Global Economic Trends & Implications for Agriculture

ONTARIO PORK, 2022 POLICY DAY

SEPT. 20, 2022



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Plan for today's discussion...

- Frame our discussion: forward-looking, economic, & global
- **❖Share U.S. information with relevance for Canada**
- Briefly cover some hot topics
 - **❖**Plant-based proteins
 - **❖**U.S. packing sector & producer-packer interface
- *How does Glynn encourage folks to think & manage for the future?

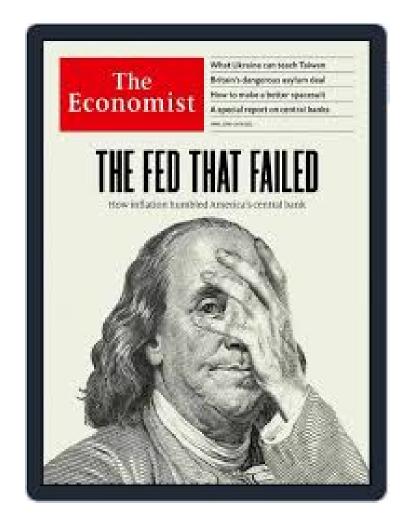






































USDA Baseline Projections

➤ Projections out to 2031

> Report released annually, latest in Feb. 2022 (pre-Ukraine conflict)

➤ Report, tables, etc. available here:

https://www.usda.gov/oce/commodity-markets/baseline





Population Projections

Table 4. Population growth assumptions to 2031

	Population								Average	
Region/country	in 2021	2020	2021	2022	2023	2024	2025	2002-11	2012-21	2022-31
	Millions			F	Percent ch	ange in po	pulation			
World 1/	7,667	1.0	1.0	1.0	1.0	1.0	0.9	1.2	1.1	0.9
U.S. and Canada	368	0.4	0.3	0.7	0.7	0.7	0.7	0.9	0.6	0.7
Canada	38	8.0	8.0	8.0	0.7	0.7	0.7	1.0	0.9	0.7
United States	330	0.4	0.3	0.7	0.7	0.7	0.7	0.9	0.6	0.7
Latin America	621	0.9	0.9	0.8	0.8	0.8	0.8	1.2	1.0	0.7
Europe	548	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.0
Former Soviet Union (FSU)	287	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Russia	141	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.1	-0.3
Ukraine	44	-0.1	-0.4	-0.5	-0.5	-0.5	-0.5	-0.6	-0.4	-0.5





Population Projections

Table 4. Population growth assumptions to 2031

	Population								Average	
Region/country	in 2021	2020	2021	2022	2023	2024	2025	2002-11	2012-21	2022-31
	Millions			F	Percent ch	ange in po	pulation			
Asia and Oceania	4,265	8.0	8.0	8.0	0.7	0.7	0.7	1.1	0.9	0.6
East Asia	1,609	0.3	0.2	0.2	0.2	0.1	0.1	0.5	0.4	0.0
Southeast Asia	672	1.0	0.9	0.9	0.9	0.9	8.0	1.3	1.0	0.8
South Asia	1,833	1.2	1.2	1.2	1.1	1.1	1.1	1.6	1.3	1.0
Middle East	339	1.3	1.4	1.5	1.5	1.3	1.2	2.1	1.5	1.2
Africa	1,348	2.5	2.5	2.5	2.4	2.4	2.4	2.6	2.6	2.3
North Africa	205	1.8	1.7	1.7	1.6	1.6	1.5	1.8	1.9	1.4
Sub-Saharan Africa	1,143	2.6	2.6	2.6	2.6	2.5	2.5	2.7	2.7	2.5





GDP Projections

Table 1. Global real Gross Domestic Product (GDP) shares and GDP growth assumptions to 2031

	GDP								Average	
Region/country	2021	2021	2022	2023	2024	2025	2026	2002-11	2012-21	2022-31
	Billion 2015			Annı	ual perd	ent ch	ange ir	real GD	P	
	dollars									
World	85,554	5.7	4.3	3.2	3.1	3.0	2.9	3.2	2.6	3.1
U.S. and Canada	22,075	5.8	3.6	2.3	1.9	1.8	1.8	1.9	2.1	2.1
Canada	1,688	6.0	4.6	3.3	2.0	1.9	1.8	3.1	1.6	2.2
United States	20,387	5.8	3.5	2.2	1.9	1.8	1.8	1.8	2.1	2.1





GDP Projections

Table 1. Global real Gross Domestic Product (GDP) shares and GDP growth assumptions to 2031

