

Coronavirus (COVID19) Impact on U.S. Meat Demand: An Update

In February 2020, the Meat Demand Monitor (MDM) project was launched collecting data from over 2,000 U.S. consumers each month. The MDM project is funded in-part by the beef checkoff and pork checkoff and tracks U.S. consumer preferences, views, and demand for meat with separate analysis for retail and food service channels.¹ The data coincidentally provide a unique opportunity for focused assessment of COVID19 impacts on U.S. meat demand.

As part of the MDM project launch, data collection for the Food Demand Survey (FoodS) temporarily resumed from February to April. The FoodS project was initiated by Dr. Jayson Lusk at Oklahoma State University in May 2013 and ended in May 2018.² An important distinction between the two projects is that FoodS contained some broader, food category focused assessments and some meat specific assessments while the MDM project is nearly exclusively focused on the meat protein category. Overlapping collection of FoodS data during the February-April period in 2020 was intentional to explore viability of “merging” historical FoodS data with MDM data – an assessment that will be conducted in the future.

Here in this report, insights from the FoodS and MDM surveys conducted to-date in 2020 are outlined with a focus on COVID19 impacts. The over-arching goal is to extend understanding of COVID19 impacts given data in-hand currently recognizing that future updates will expand upon these initial findings.³

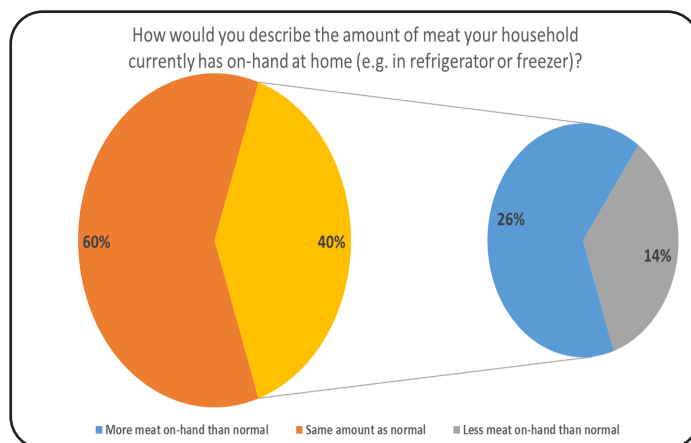
The subsequent pages provide additional detail with key points including:

- 60% of households began May with normal meat stocks at home; more consumers report having more-than-normal on-hand than less-than normal, consistent with stock-up behavior,
- Nearly one-half are observing changes in volume and type of meat options available,
- As meat prices increase, consumers are likely to shift within the broader meat category from more to less expensive options rather than exit,
- The shift from away-from-home to at-home food and meat consumption persisted through April,
- Beef and pork remain prevalent items included in breakfast, lunch, and dinner meals,
- Consumers residing under stay-at-home orders anticipate spending less away-from-home over the next two weeks,
- Meat demand is weaker for those with weaker financial conditions and expectations

Early Look at Current Retail Meat Situation:

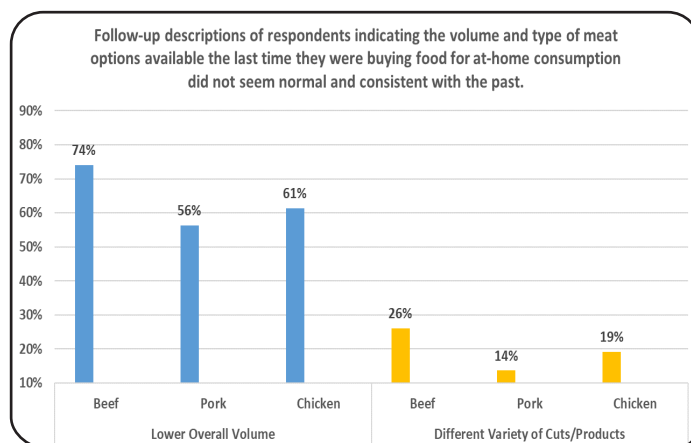
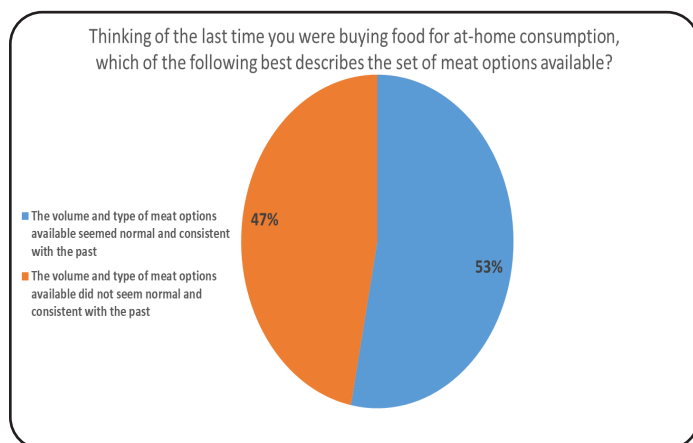
Available Volume and Variety in Grocery Stores (MDM)

