

March 2024  
24-PB 42

## Pricing Hogs Using a Seasonal Varying Percentage of the Pork Cutout Value

**Steve R. Meyer**, Chief Livestock Economist, Ever.ag, [Steve.Meyer@ever.ag](mailto:Steve.Meyer@ever.ag)

**Lee Schulz\***, Associate Professor and Extension Economist, Department of Economics and Center for Agricultural and Rural Development, Iowa State University, [lschulz@iastate.edu](mailto:lschulz@iastate.edu)

\*Corresponding Author

Published by the Center for Agricultural and Rural Development, 578 Heady Hall, Iowa State University, Ames, Iowa 50011-1070; Phone: (515) 294-1183; Fax: (515) 294-6336; Web site: [www.card.iastate.edu](http://www.card.iastate.edu).

© Author(s). The views expressed in this publication do not necessarily reflect the views of the Center for Agricultural and Rural Development or Iowa State University.

Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. veteran. Inquiries regarding non-discrimination policies may be directed to Office of Equal Opportunity, 3410 Beardshear Hall, 515 Morrill Road, Ames, Iowa, 50011, Tel. (515) 294-7612, Hotline: (515) 294-1222, email [eooffice@iastate.edu](mailto:eooffice@iastate.edu).

## **Executive Summary**

Pricing hogs using a percentage of the pork cutout value is intuitively attractive. Producers get paid directly and consistently based on the value of pork cuts. Packers receive a consistent share of the cutout value to add to the drop value they capture to provide a gross margin from which to pay all other costs. Using a percentage of the cutout provides an incentive for packers to always maximize the carcass value—the higher the cutout, the more the packer makes. However, using a constant percentage of the cutout value to price hogs, which is how most, if not all, pork-price formulas are currently constructed, provides packers less incentive to work extra shifts to handle the normal fourth quarter and January surge in market hog slaughter numbers. This issue will only continue to grow if a larger and larger share of swine or pork market formulas use a flat percentage of the cutout to price hogs. This article identifies a solution to allow the cutout value percentage used in formulas to vary during the year. The varying percentage peaks in the summer and bottoms in the late-fall and early-winter. This would help ensure packers receive higher gross margins during the fourth quarter and January to compensate for higher costs. Producers and packers could utilize historical long-run patterns in negotiations when establishing formula percentages.

Livestock Mandatory Reporting (LMR) began in 2001 following the passage of the Livestock Mandatory Reporting Act of 1999. Packers report and the Agricultural Marketing Service (AMS) of the US Department of Agriculture (USDA) publishes the head counts and prices of hogs purchased from producers each day using four carcass-weight pricing mechanisms. In addition, packers report and USDA-AMS publishes the number and prices of hogs sold from one packer to another (i.e., packer-sold) and the number of hogs slaughtered that are owned by the packer that slaughters them (i.e., packer-owned). Two USDA-AMS reports of particular interest include the LM\_HG201, National Daily Direct Hog Prior Day Report – Slaughtered Swine and the LM\_HG218, Daily Direct Prior Day Hog Report.<sup>1</sup>

The share of hogs priced through negotiated sales between producers and packers fell steadily through 2015 before stabilizing at just under 3% from 2015 through 2017 (figure 1). Negotiated sales are a cash or spot market purchase by a packer of swine from a producer under which the base price for the swine is determined or known (hard priced) by seller-buyer interaction and agreement, regardless of the method of price discovery used on a delivery day (Cox 2017). Hogs purchased on a negotiated basis must be delivered within 14 days. The share of negotiated sales fell further beginning in 2018 and has generally been in the 1% to 2% range since that time.

For roughly the first decade of LMR, virtually all hogs priced with a swine or pork market formula (SPMF) used a negotiated price (i.e., national, Iowa/Minnesota or Western Cornbelt) as the base price. The base price is the price paid before applying any premiums or discounts. The net price is the amount paid by a packer to a producer, including all premiums, less all discounts, per hundred pounds of carcass weight of swine delivered to the plant (USDA-AMS 2008). SPMF sales are purchases of swine by a packer in which the pricing mechanism is a formula price based on a market for swine, the CME Lean Hog Index or Pork Cutout Index, pork, or a pork product, other than any formula purchase with a floor, window, or ceiling price, or a futures or options contract for swine, pork, or pork product.