	GDP								Average	
Region/country	2021	2021	2022	2023	2024	2025	2026	2002-11	2012-21	2022-31
	Billion 2015			Annı	ual perd	cent ch	ange ir	real GDI	Р	
	dollars									
Latin America	5,199	5.6	3.3	2.7	2.7	2.8	2.8	3.6	1.0	2.9
Mexico	1,218	6.1	2.9	2.2	2.2	2.2	2.2	1.9	1.6	2.3
Argentina	535	4.1	3.5	3.4	3.2	3.1	3.0	4.7	-0.8	2.9
Brazil	1,822	5.3	3.0	2.0	2.2	2.4	2.6	4.0	0.3	2.7
Europe	18,768	5.1	4.5	2.1	1.9	1.8	1.6	1.4	1.1	1.9
Russia	1,457	3.8	2.8	2.5	2.5	2.4	2.3	4.8	1.1	2.3
Ukraine	102	4.2	4.1	3.6	3.6	3.5	3.4	4.2	-0.5	3.4





Long-Term Trajectory Projections: Perspective Framing GDP Projections

Table 1. Global real Gross Domestic Product (GDP) shares and GDP growth assumptions to 2031

	GDP							1	Average	
Region/country	2021	2021	2022	2023	2024	2025	2026	2002-11	2012-21	2022-31
	Billion 2015			Annı	ual perd	ent ch	ange ir	real GDP)	
	dollars									
Asia and Oceania	31,828	6.4	4.9	4.5	4.6	4.5	4.3	5.7	4.5	4.3
China	15,894	8.5	5.8	5.4	5.3	5.2	5.0	10.7	6.8	5.0
Japan	4,490	3.6	2.6	1.2	2.7	2.5	2.3	0.6	0.8	2.0
Korea	1,678	3.8	2.9	2.6	2.4	2.3	2.0	4.6	2.5	2.1
Indonesia	1,050	2.2	5.6	6.3	6.1	5.9	5.7	5.5	4.2	5.5
India	2,709	7.7	6.6	5.5	5.6	5.7	5.8	6.8	5.4	5.9
Australia	1,506	3.4	2.2	2.9	2.8	2.7	2.6	3.1	2.2	2.5
Middle East	3,536	3.8	5.0	4.4	4.1	3.8	3.5	5.0	2.0	3.5
Turkey	1,065	6.0	4.2	3.5	3.3	3.2	3.1	5.9	4.6	3.1
Africa	2,618	4.2	3.4	3.7	3.7	3.6	3.6	5.1	2.9	3.6
Egypt	429	2.9	4.7	5.8	5.5	5.2	4.9	4.7	3.8	4.7
Nigeria	519	3.6	1.5	1.8	2.0	2.2	2.4	7.9	2.5	2.4
Other West African Community	244	4.6	5.2	5.6	5.0	4.5	4.3	3.9	5.4	4.4
Other Sub-Saharan Africa	754	3.1	4.4	4.5	4.5	4.5	4.5	5.9	3.4	4.4





Global Pork Trade Projections: Imports

Table 38. Pork trade long-term projections to 2031

	. թյ		•										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	31' vs 2'
					Imports,	thousand	d metric t	ons, card	ass weig	ht			_
Japan	1,412	1,400	1,425	1,425	1,428	1,431	1,435	1,443	1,452	1,460	1,468	1,476	5%
China	5,281	4,500	4,750	4,952	5,140	5,329	5,510	5,686	5,852	6,006	6,158	6,295	40%
Hong Kong	378	400	435	462	478	488	495	502	509	513	518	522	30%
South Korea	554	550	600	618	635	648	665	677	687	697	704	715	30%
Philippines	167	500	375	372	390	406	419	432	443	455	466	480	-49
Vietnam	225	300	250	268	287	301	316	331	344	357	370	381	27%
Mexico	945	1,100	1,125	1,143	1,177	1,208	1,239	1,270	1,299	1,327	1,353	1,378	25%
Central America, Caribbean	272	311	344	355	365	376	386	398	410	422	434	444	43%
Canada	273	260	270	275	280	285	290	295	298	302	306	310	19%
United States	410	502	519	433	435	437	439	442	444	446	448	451	-10%
Major importers	11,043	11,058	11,339	11,595	11,951	12,285	12,611	12,930	13,230	13,515	13,789	14,051	27%





Global Pork Trade Projections: Exports

Table 38. Pork trade long-term projections to 2031

<u> </u>	, ,												
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	31' vs 21
					Exports,	thousand	d metric t	ons, card	ass weig	ht			_
Brazil	1,178	1,295	1,380	1,436	1,487	1,538	1,589	1,640	1,691	1,742	1,793	1,844	42%
Other South America ²	329	321	302	305	310	317	327	337	347	359	371	382	19%
Canada	1,544	1,550	1,565	1,584	1,608	1,623	1,643	1,660	1,678	1,698	1,722	1,746	13%
Mexico	344	375	390	401	413	425	437	449	462	474	487	500	33%
European Union ³	5,167	5,000	5,100	5,183	5,257	5,331	5,405	5,479	5,554	5,628	5,702	5,776	16%
United States	3,302	3,265	3,359	3,357	3,368	3,401	3,427	3,452	3,478	3,504	3,531	3,556	9%
Major exporters	12,132	12,107	12,371	12,556	12,748	12,955	13,163	13,366	13,572	13,782	13,995	14,208	17%





