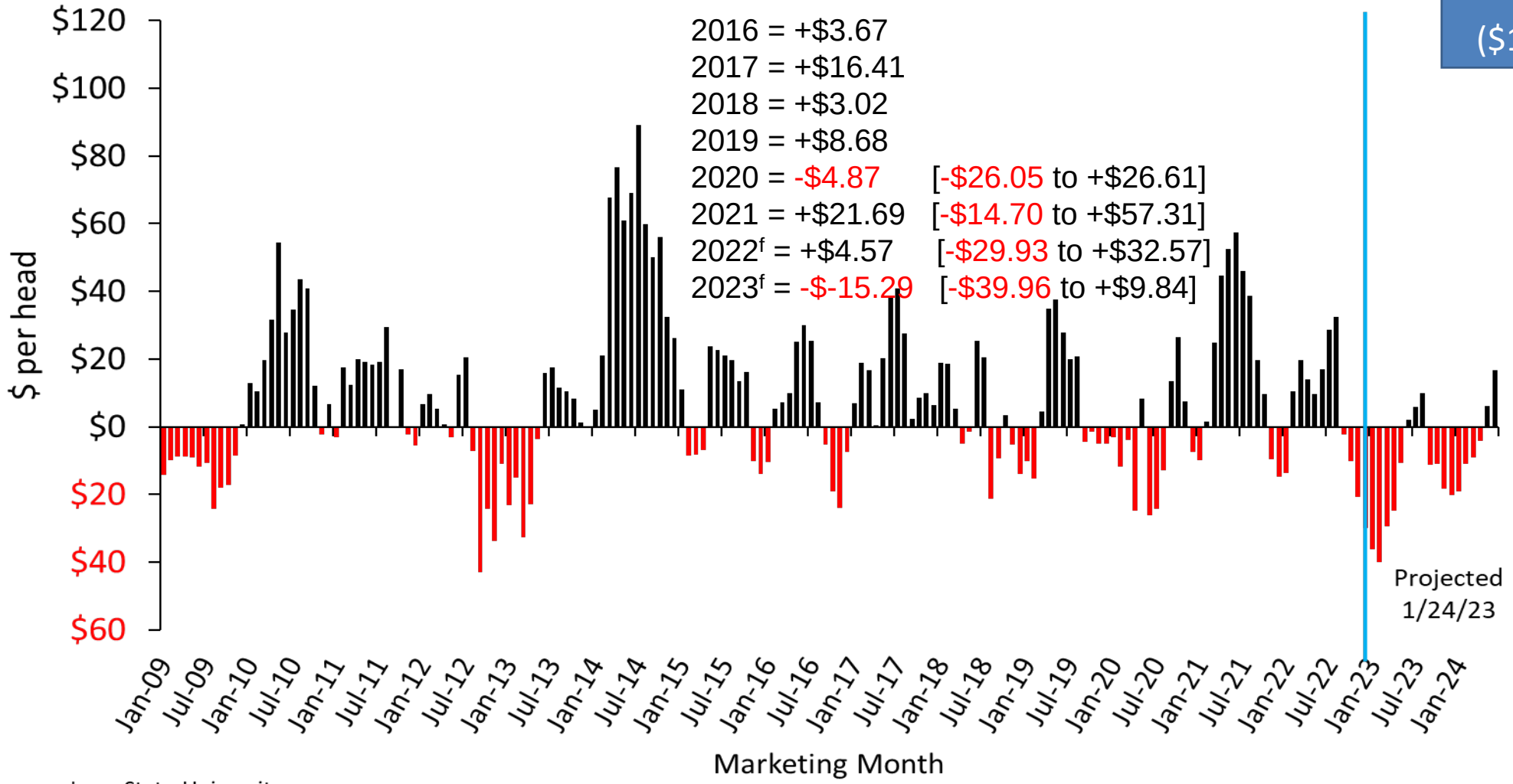


Source: Iowa State University

Estimated Returns to Farrow to Finish, Iowa

Past and Projected with Basis Adjusted Futures

w/o manure credit ($10-12/hd)



Source: Iowa State University

ESTIMATED MANURE CREDIT

Farrow to Finish Production

Kansas State University Department Of Agricultural Economics Extension Publication 02/15/2023