The addition of mandatory reporting of wholesale pork volumes and prices in 2013 provided more dependable and consistent data for USDA to use in computing its estimated pork carcass cutout value. This improvement of data increased packer and producer interest in pricing hogs based on the cutout value. As such, packers and producers began using this pricing mechanism for a growing share of transactions within the SPMF category. The number and exact share of those transactions, however, is not known since both swine-price and pork-price formulas are lumped together in the SPMF category in USDA reports. Anecdotally, we estimate that roughly 50% of all SPMF-priced hogs in 2022 used the cutout value as their base price mechanism. USDA-AMS reports referenced include LM\_PK600, National Daily Pork FOB Plant – Negotiated Sales – Morning; LM\_PK602, National Daily Pork FOB Plant – Negotiated Sales – Afternoon; LM\_PK603, National Daily Pork FOB Omaha – Negotiated Sales – Afternoon; and LM\_PK610, National Weekly Pork FOB Plant – Negotiated Sales.

Producers and packers periodically negotiate SPMF agreements, and the agreements can have long durations. Packers have paid varying percentages of the pork carcass cutout value over time. Discussions with producers and packers indicate that most agreements prior to 2020 used 90% to as much as 94% of the cutout value as the base purchase price. That percentage has declined in recent years, which is concurrent with packers' non-hog costs rising. Packing plants have fixed costs (e.g., depreciation of the plant and equipment, interest, insurance, and property taxes) and variable costs (e.g., labor, utilities, and shipping). Producers and packers have made many new and renegotiated

---

<sup>1</sup> USDA-AMS began publishing the LM\_HG218, Daily Direct Prior Day Hog Report on December 7, 2020. Similar to the Daily Direct Hog Morning and Afternoon Reports (LM\_HG216 and LM\_HG217, respectively), the LM\_HG218, Daily Direct Prior Day Hog Report combines all regional information from the Iowa/Minnesota (LM\_HG204), Western Cornbelt (LM\_HG208), and Eastern Cornbelt (LM\_HG207) daily direct reports with national (LM\_HG200) information into a single report versus four separate reports.

percentage of the cutout formula agreements in the 88% to 90% range in recent years, according to participating parties.<sup>2</sup>