U.S. Meat-Livestock Projections

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Table 2	0: Pork lor	ng-term p	projectio	ons		

Take to the form pro	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,													
Item	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	31' vs 21'
Total production	Million lbs.	28,318	27,689	27,600	28,382	28,408	28,523	28,919	29,283	29,671	29,990	30,300	30,617	11%
Imports	Million lbs.	904	1,107	1,145	954	959	964	969	974	979	983	988	993	-10%
Total supply	Million lbs.	29,869	29,264	29,205	29,842	29,987	30,117	30,528	30,907	31,310	31,644	31,969	32,290	10%
Exports	Million lbs.	7,280	7,199	7,405	7,400	7,425	7,498	7,554	7,611	7,668	7,726	7,784	7,840	9%
Total disappearance	Million lbs.	22,121	21,605	21,295	21,822	21,932	21,979	22,323	22,636	22,972	23,238	23,505	23,770	10%
Per capita, retail weight	Pounds	50.6	49.7	49.6	50.5	50.4	50.1	50.5	50.9	51.3	51.5	51.7	52.0	5%
Prices:														
National base, live equivalent	\$/cwt	43.18	69.45	60.50	58.64	55.31	52.97	49.57	46.80	45.54	45.45	46.06	47.37	-32%
Hog inventory,														
December 1, previous year	1,000 head	78,228	76,822	74,750	77,500	77,484	77,554	78,383	79,122	79,922	80,531	81,111	81,705	6%





31' vs 21'

U.S. Meat-Livestock Projections

Table 19: Beef long-term projections

ltem	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	31' vs 21'
Total supply	Million lbs.	31,227	31,804	30,870	30,592	30,704	30,837	31,041	31,297	31,567	31,830	32,087	32,333	2%
Exports	Million lbs.	2,951	3,414	3,270	3,201	3,213	3,249	3,290	3,330	3,373	3,415	3,456	3,497	2%
Total disappearance	Million lbs.	27,561	27,750	26,960	26,757	26,851	26,923	27,071	27,276	27,494	27,706	27,916	28,121	1%
Per capita, retail weight	Pounds	58.4	58.6	56.8	55.8	55.6	55.4	55.3	55.3	55.4	55.4	55.4	55.5	-5%
Prices:														
Steers, 5-area 2/	\$/cwt	108.51	121.06	128.75	134.94	135.48	137.24	137.73	138.08	138.66	139.63	140.86	142.55	18%
Feeder steers, Oklahoma City	\$/cwt	135.45	144.80	155.50	171.19	171.80	174.39	174.91	175.14	175.76	177.06	178.83	181.41	25%
Beef cow inventory	1,000 head	31,339	31,158	30,555	30,534	30,596	30,663	30,797	30,946	31,091	31,227	31,350	31,460	1%
Total cow inventory	1,000 head	40,681	40,598	40,000	39,974	40,041	40,113	40,257	40,416	40,581	40,732	40,875	41,010	1%





U.S. Meat-Livestock Projections

Table 21: Young chicken long-term projections

Item Total supply Change from previous year	Units Million lbs. Percent	2020 45,188 1.7	2021 45,224 0.1	2022 45,661 1.0	2023 46,970 2.9	2024 47,721 1.6	2025 48,427 1.5	2026 48,850 0.9	2027 49,494 1.3	2028 49,934 0.9	2029 50,381 0.9	2030 51,063 1.4	2031 51,707 1.3	31' vs 21' 14%
Exports	Million lbs.	7,367	7,491	7,410	7,599	7,730	7,858	7,987	8,116	8,245	8,374	8,503	8,653	16%
Disappearance Per capita, retail weight Change from previous year	Million lbs. Pounds Percent	36,991 96.2 1.2	36,974 95.8 -0.4	37,476 96.8 1.0	38,498 98.6 1.8	39,014 99.2 0.6	39,579 99.9 0.7	39,860 99.9 0.0	40,362 100.4 0.5	40,659 100.5 0.0	40,964 100.5 0.1	41,503 101.1 0.6	41,991 101.6 0.5	14% 6%
Prices: Broilers, National composite	Cents/lb.	73.2	98.4	98.3	98.8	101.3	102.4	103.5	103.4	103.9	104.6	105.1	106.5	8%





What are expectations out to 2050?