In the ongoing May MDM survey, new questions were added about meat availability reflecting industry challenges in harvesting animals due to COVID19. One new question asked *“How would you describe the amount of meat your household currently has on-hand at home (e.g. in refrigerator or freezer?)”*



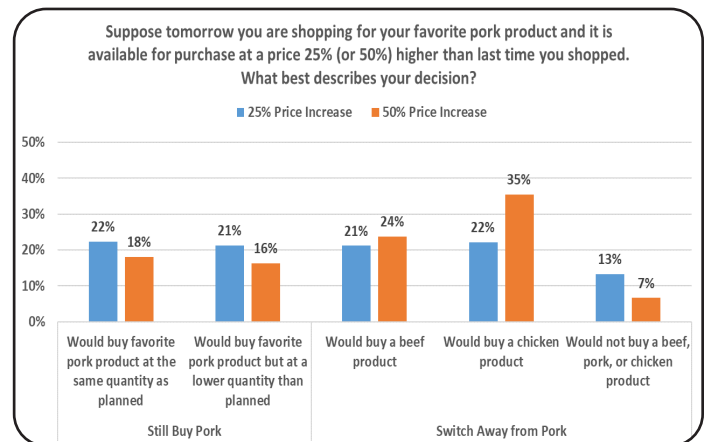
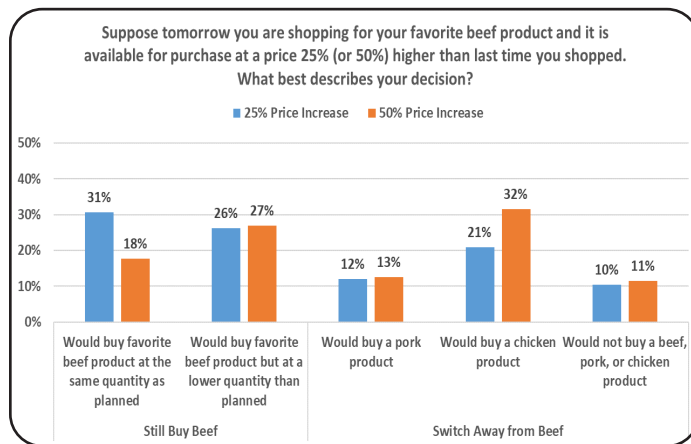
During the May 4th – 10th period, over 675 respondents had completed the survey and the majority (60%) would describe the meat on-hand as the “same amount as normal.” Perhaps consistent with “stocking-up” behavior in March and April, there are more respondents indicating they have more meat on-hand than normal (26%) than those indicating they have less meat than normal (14%). Stated differently, of those indicating amounts differing from normal, two-thirds have more meat than normal on hand and one-third have less.

In anticipation of consumers experiencing changes in the set of meat options available during the month of May respondents were also asked *“Thinking of the last time you were buying food for at-home consumption, which of the following best describes the set of meat options available?”*



As of May 8th, respondents are about evenly split on whether the volume and variety of meat options has been altered. The 47% indicating options are not normal and consistent with the past were asked a follow-up question to gather additional information.⁴ Across beef, pork, and chicken categories it is more prevalent for respondents to indicate a reduction in overall volume available than a change in the variety of cuts/products available. In fact, 30% indicated that beef, pork, and chicken were available at lower volumes.