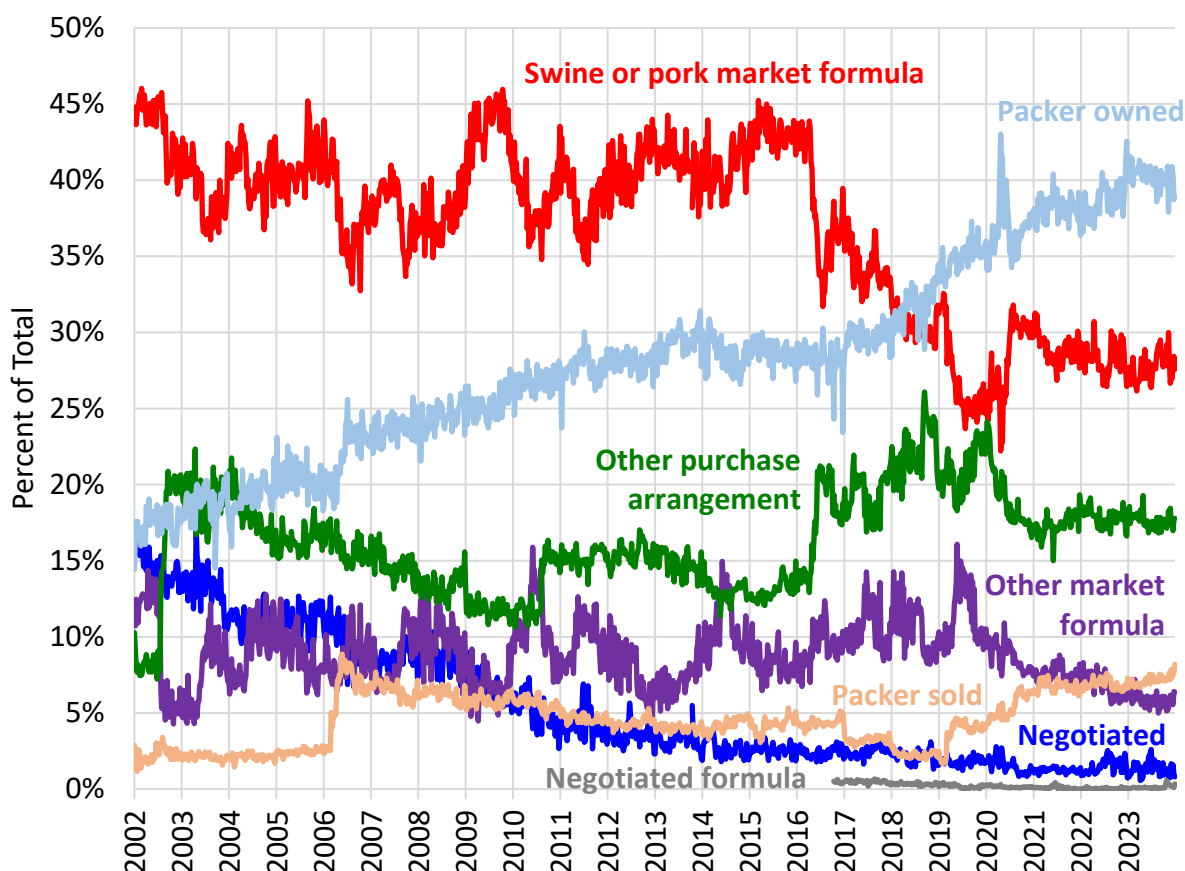


Figure 1. Percentage of Hogs Purchased by Pricing Method, Weekly Average.

Data Source: USDA-AMS National Daily Direct Hog Prior Day Report - Slaughtered Swine (LM\_HG201), compiled by the Livestock Marketing Information Center. Notes: Week ending January 4, 2002 through week ending December 29, 2023.

<sup>2</sup> The Swine Contract Library (SCL) (USDA AMS 2024) contains a listing of contracts offered by packers to swine producers for the purchase of swine and the Swine Packer Marketing Contract Summary SPMF reports provide a listing of cutout percentages in active example contracts. Counting all occurrences of cutout percentages in active contracts (as of 3/1/2024) provided the following results—100.15% (1), 99.5% (1), 99.25% (2), 95.5% (4), 95% (1), 94.72% (1), 94.5% (1), 94% (3), 93.72% (1), 93.5% (3), 93.25% (1), 93% (15), 92.72% (1), 92.5% (4), 92.35% (1), 92.25% (1), 92% (16), 91.72% (1), 91.3% (1), 91% (5), 90.72% (1), 90% (7), 89.5% (1), 89% (6), 88.75% (1), 88% (1), 85% (2), 83% (1), 82% (1), 80% (2).

It is critical that negotiated hog prices and negotiated pork cutout values published in USDA-AMS reports be representative and accurately reflect current supply and demand conditions. If not, a large percentage of hogs will be valued off of base prices that may not be a reliable indicator of current market conditions. Even as far back as the 2001–2009 period, when negotiated hog sales averaged 14% of the producer-sold volume and 11% of the total hog volume (which includes packer-owned and packer-sold hogs), growing variance in the negotiated hog price placed increasing volume requirements to maintain confidence in pricing precision (Franken and Parcell 2012). The situation is even more exacerbated today. Surely, this has led to both producers and packers increasingly losing confidence in the negotiated hog price’s usefulness as a base price mechanism.