Received: 27 June 2021

Accepted: 3 April 2022

DOI: 10.1002/aepp.13309

FEATURED ARTICLE



World agricultural baseline scenarios through 2050

Ronald D. Sands¹ | Shellye A. Suttles²





What are expectations out to 2050?

SSA: Sub-Saharan Africa

IND: India

China

OSA: Other South America

(excludes Brazil)

EUR: Western & Eastern Europe

USA

FSU: Former Soviet Union

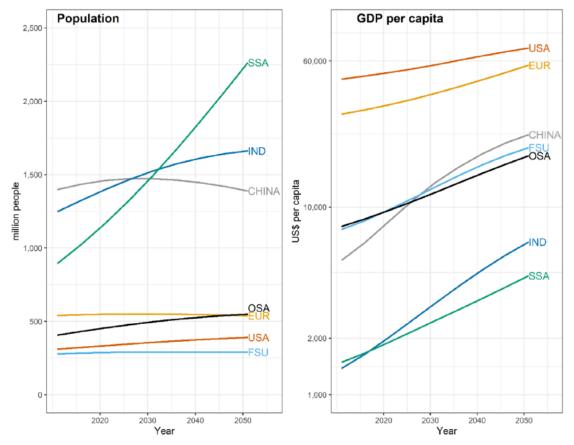


FIGURE 1 Projections of population and GDP per capita (selected world regions). EUR, Western and Eastern Europe; FSU, former Soviet Union; OSA, other South America (excluding Brazil); IND, India; SSA, sub-Saharan Africa. See Table 3 for a full list of 13 world regions in the Future Agricultural Resources Model. These figures use the United Nations medium-fertility population projections.





What are expectations out to 2050?

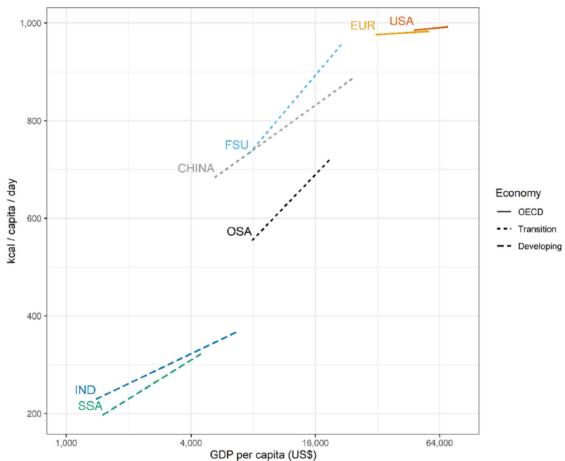


FIGURE 2 Long-run income response of animal product consumption to per-capita income. EUR, Western and Eastern Europe; FSU, former Soviet Union; OSA, other South America (excluding Brazil); IND, India; SSA, sub-Saharan Africa. See Table 3 for a full list of 13 world regions in the Future Agricultural Resources Model.

SSA: Sub-Saharan Africa

IND: India

China

OSA: Other South America

(excludes Brazil)

EUR: Western & Eastern Europe

USA

FSU: Former Soviet Union











We Live in a Global World!

Ukraine & Russia Conflict: Livestock-Meat Situation

March 11, 2022 Tonsor led webinar

https://agmanager.info/2022-risk-and-profit-online-miniconference-presentations/ukraine-and-russian-conflictlivestock

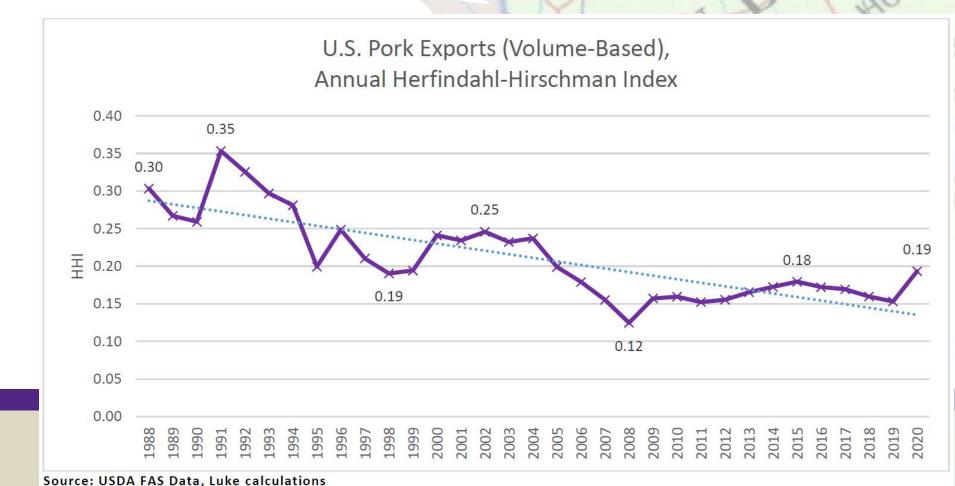




We Live in a Global World! Consider Evolution of U.S. Pork Exports

Importantly, diversity of U.S. meat export portfolios has developed!