Each respondent in the ongoing May MDM survey is randomly allocated one of four questions that ask how they would respond to a price increase. Either a 25% or 50% price increase on the respondent's favorite beef or pork product is presented as a situation with a focus on how shopping decisions would be impacted.

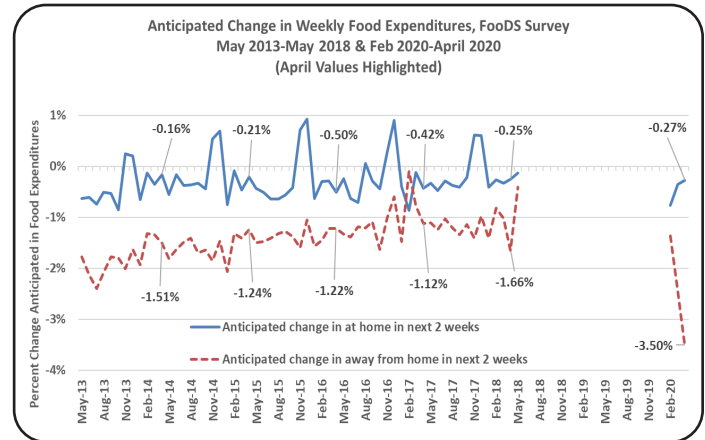
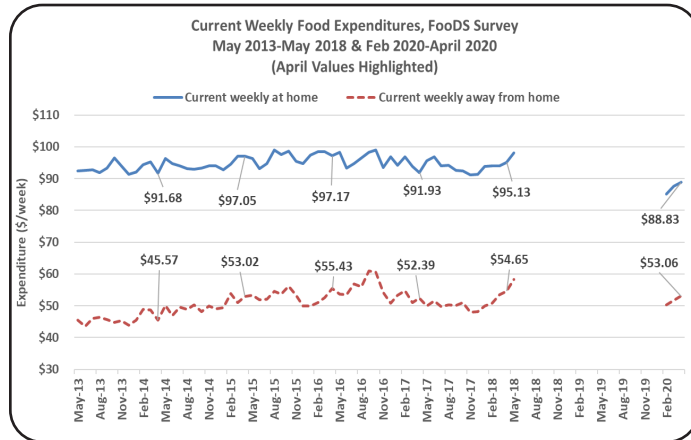


As expected, with larger price increases a larger number of shoppers reduce the volume of purchase and increase substitution out of the more expensive category. Moreover, when either a beef or pork price increase occurs the shift to chicken is most prevalent and only a small share indicate they would not buy a beef, pork, or chicken product.

Digging in further reveals that if beef price is 25% (50%) higher, then 31% (18%) still buy their favorite product at the planned volume and 26% (27%) would buy at a reduced volume. This indicates 57% (45%) still buy some volume of their favorite beef product given 25% (50%) price increases. As for pork, if the price of a favorite product increases by 25% (50%) then 22% (18%) still buy the intended volume and 21% (16%) buy a reduced volume. That is, 43% (34%) still buy some volume of their favorite pork product given a 25% (50%) price increase.

Food Channel Patterns, February-April (Food Demand Survey)

The FooDS surveys include questions on current (nominal) weekly food expenditures, separately for at-home and away-from-home. The following figures show these trends with April values highlighted for ease of comparison. Observing both March and April food expenditures, both at-home and away-from-home to be increasing compared to February 2020 is consistent with consumers stocking-up.



In addition, the FooDS questionnaire asks respondents to indicate the change they expect in food expenditures over the next two weeks. This provides a forward-looking measure of anticipated expenditures separately for at-home and away-from-home channels. The following figure reveals that consumers regularly indicate an expectation of reducing food expenditures.⁵ The April 2020 estimate stands out as the expectation of a 3.5% reduction in away-from-home food expenditure is the largest decline in the FooDS series and speaks to the anticipated impacts from COVID19 and food market channel adjustment. In fact, the prior largest reduction was also during the pandemic, as 2.45% was anticipated in March 2020. For context, during the covered 2013-2018 period, the largest decline expected was a 2.4% reduction in July 2013 and the average decline expected was 1.39%.