KSU - Hog Contract Evaluation Tool: Updated Decision-Aide

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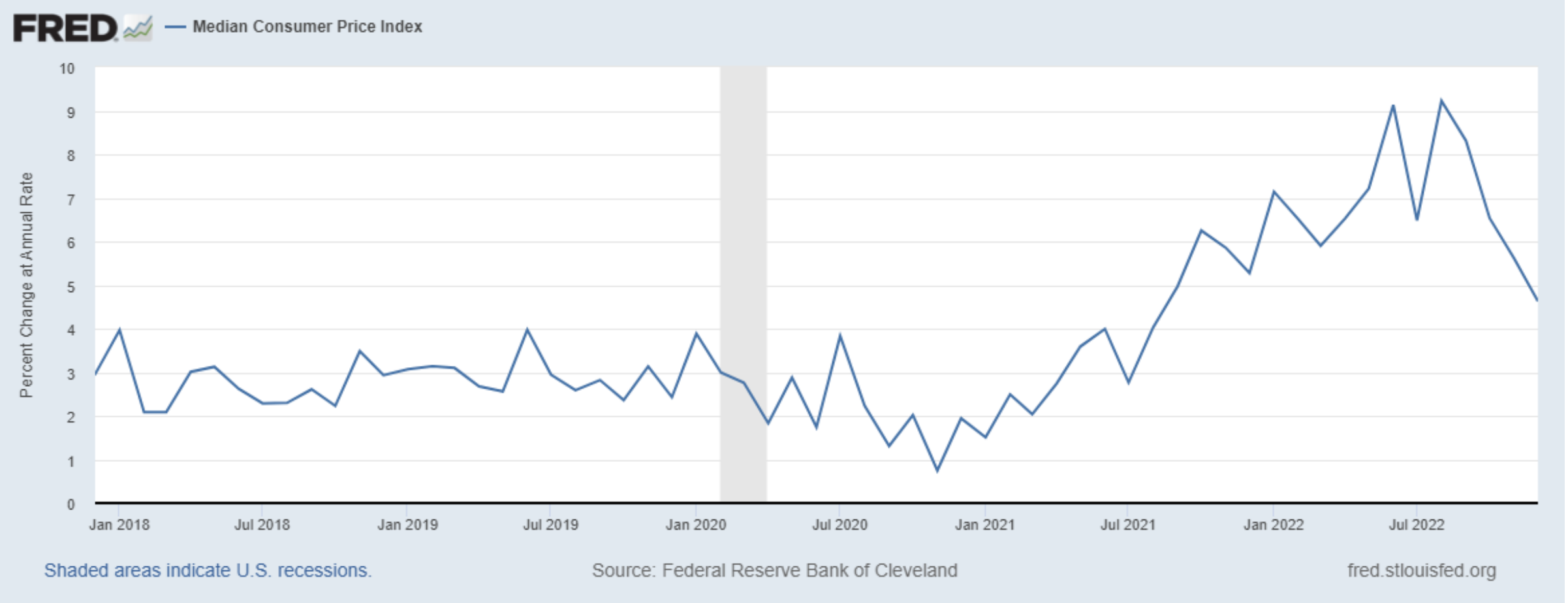
Mike Tokach (mtokach@ksu.edu) Kansas State University Department of Animal Sciences & Industry