A similar concern could eventually develop regarding the representativeness of the negotiated pork cutout value that is currently used in formulas to discover hog prices. USDA-AMS publishes several national weekly wholesale pork reports that vary by sale type, including negotiated (LM\_PK610), formula (LM\_PK620), forward (LM\_PK630), export (LM\_PK640), and specialty (LM\_PK650). Formula pork sales represented 50% of all reported pork wholesale volume in 2023, followed by negotiated sales (22%), export sales (12%), forward sales (9%), and specialty sales (7%). If the goal of using the cutout in pork-price formulas is to use values and volumes reflective of marketplace activity for all destinations including export, sales types, delivery periods, refrigeration types, and packaging styles with the exception of specialty pork products then producers and packers ideally should use the LM\_PK680, National Weekly Pork Report FOB Plant – Comprehensive. Then, the cutout value would reflect values packers receive for pork products across the entire retail, food service, and export market spectrum. However, the LM\_PK680 report is only available since the week ending May 10, 2019 limiting analysis of long-run relationships. Furthermore, the comprehensive (LM\_PK680) report is weekly while most pork-price formulas currently reference a daily report. We leave this topic for future research.

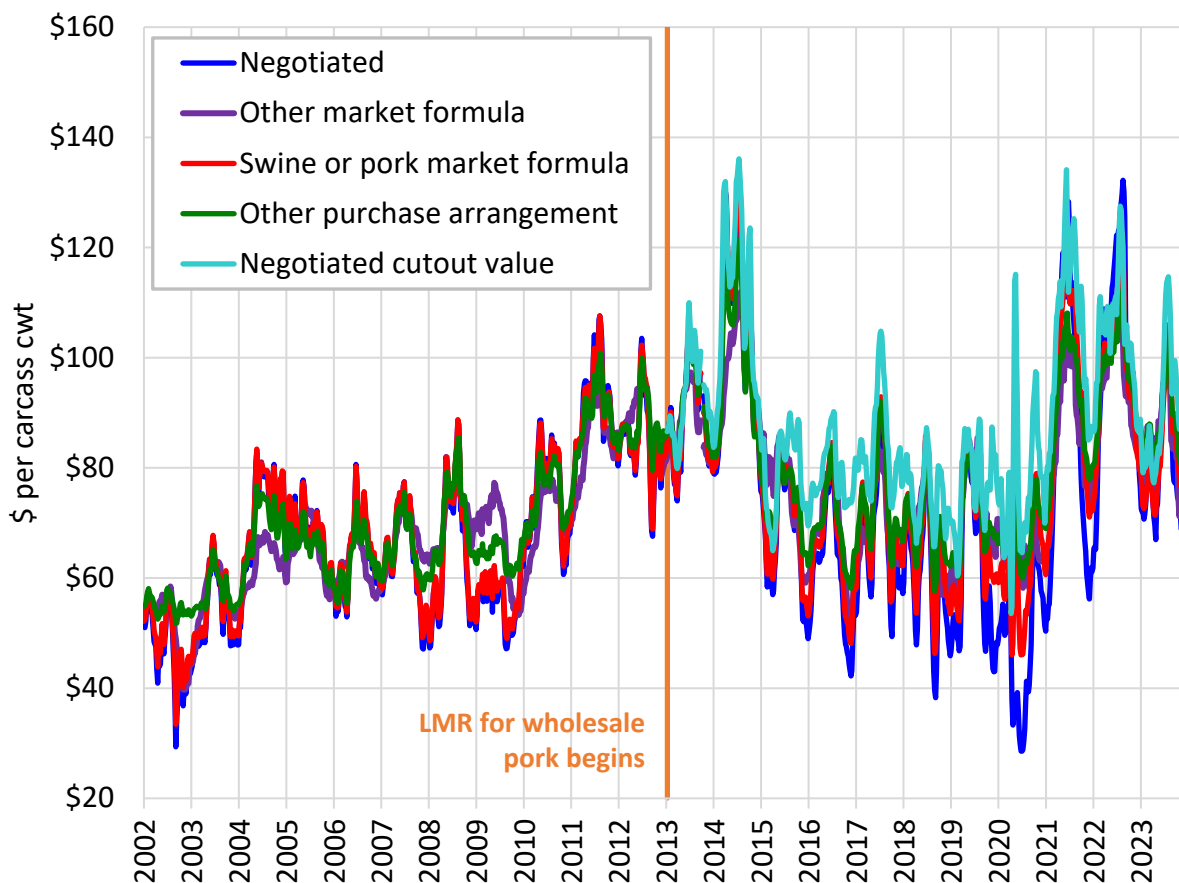
Figure 2 shows the historical net prices for the various producer-sold hog pricing mechanisms and the negotiated pork cutout value. Note that negotiated hog prices have consistently been the lowest of the four pricing mechanisms with the exceptions of the summers of 2021 and 2022. The shortfalls in negotiated hog prices are frequently large. For instance, in April 2020, a reduction in processing capacity due to COVID-19-related disruptions drove all hog prices down with negotiated prices falling by 43% from the week ending April 3 to the week ending April 24 (Hayes et al. 2021). Other market formula (OMF), SPMF, and other purchase arrangement (OPA) prices increased in mid-May as pork became scarce due to the reduction in processing capacity, while negotiated prices remained low.<sup>3</sup> This pricing pattern shows that hogs sold via negotiated sales represent the marginal or residual supplies in the market—they are the first hogs processors drop and the last hogs to be brought back in once processing resumes. This situation was a large microcosm of what typically happens in the fourth quarter of the year when hog supply reaches its seasonal high. Since 2015, negotiated hog prices have averaged 13% below the average of the other producer-sold hog prices during the October-December period.