The FooDS food expenditure data can be used in further interval-censored regression models to examine impacts of state's implementing stay-at-home orders. Beginning with California on March 19th and ending with South Carolina on April 7th the majority, but not all, U.S. states implemented stay-at-home orders. The FooDS data collected over the February-April period by respondents across the country allows an examination of how anticipated food expenditures over the next two weeks at-home and away-from home have differed with introduction of stay-at-home orders. In our modeling with a total sample of 2,990 responses, one-third of observations come from respondents residing in areas with an active stay-at-home order.

Regarding anticipated changes in at-home food expenditure, stay-at-home orders have had no significant effect. Households expecting to increase at-home expenditures have children under the age of 12 at home and have a college degree. Those expecting to decrease at-home expenditures declare as Vegan/Vegetarian, are under 45 years of age, and have household incomes below \$100,000.

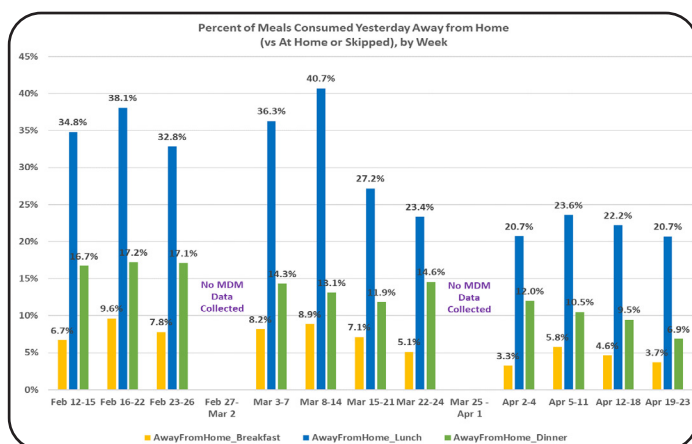
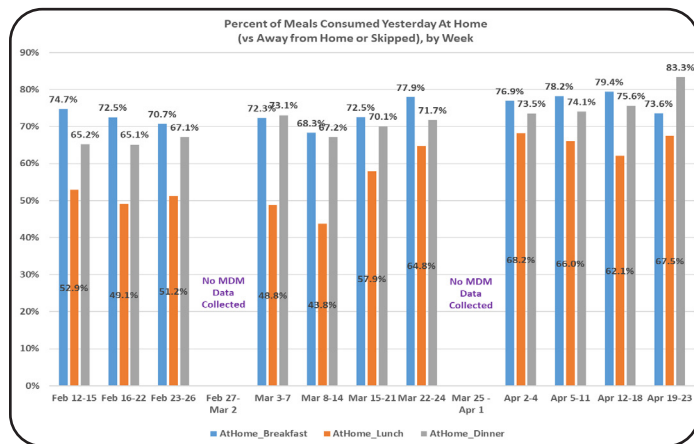
Expected % Change in Food Expense Next Two Weeks at Home, Feb-Apr 2020 FoodS Data												
Parameter	Estimate	p-Value	Estimate	p-Value	Estimate	p-Value	Estimate	p-Value	Estimate	p-Value	Estimate	p-Value
Intercept	-0.4781	<.0001	-0.5223	<.0001	0.2328	0.5649	0.2917	0.4614	-0.8237	<.0001	-0.0831	0.8444
COVID19, Stay at Home Order			0.1339	0.5422	0.1559	0.4738						
Diet, Vegan/Vegetarian					-1.4515	<.0001	-1.4455	<.0001			-1.4603	<.0001
Gender, Male					-0.1896	0.3594	-0.1899	0.3586			-0.1889	0.3607
Age, Under 45					-0.6243	0.0064	-0.6252	0.0064			-0.6193	0.0068
Kids in Home, Yes					0.6478	0.0116	0.6472	0.0117			0.6586	0.0102
Education, College Degree					0.7288	0.0028	0.7243	0.003			0.7358	0.0026
Income, Under \$100,000					-0.9318	0.002	-0.9373	0.0019			-0.9194	0.0023
Race, White					0.2523	0.2858	0.2505	0.2892			0.252	0.2859
March, vs Feb									0.5025	0.0463	0.5053	0.0432
April, vs Feb									0.5504	0.0288	0.5623	0.0241
Scale	5.3904		5.3901		5.3285		5.329		5.3846		5.323	
n	2,990		2,990		2,990		2,990		2,990		2,990	
LL	-4,291.12		-4,290.93		-4,260.70		-4,260.96		-4,288.17		-4,257.86	