https://www.agmanager.info/livestock-meat/marketing-extension-bulletins/trade-and-demand/concentration-us-pork-exports





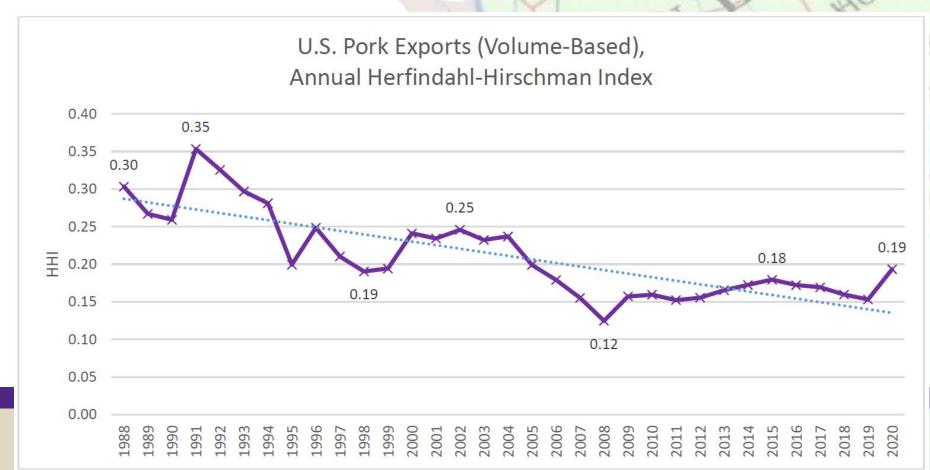
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How does Canadian Export Story Compare?

<u>https://www.cpc-</u> ccp.com/resources/statistical -info





Source: USDA FAS Data, Luke calculations

Prepared for the Cattlemen's Beef Board

Glynn T. Tonsor, Kansas State University (gtonsor@ksu.edu)

Jayson L. Lusk, Purdue University (jayson.lusk@gmail.com)

and Ted C. Schroeder, Kansas State University (tos@ksu.edu)

January 18, 2018



U.S. Pork Demand: Declining own-price sensitivity...

Table 2.1. Aggregate Meat Demand Elasticities Summary

			Be	eef Demand		Pork [Demand	Chicken [Demand
Period	Beef Price Used	Own- Price	Pork Cross- Price	Chicken Cross-Price	Exp.	Own- Price	Exp.	Own-Price	Exp.
1988-2017	All-Fresh	-0.479	0.087	0.023	0.803	-0.307	0.141	-0.339	0.425
1988-2007	All-Fresh	-0.645	0.145	0.026	0.790	-0.229	-0.262	-0.345	0.371
2008-2017	All-Fresh	-0.450	-0.032	0.083	0.959	-0.089	1.231	-0.378	0.856
1970-2017	Choice	-0.593	0.120	0.041	0.118	-0.973	-0.170	-0.133	0.218
1988-2017	Choice	-0.490	0.085	0.021	0.781	-0.313	0.146	-0.345	0.430
1970-1994	Choice	-0.594	0.138	0.039	0.118	-0.924	-0.004	-0.159	0.003
1995-2017	Choice	-0.468	0.049	-0.044	0.867	-0.287	0.634	-0.469	0.960

Note: "Exp." is Expenditure abbreviated. All Rotterdam models were estimated using iterative three-stage least squares.





Monthly Meat Demand Monitor, Methods, and Supporting Information

supporting documentation are available here.

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



Monthly Meat Demand Monitor [Survey Data]



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K-State College of Agriculture Links

Agronomy ₽
Animal Science ₽
Kansas Ag Mediation Service (KAMS) ₽

Extension Agent Link

Livestock & Meat

Projected Feeder Cattle Prices

Cattle Finishing Returns

Meat Demand

Maps - Meat Demand

Meat Demand Research Studies

Monthly Domestic Meat Demand Indices [USDA/BLS Data]

Monthly Export Meat Demand

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







Meat Demand Monitor Dashboard (National Maps & State-Level Summaries)