https://www.agmanager.info/ksu-hog-contract-evaluation-tool

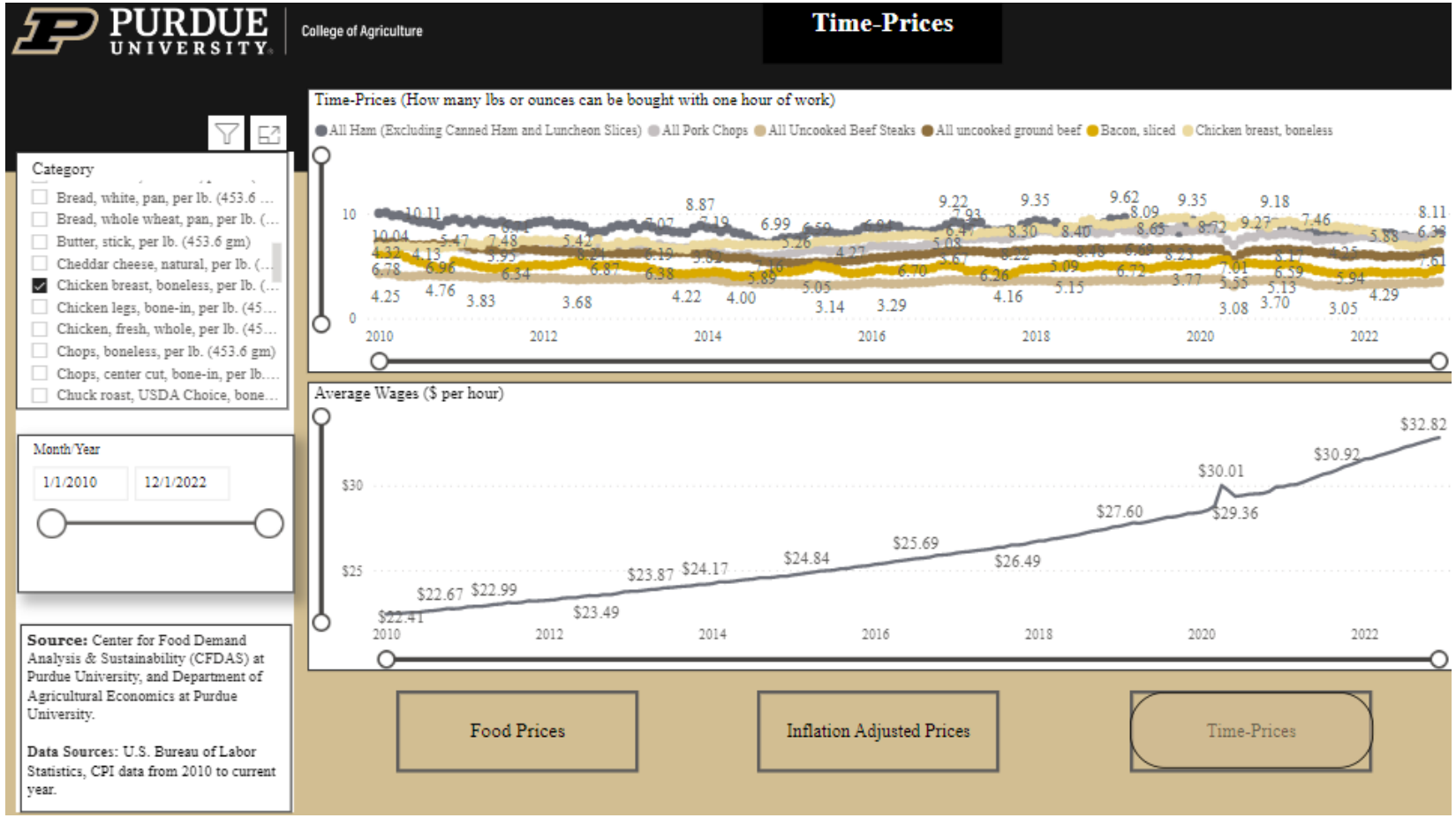
Other, Big Picture Points

Summer 2022, Inflation in U.S. Was Highest in 4 Decades



Real Wages Are Key

Purdue's Dashboard: Retail Meat Prices ($/lb) Relative to Average Wages ($/hr)



Jan. 2020, 1 hr work =
9.1 lbs ham
8.4 lbs pork chop
5.1 lbs bacon
6.6 lbs ground beef
3.7 lbs beef steaks
9.5 lbs chicken breast

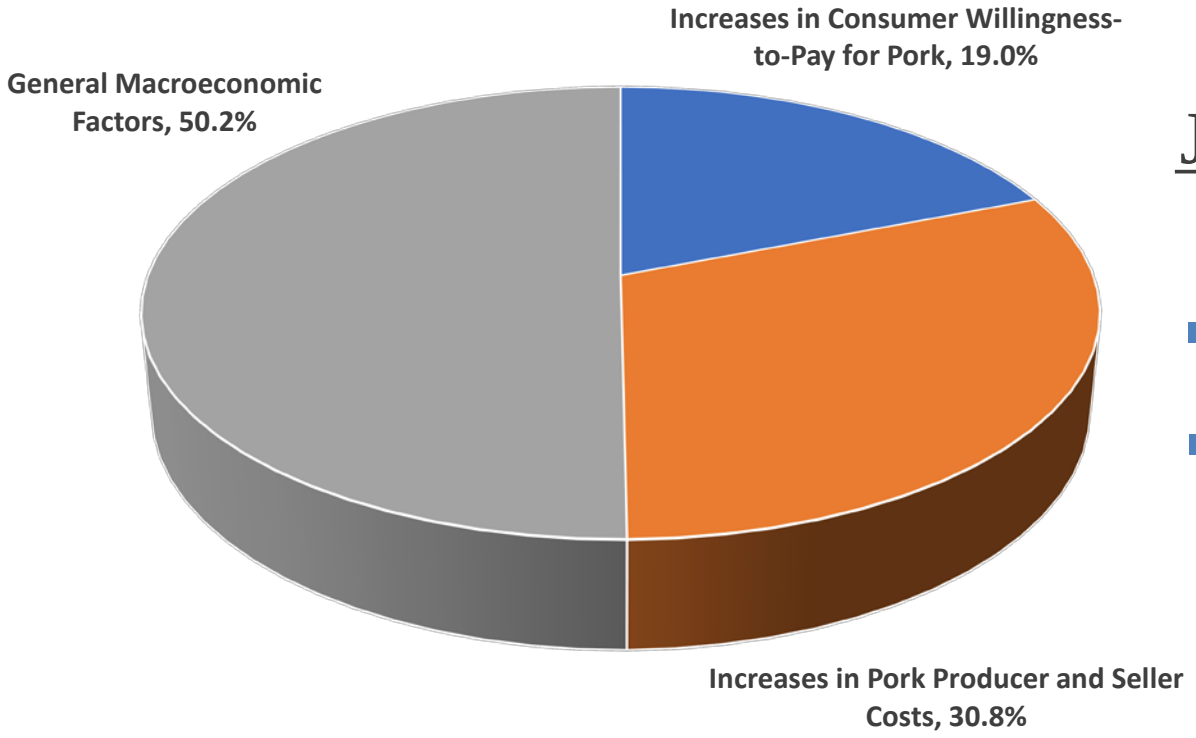
Dec. 2022, 1 hr work =
8.1 lbs ham (-11%)
7.6 lbs pork chop (-10%)
4.7 lbs bacon (-8%)
6.3 lbs ground beef (-5%)
3.5 lbs beef steaks (-5%)
7.6 lbs chicken breast (-20%)