A different impact regarding COVID19 emerges for expected away-from-home food expenditure. Here, stay-at-home orders do have a significant effect with respondents residing in states under an active order indicating larger expected reductions in away-from-home food expenditure. Those expecting to decrease away-from-home expenditures have household incomes below \$100,000. Respondents expecting to increase away-from-home expenditures are male, have children under the age of 12 at home, and have a college degree.

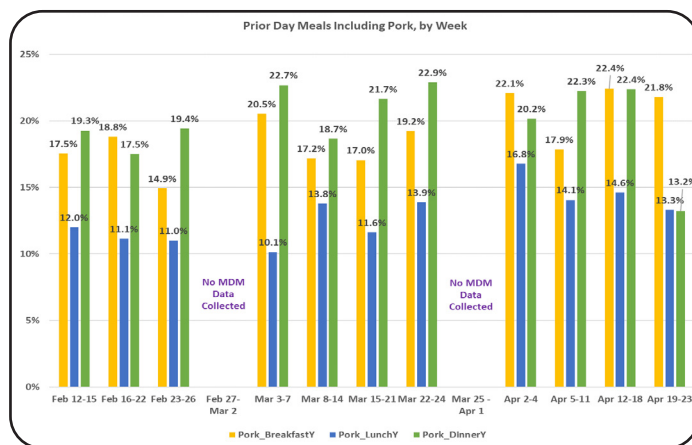
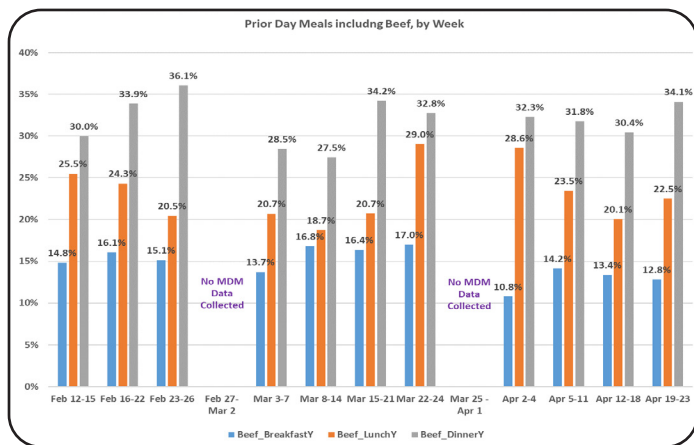
Expected % Change in Food Expense Next Two Weeks Away from Home, Feb-Apr 2020 FoodS Data												
Parameter	Estimate	p-Value	Estimate	p-Value	Estimate	p-Value	Estimate	p-Value	Estimate	p-Value	Estimate	p-Value
Intercept	-2.3618	<.0001	-1.8197	<.0001	-1.9243	<.0001	-2.5507	<.0001	-1.4394	<.0001	-1.5641	0.0006
COVID19, Stay at Home Order			-1.6526	<.0001	-1.6534	<.0001						
Diet, Vegan/Vegetarian					0.3211	0.4098	0.2604	0.5069			0.2912	0.4551
Gender, Male					1.1135	<.0001	1.1184	<.0001			1.1101	<.0001
Age, Under 45					0.3542	0.1512	0.3584	0.1493			0.3571	0.1482
Kids in Home, Yes					0.6027	0.0287	0.6097	0.028			0.5951	0.031
Education, College Degree					0.7117	0.0067	0.7635	0.0039			0.7197	0.0062
Income, Under \$100,000					-1.1689	0.0003	-1.1104	0.0007			-1.1647	0.0003
Race, White					0.0047	0.9852	0.032	0.9006			0.0189	0.9406
March, vs Feb									-1.001	0.0002	-0.9841	0.0002
April, vs Feb									-1.8148	<.0001	-1.8053	<.0001
Scale	5.8331		5.7871		5.7007		5.7476		5.7914		5.7054	
n	2,990		2,990		2,990		2,990		2,990		2,990	
LL	-4,305.54		-4,281.63		-4,242.36		-4,266.92		-4,283.32		-4,244.37	