Table 1 shows means, standard deviations, and coefficient of variations for the various pricing methods over three time periods: January 2014–May 2023 excluding 2020; January 2014–December 2019; and, January 2021–December 2023. We omit data for 2020 because of the impact of COVID-19-related packing plant shutdowns on hog prices (Butcher and Schulz 2021). In all but one instance (OMF for the January 2021–December 2023 period), the average negotiated price was the lowest. In

---

<sup>3</sup> OMF sales are a purchase of swine by a packer in which the pricing mechanism is a formula price based on one or more futures or option contracts. OPA is a purchase of swine by a packer that is not a negotiated purchase, swine or pork market formula purchase, or other market formula purchase, and does not involve packer-owned swine. The OPA category is a catch-all for producer-sold purchase types that do not fit the other three sales categories.

addition, the weekly negotiated hog price is more variable (larger standard deviation) over time than all other prices in all time periods. It is not surprising that producers would be less interested in using a price that is lower and more variable as the base price for their SPMF-priced hogs. The cutout value has a sharply lower standard deviation in all three time periods.



**Figure 2. National Producer Sold Hog Net Prices by Pricing Method and Negotiated Cutout Values, Weekly Average.**

*Data Source:* USDA-AMS National Daily Direct Hog Prior Day Report - Slaughtered Swine (LM\_HG201) and USDA-AMS National Weekly Pork Report FOB Plant - Negotiated Sales (LM\_PK610), compiled by the Livestock Marketing Information Center.

*Notes:* Week ending January 4, 2002, through week ending December 29, 2023.

The coefficient of variation allows for comparing or measuring price dispersion while accounting for the absolute level of prices.<sup>4</sup> Higher coefficient of variation values indicate greater relative price risk, and lower coefficient of variation values indicate less relative price risk. The coefficient of variation is greater for negotiated prices than for any other prices and in all periods. Furthermore, the coefficient of variation for negotiated prices declined from 28% to 24% from 2014–2019 to 2021–2023 whereas the coefficient of variation for OMF, SPMF, and OPA prices went from 20% to 13% on average. The key implication is that hog prices other than negotiated have seen a larger reduction in variation.

<sup>4</sup> One challenge when analyzing the relative variance between price series is that price levels differ between categories. This may lead to the erroneous conclusion that the various prices have a risk profile similar to each other. However, risk is dependent of the overall price level. We calculate the coefficient of variation (%) as:  $COV = (\text{standard deviation}/\text{average}) \times 100$ .