What Underlies Higher Retail Pork Prices?

- Supply-Drivers
  - "Pushing up" prices?
- Demand-Drivers
  - "Pulling up" prices?
- Broader Macroeconomic Drivers
  - Historic increase in money supply underpin general inflation?

What Underlies Higher Retail Pork Prices?

Relative Drivers of Change in Retail Pork Prices
January 2020 to April 2022



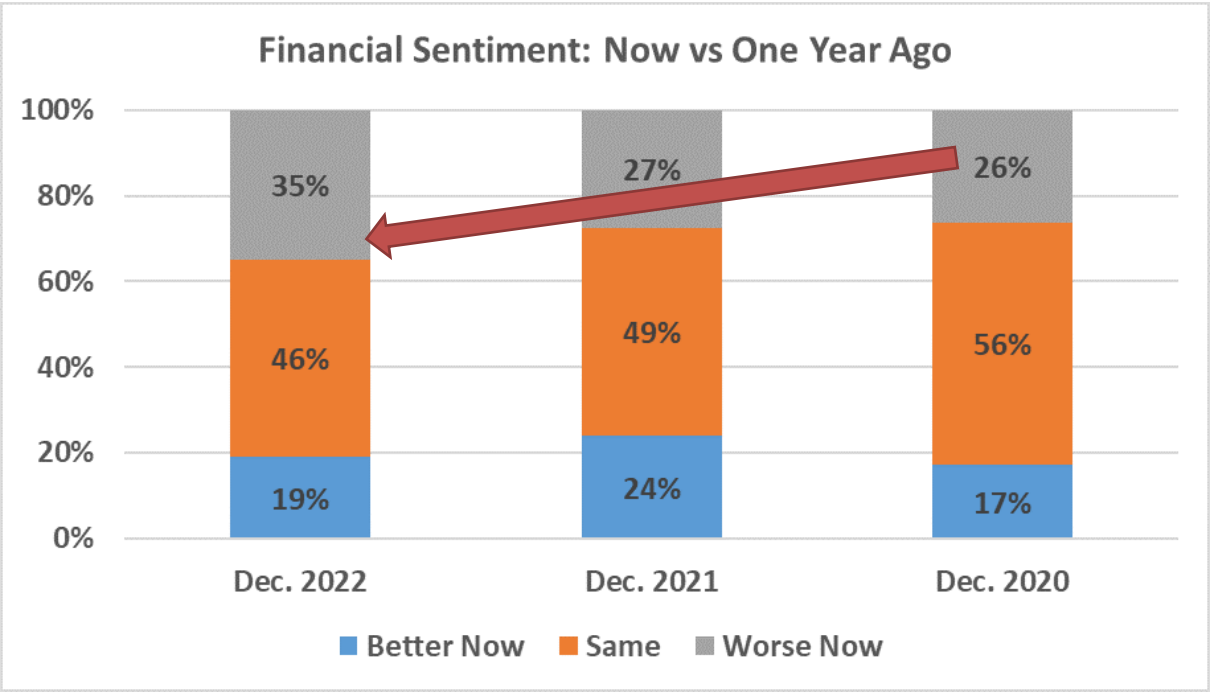
Jan 2020 – Apr 2022, Nominal Retail Pork +27.3%