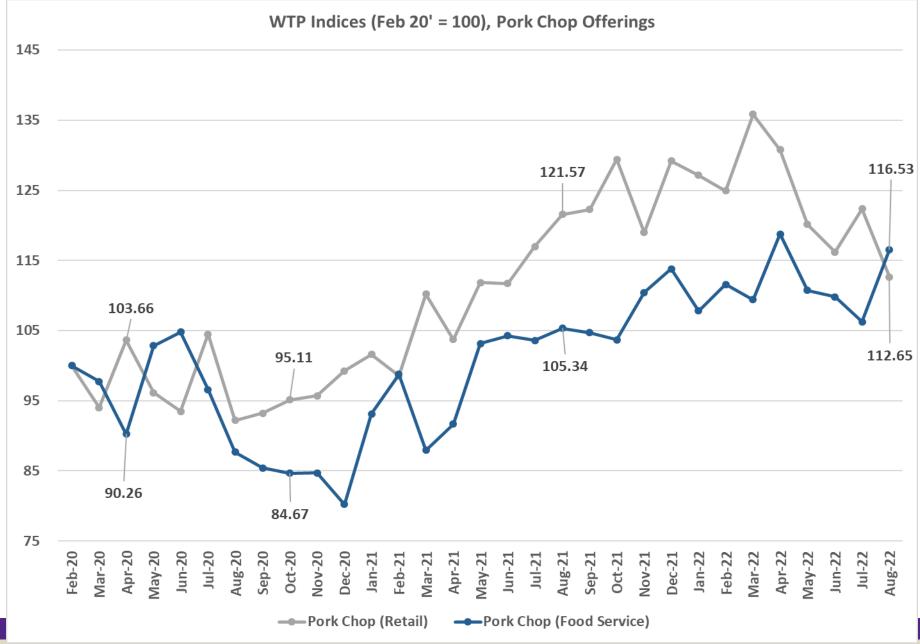
LINK₽

Monthly Meat Demand Monitor

Title	Author	Date	Downloads
Meat Demand Monitor - August 2022	Tonsor	September 1, 2022	Downloads -
Meat Demand Monitor - July 2022	Tonsor	August 5, 2022	Downloads -
Meat Demand Monitor - June 2022	Tonsor	July 1, 2022	Downloads -