Table 1 also indicates that the weekly negotiated price as a percentage of the cutout value has varied considerably since 2014. For the entire period excluding 2020, the negotiated price averaged 85.0% of the cutout. For the early period (January 2013–December 2019), the percentage was 83.3% and for January 2021–December 2023 the average was 88.5%. The increase in percentage between the two periods can be explained at least in part by changing producer versus packer market leverage over time. High pork packer capacity utilization has negative impacts on hog prices, especially negotiated prices. There was a severe packing capacity constraint during the fourth quarter of 2016 and utilization levels reached the highest levels since 2007 and 2008 (Tonsor and Schulz 2020). Starting in 2017, openings of new pork packing plants, steady ramping up of additions, and a few tweaks in smaller plants eased this constraint. In the spring of 2019, US hog slaughter capacity was roughly 9.5% larger than it was in the fall of 2015 (Meyer 2019). For hog producers, more slaughter capacity is better than less.

**Table 1. Mean and Standard Deviation of Weekly National Producer Sold Hog Net Prices by Pricing Method and Negotiated Cutout Values by Period**

2014 Thru 2023 — Excluding 2020								
	Negotiated	OMF	SPMF	OPA	Producer-Sold	Packer-Sold	Cutout	Negotiated/Cutout
Average	76.68	79.43	79.72	81.40	80.18	79.95	89.05	85.0%
Std Dev	21.77	13.93	18.83	14.45	16.75	19.76	16.34	11.8%
COV	28%	18%	24%	18%	21%	25%	18%	14%

2014 Thru 2019								
	Negotiated	OMF	SPMF	OPA	Producer-Sold	Packer-Sold	Cutout	Negotiated/Cutout
Average	70.80	75.05	74.23	76.23	74.91	74.15	84.02	83.3%
Std Dev	19.65	13.06	17.98	13.61	15.91	19.06	15.09	10.8%
COV	28%	17%	24%	18%	21%	26%	18%	13%

2021 Thru 2023								
	Negotiated	OMF	SPMF	OPA	Producer-Sold	Packer-Sold	Cutout	Negotiated/Cutout
Average	88.46	88.19	90.70	91.74	90.72	91.56	99.11	88.5%
Std Dev	21.08	11.25	15.40	9.80	13.00	15.63	13.95	13.0%
COV	24%	13%	17%	11%	14%	17%	14%	15%

*Data Source:* USDA-AMS National Daily Direct Hog Prior Day Report - Slaughtered Swine (LM\_HG201) and USDA-AMS National Weekly Pork Report FOB Plant - Negotiated Sales (LM\_PK610), compiled by the Livestock Marketing Information Center. Notes: Week ending January 3, 2014 through week ending December 29, 2023.



The idea of pricing hogs using a percentage of the cutout value is intuitively attractive. Producers get paid directly and consistently based on the value of pork cuts. Packers get a consistent share of the cutout value to add to the drop value they capture to provide a gross margin from which to pay all other costs and provide a profit. This profit may be positive or negative at times.<sup>5</sup> When using a percentage of the cutout value, both packers and producers are on the same side of the market instead of fighting over how to divide up a finite value. Finally, using a percentage of the cutout provides an incentive for packers to always maximize the carcass value—the higher the cutout, the more the packer makes.<sup>6</sup> A flat-amount deduction off the cutout would not provide such an incentive.

Using a constant percentage of the cutout value to compute hog prices leaves both producers and packers facing a seasonal revenue curve that matches the pattern of the cutout value. Figure 3 shows this seasonal pattern over the 2019–2023 period. Note that very high wholesale pork prices in 2020 when packing plants could not fully operate and thus temporarily reduced wholesale pork supplies (Lusk, Tonsor, and Schulz 2021) influenced the May surge in the five-year average line. Both producers and packers typically realize their lowest revenues in November through February.