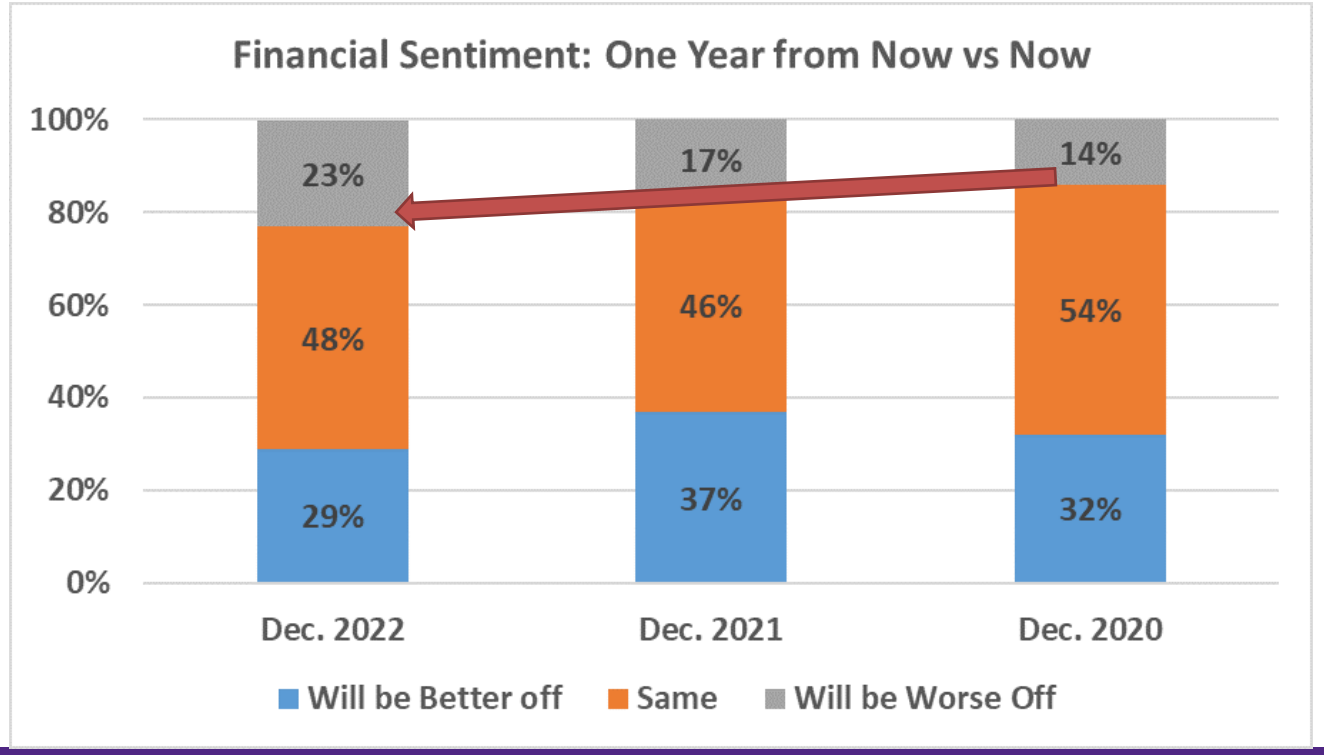
- +13.7% from macroeconomic pressures
- +8.4% from inner-industry supply-side factors
- +5.2% from pork demand factors

How is Elevated Inflation Impacting Pork Price Sensitivity?

Trends in Meat Demand Monitor (MDM)

- Protein Values & Relative Role of Price
  - Q4.2021 45.9% indicated Price was a top 4 consideration
  - Q4.2022 48.2% indicated Price was a top 4 consideration


Financial Sentiment: Now vs One Year Ago
100%
80%
60%
40%
20%
0%
35%
27%
26%
46%
49%
56%
19%
24%
17%
Dec. 2022
Dec. 2021
Dec. 2020
Better Now
Same
Worse Now


Financial Sentiment: One Year from Now vs Now
100%
80%
60%
40%
20%
0%
23%
17%
14%
48%
46%
54%
29%
37%
32%
Dec. 2022
Dec. 2021
Dec. 2020
Will be Better off
Same
Will be Worse Off