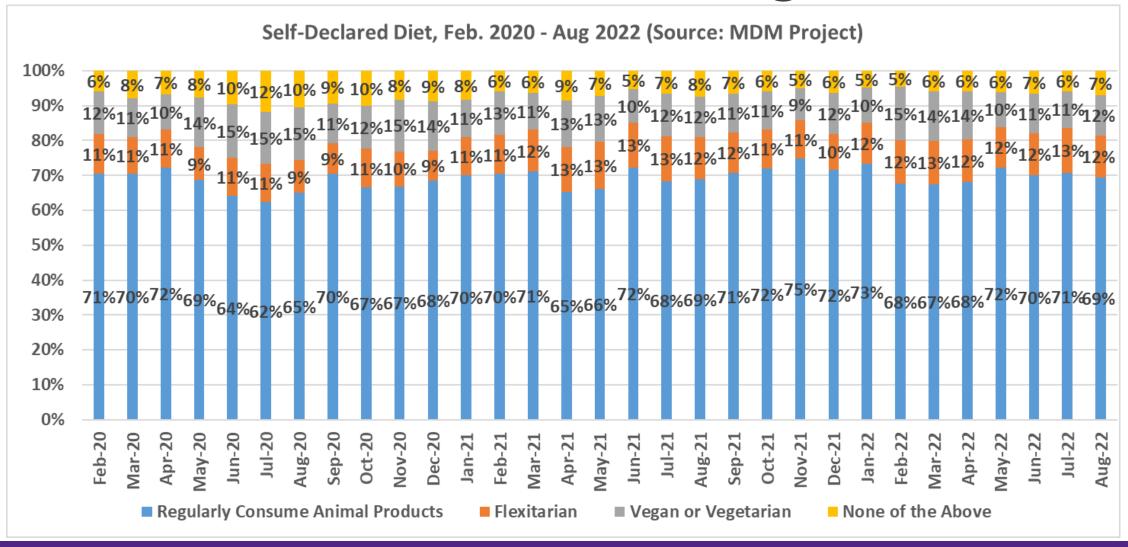








Self-Declared Diet Tracking







USDA & MDM Info: Meat Demand Outdoes Meat Avoidance

Meat Science 190 (2022) 108843



Contents lists available at ScienceDirect

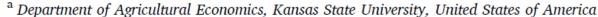
Meat Science





U.S. perspective: Meat demand outdoes meat avoidance



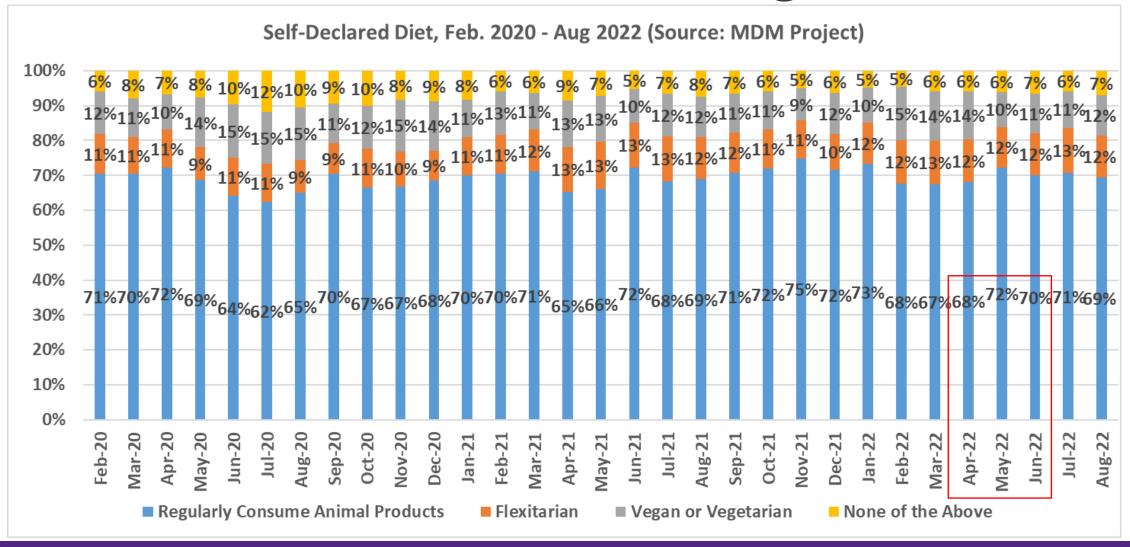


^b Department of Agricultural Economics, Purdue University, United States of America





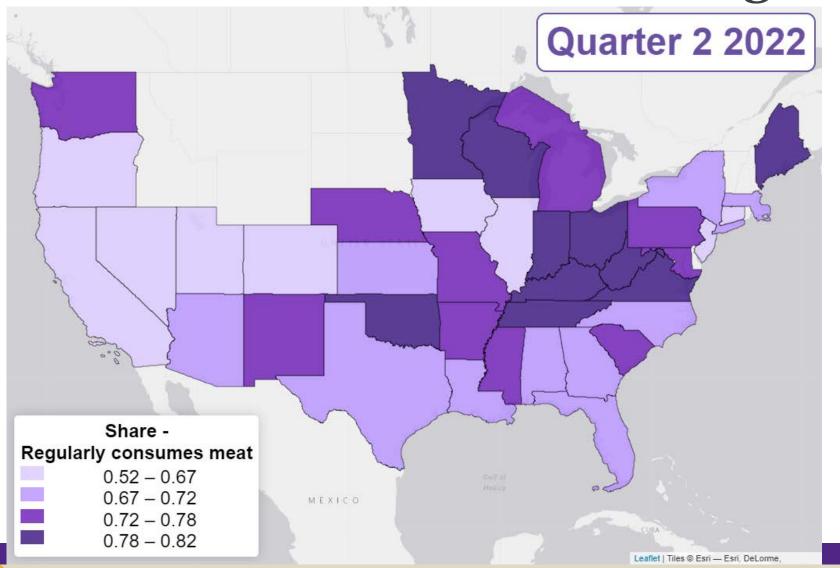
Self-Declared Diet Tracking







Self-Declared Diet Tracking



Q2-2022

Nationally: 70%

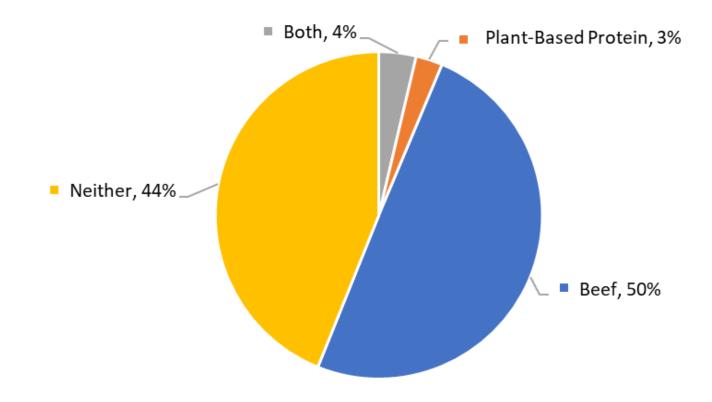
KY & WV: 82% IN & OK: 81%

> UT: 52% CA: 59%





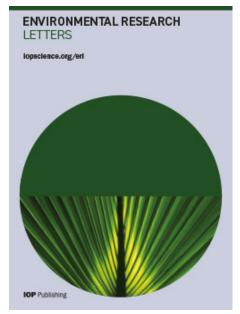
Prior-Day Meals: Beef &/or Plant-Based Summary (Feb. 20' – Jan. 22', n=55,947 of MDM data)











".. For every 10% reduction in price or increase in demand for PBM, we estimate U.S. cattle production falls approximately 0.15%, U.S. cattle producers' economic welfare falls by \$300 million per year, and U.S. consumer welfare rises by \$513 million per year."