Food Channel Patterns and Prevalence of Beef and Pork in Meals, February-April (MDM)

Building upon the March 26, 2020 COVID19 Impact Special Report, the following two figures present simple averages by week revealing the elevated at-home meal prevalence that began the week of March 15-21st.⁶



Further building upon the March 26, 2020 COVID19 Impact Special Report, the next two charts show the ongoing trend of both beef and pork being heavily included in meals. While the above noted shift from food service to retail occurred in aggregate, combined this suggests US residents sustained beef and pork rather constantly in their meals through April 23rd. This is also consistent with growing media attention regarding temporary disruptions in the flow of meat products to consumers.



Meat Demand Impact of Consumer Confidence in Financial

Situation, April (MDM)

Beginning in April, the MDM survey included two questions that have been mainstay items in the University of Michigan's Consumer Sentiment survey.⁷ One question ask respondents how they “are getting along financially these days” with answers conveying if current financial conditions are better now, the same, or worse now than one year ago. In April, 31% of respondents indicated their current conditions are worse than one year earlier. The second question is similarly designed and ask respondents to look one year forward and indicate if they anticipate being better off, the same, or worse off financially next year. In April, 20.7% indicated they expected worse financial conditions in one year.

The following tables report willingness-to-pay (WTP) estimates of what consumers will pay in retail (\$/lb) or food service (\$/meal) settings given separation of respondents based upon financial condition sentiment.⁸ Then WTP estimates are provided separately for those indicating current financial conditions are worse than last year (vs. either better or the same) followed by WTP estimates for those indicating current financial conditions are expected to be worse next year (vs. either better or the same).

RETAIL		Ribeye Steak	Ground Beef	Pork Chop	Bacon	Chicken Breast	Plant-Based Patty	Shrimp	Beans and Rice	Something Else
Finances Now Worse Than 1 Year Ago	WTP (\$/lb)	\$ 15.89	\$ 7.12	\$ 5.61	\$ 4.68	\$ 7.24	\$ 8.23	\$ 9.01	\$ 2.41	
	Market Share	6.1%	23.3%	11.4%	6.8%	29.1%	2.4%	4.5%	7.4%	9.1%
Finances Now NOT Worse Than 1 Year Ago	WTP (\$/lb)	\$ 16.68	\$ 7.98	\$ 6.65	\$ 5.23	\$ 7.73	\$ 8.23	\$ 8.97	\$ 2.64	
	Market Share	7.5%	23.4%	13.5%	7.6%	25.2%	2.7%	4.5%	7.4%	8.2%
FOOD SERVICE		Ribeye Steak	Beef Hamburger	Pork Chop	Baby Back Ribs	Chicken Breast	Plant-Based Patty	Shrimp	Salmon	Something Else
Finances Now Worse Than 1 Year Ago	WTP (\$/lb)	\$ 22.77	\$ 16.09	\$13.31	\$ 16.35	\$ 15.17	\$ 11.59	\$ 15.81	\$17.30	
	Market Share	11.7%	22.6%	3.7%	10.6%	14.4%	3.9%	14.9%	9.4%	8.7%
Finances Now NOT Worse Than 1 Year Ago	WTP (\$/lb)	\$ 25.75	\$ 18.49	\$13.56	\$ 17.42	\$ 16.79	\$ 11.56	\$ 16.93	\$16.96	
	Market Share	15.4%	22.2%	4.4%	10.5%	14.3%	4.4%	13.5%	7.7%	7.7%