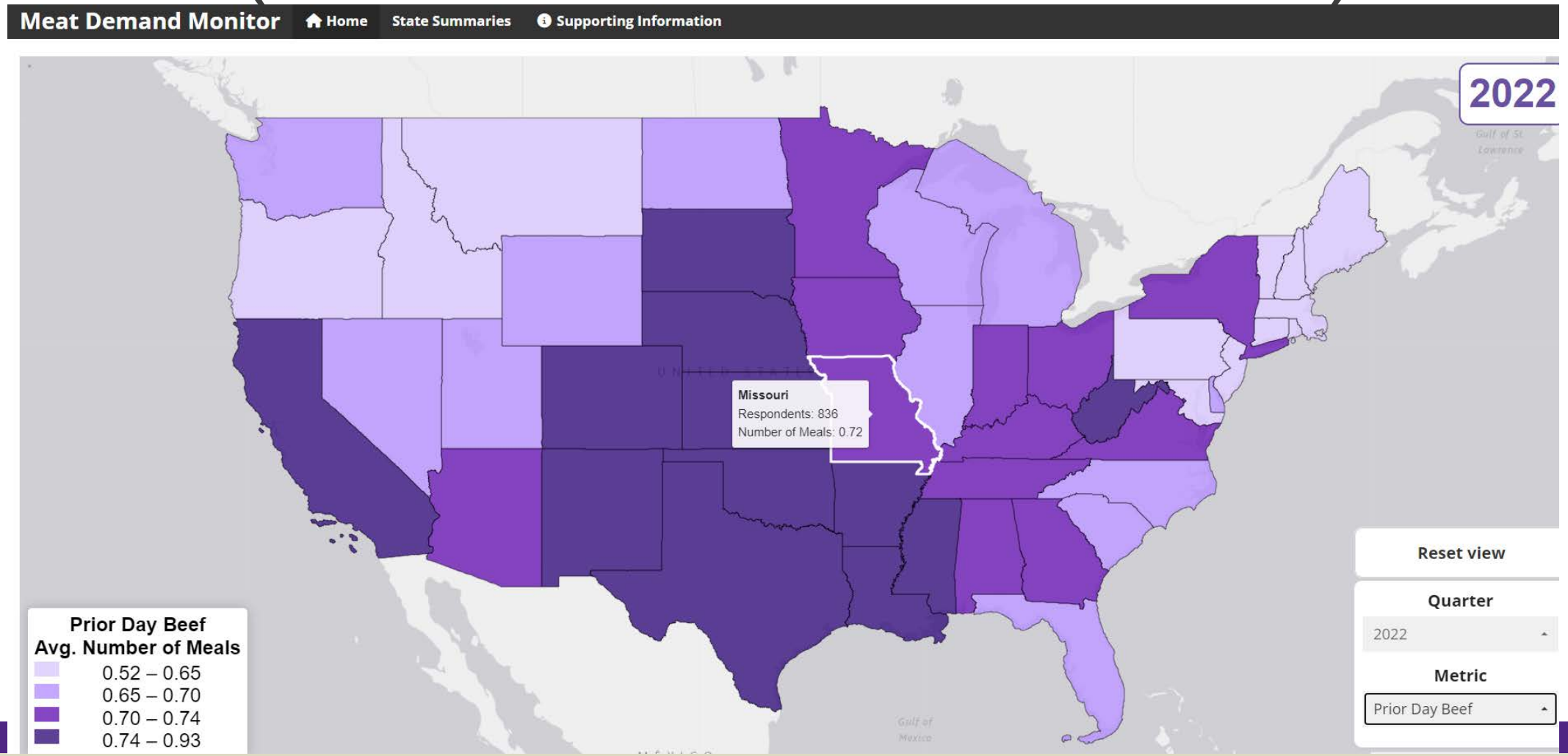
Consider MO vs CA, TX, & FL Lessons (2022 Meat Demand Monitor)

State	Regularly Consume Meat	Flexitarian	Vegetarian	Vegan/Vegetarian	Other
Missouri (6.2 million)	**78%**	11%	1%	5%	5%
California (40.2 million)	60%	**15%**	**7%**	**12%**	6%
Texas (30.3 million)	71%	13%	4%	6%	6%
Florida (22.4 million)	70%	13%	4%	7%	**7%**

Consider MO vs CA, TX, & FL Lessons (2022 Meat Demand Monitor)