https://www.agmanager.info/livestock-meat/meat-demand/meat-demand-research-studies/impact-new-plant-based-protein-1

http://library.alt-meat.net/publication/frame.php?i=727246&p=&pn=&ver=html5

 "K-State's Glynn Tonsor for one, believes a meat tax is not the only path to a more sustainable protein industry"







FEATURED ARTICLE



Market potential of new plant-based protein alternatives: Insights from four US consumer experiments

Glynn T. Tonsor¹ | Jayson L. Lusk² | Ted C. Schroeder¹

Example findings:

Regular meat consumers are much less likely than those declaring an alternative diet (vegan, vegetarian, flexitarian, or other) to select a plant-based item when a beef item is available.

• Characteristics of consumers most likely to select plant-based proteins include younger, those with children under the age of 12 years, having higher household income, residing in a Western state, and affiliating with the Democratic party.

Changes in the price of beef and chicken have a much larger impact on consumer decisions to buy beef than the impact of changes in the price of plant-based offerings. This means plant-based burgers are relatively weak substitutes for beef.

• ...growth in the market share of plant-based alternatives is not entirely coming at the cost of reduced beef demand and indeed if a plant-based alternative simply replaces a substitute competitor (like a chicken sandwich) or reflects overall growth in protein demand, the impacts on beef demand are likely to be negligible.







Contents lists available at ScienceDirect

Food Policy

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



https://www.sciencedirect.com/science/article/pii/S0306919222000306#



Regional and plant-size impacts of COVID-19 on beef processing

Justin D. Bina a,*, Glynn T. Tonsor , Lee L. Schulz b, William F. Hahn c

Example findings:

- Timing and magnitude of slaughter declines varied by region.
 - Limited evidence of plant-size impacts on COVID-19-related slaughter declines.

"If additional physical capacity is added to the industry, it may not provide the widely-stated benefit of increased "resiliency." It is often presumed there is a trade-off between efficiency and resiliency when considering industry structure. However, limited evidence of plant-size COVID-19 impacts for most of 2020 suggests caution in presuming this tradeoff. If this trade-off exists, our work suggests it is short-lived."





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^c USDA Economic Research Service, United States

Featured Article

Beef and Pork Marketing Margins and Price Spreads during COVID-19

Jayson L. Lusk*, Glynn T. Tonsor, and Lee L. Schulz

Example findings:

- "We explore how such a massive supply shock would be expected to affect marketing margins even in the absence of anti-competitive behavior.
- Moreover, we document how margin measurements are critically sensitive to the selection of data and information utilized.
- Finally, we conclude with some discussion around policy proposals that would pit industry concentration against industry coordination and economies of scale."





GT's Thought Framing Suggestions









"Any good business plan or policy needs a clearly stated goal... and I think there are conflicting goals..."





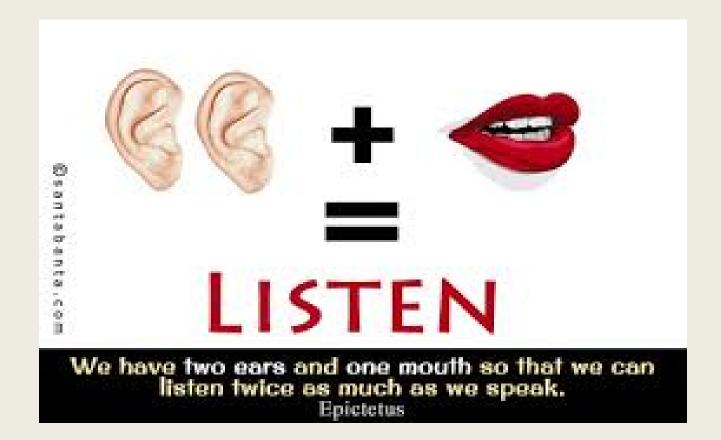


"Any good business plan or policy needs a clearly stated goal... and I think there are conflicting goals..."

- Think global,
- >Leverage your comparative advantage, &
- **►**Manage local







"MY DEAR BROTHERS AND SISTERS, TAKE NOTE OF THIS: EVERYONE SHOULD BE QUICK TO LISTEN, SLOW TO SPEAK ..." JAMES 1:19













Ending Remarks

- 1. Are we fully abandoning globalization?
- 2. Should we have less protein in our diet?
- 3. Does a declining "farmer share of the retail \$" indicate doom for producers?





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- 3. Does a declining "farmer share of the retail \$" indicate doom for producers?
 - IF Yes, future of North American Agriculture is much less fruitful

• Fortunately GT says NO!

- Comparative advantages still matter & world needs North American protein!
- Producers indeed benefit from both up- and down-stream investments = SIZE OF THE PIE MATTERS!





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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