RETAIL		Ribeye Steak	Ground Beef	Pork Chop	Bacon	Chicken Breast	Plant-Based Patty	Shrimp	Beans and Rice	Something Else
Finances will be Worse in 1 Year	WTP (\$/lb)	\$ 15.64	\$ 6.80	\$ 5.31	\$ 4.36	\$ 6.57	\$ 8.63	\$ 8.56	\$ 1.90	
	Market Share	6.4%	24.0%	11.6%	6.9%	26.4%	3.1%	4.3%	7.0%	10.4%
Finances will NOT be Worse in 1 Year	WTP (\$/lb)	\$ 16.65	\$ 7.96	\$ 6.60	\$ 5.25	\$ 7.85	\$ 8.12	\$ 9.10	\$ 2.75	
	Market Share	7.3%	23.3%	13.2%	7.5%	26.2%	2.5%	4.5%	7.5%	8.1%
FOOD SERVICE		Ribeye Steak	Beef Hamburger	Pork Chop	Baby Back Ribs	Chicken Breast	Plant-Based Patty	Shrimp	Salmon	Something Else
Finances will be Worse in 1 Year	WTP (\$/lb)	\$ 20.92	\$ 15.20	\$12.45	\$ 14.37	\$ 13.86	\$ 7.29	\$ 14.39	\$16.53	
	Market Share	10.2%	24.1%	4.1%	9.0%	14.2%	2.0%	14.3%	10.5%	11.6%
Finances will NOT be Worse in 1 Year	WTP (\$/lb)	\$ 25.94	\$ 18.48	\$13.97	\$ 18.00	\$ 17.07	\$ 12.80	\$ 17.34	\$17.38	
	Market Share	15.3%	21.9%	4.2%	11.0%	14.4%	4.8%	13.8%	7.6%	7.1%

As expected, consumers who perceive financial conditions deteriorating have weaker demand for meat. This is consistent with past research finding meat to be a “normal” good and sensitive to macroeconomic conditions. Respondents indicating current financial conditions are worse than last year have lower retail and food service demand for six of the eight times examined. Moreover, those anticipating future financial conditions will be worse next year have lower retail demand for seven of the eight products examined and lower food service demand for all eight items evaluated. The stronger reduction in food service demand is consistent with expectations and observations to-date during the pandemic.

Endnotes

- 1) MDM project details are available here: <https://www.agmanager.info/livestock-meat/meat-demand/monthly-meat-demand-monitor-survey-data>
- 2) FooDS project details are available here: http://www.agecon.okstate.edu/agecon_research.asp
- 3) On March 26th a preliminary, short COVID19 impact special report was made using February-March MDM data: <https://www.agmanager.info/livestock-meat/meat-demand/monthly-meat-demand-monitor-survey-data/meat-demand-monitor-covid19>
- 4) Note respondents were asked to check all that apply, so these follow-up responses intentionally do not sum to 100%.
- 5) This trend is discussed further here: <http://jaysonlusk.com/blog/2017/1/26/do-you-plan-to-spend-more-or-less-eating-out-in-the-next-two-weeks>
- 6) This report used data spanning February 12 – March 24th collected in the Meat Demand Monitor project and is available here: <https://www.agmanager.info/livestock-meat/meat-demand/monthly-meat-demand-monitor-survey-data/meat-demand-monitor-covid19>
- 7) Details are available online: <http://www.sca.isr.umich.edu/>
- 8) The April MDM report is available online: <https://www.agmanager.info/livestock-meat/meat-demand/monthly-meat-demand-monitor-survey-data/meat-demand-monitor-april-2020> and contains aggregate WTP estimates making no distinction based on financial sentiment.

Additional MDM Project details including survey questions, past report releases, and a description of methods are available online at:
<https://www.agmanager.info/livestock-meat/meat-demand/monthly-meat-demand-monitor-survey-data>

The MDM Project is funded in-part by the beef checkoff and the pork checkoff.



**Funded in part by
the Beef Checkoff.**