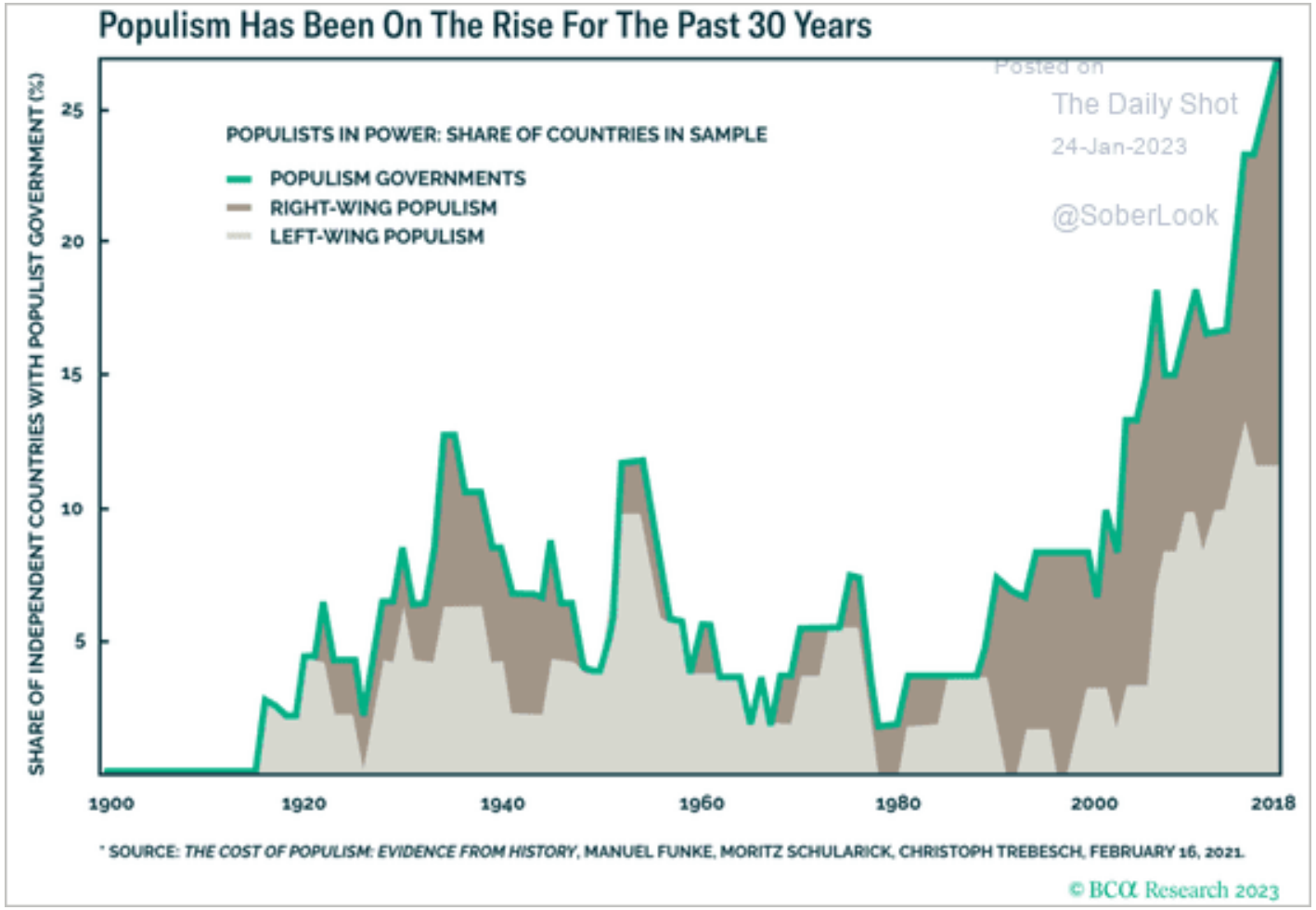
State	Prior Day Beef Meals	Prior Day Pork Meals	Prior Day Chicken Meals	Prior Day Fish/Seafood Meals
Missouri (6.2 million)	.72	**.53**	.73	.23
California (40.2 million)	.74	.52	.85	**.41**
Texas (30.3 million)	**.75**	.50	**.88**	.32
Florida (22.4 million)	.68	.48	.78	.35

Consider MO vs CA, TX, & FL Lessons (2022 Meat Demand Monitor)



Consider MO vs CA, TX, & FL Lessons (2022 Meat Demand Monitor)

State	Taste vs Price	Convenience vs Origin/Traceability
Missouri (6.2 million)	Taste is 50% more important	Convenience is 4.1 times as important
California (40.2 million)	Taste is 55% more important	Convenience is 3.2 times as important
Texas (30.3 million)	Taste is 64% more important	Convenience is 4.6 times as important
Florida (22.4 million)	Taste is 54% more important	Convenience is 3.4 times as important


Populism Has Been On The Rise For The Past 30 Years
Posted on
The Daily Shot
24-Jan-2023
@SoberLook
POPULISTS IN POWER: SHARE OF COUNTRIES IN SAMPLE
POPULISM GOVERNMENTS
RIGHT-WING POPULISM
LEFT-WING POPULISM
SHARE OF INDEPENDENT COUNTRIES WITH POPULIST GOVERNMENT (%)
25
20
15
10
5
1900
1920
1940
1960
1980
2000
2018
* SOURCE: THE COST OF POPULISM: EVIDENCE FROM HISTORY, MANUEL FUNKE, MORITZ SCHULARICK, CHRISTOPH TREBESCH, FEBRUARY 16, 2021.
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The Economist
ZERO-SUM

~15% of
Human Population

~85% of
Human Population

http://library.meatingplace.com/publication/frame.php?i=727245&p=72&pn=&ver=html5

"Any good business plan or policy needs a clearly stated goal… "

- Think global
- Manage local & focus on things you can influence

More information available at:

This presentation will be available in PDF format at:

http://www.agmanager.info/about/contributors/individual/tonsor.asp

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USDA & MDM Info:
Meat Demand Outdoes Meat Avoidance

Meat Science 190 (2022) 108843

Contents lists available at ScienceDirect

Meat Science

journal homepage: www.elsevier.com/locate/meatsci

Check for updates

U.S. perspective: Meat demand outdoes meat avoidance

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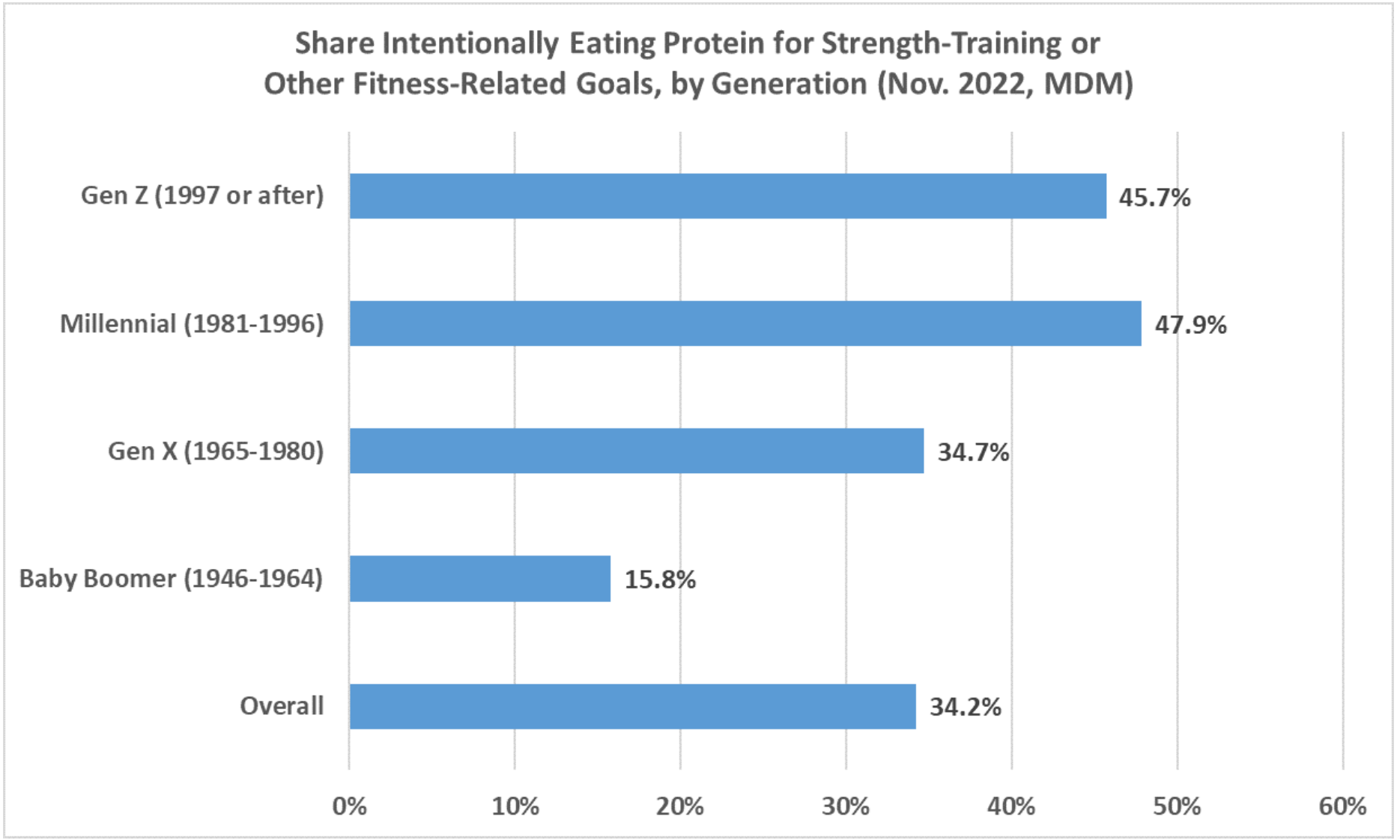
Share Intentionally Eating Protein for Strength-Training or Other Fitness-Related Goals, by Generation (Nov. 2022, MDM)
Gen Z (1997 or after)
45.7%
Millennial (1981-1996)
47.9%
Gen X (1965-1980)
34.7%
Baby Boomer (1946-1964)
15.8%
Overall
34.2%
0%
10%
20%
30%
40%
50%
60%