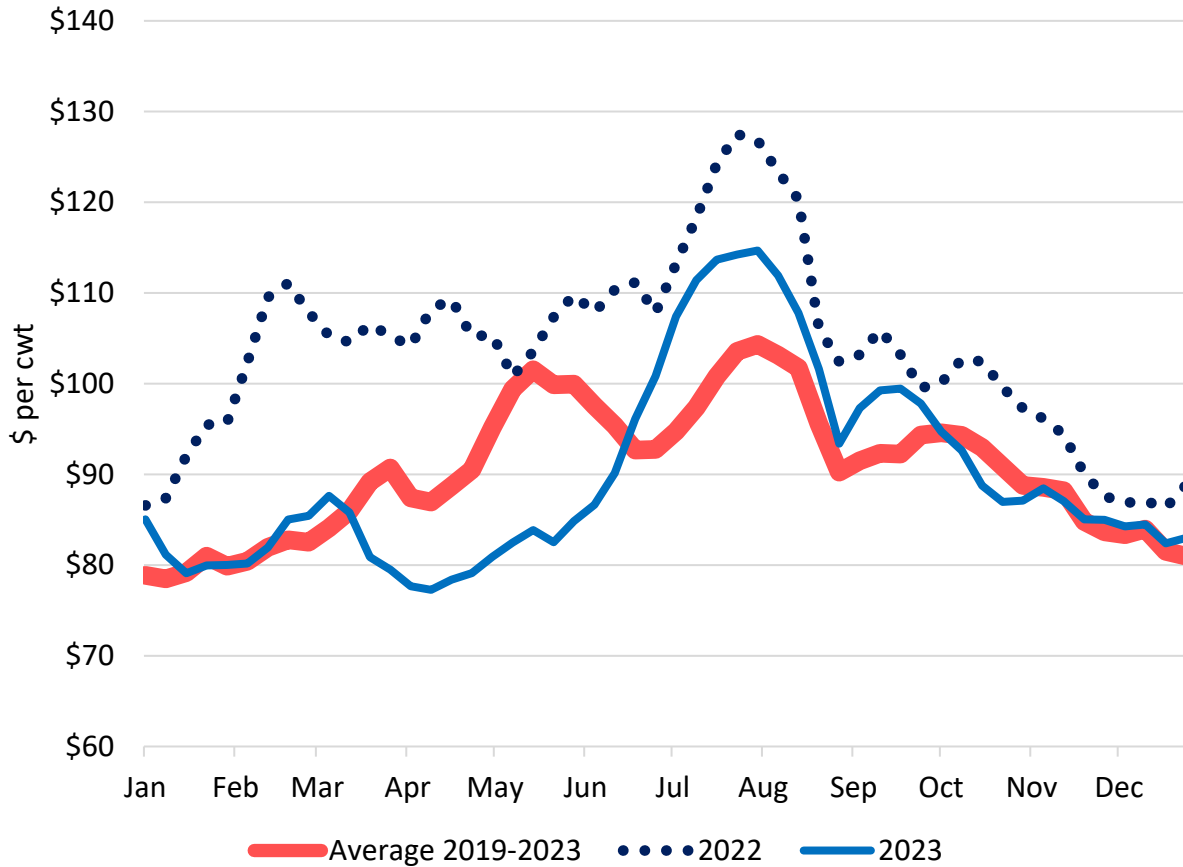
The difficulty of this situation arises when one considers the seasonal pattern of hog slaughter and its implications for the need for Saturday slaughter operations. Weekly hog slaughter totals peak seasonally in the fourth quarter and in January. The total capacity of US hog slaughter plants is normally not sufficient to handle the seasonal peaks in five weekdays, necessitating adding shifts at some plants on Saturdays (figure 4). Saturday shifts normally involve overtime pay and put extra stress on workers and on equipment. These extra costs, plus the availability of hogs, contribute to the normal fourth quarter seasonal low in hog prices. Packers need the higher gross margins of the fourth quarter and January (figure 5) to compensate for higher costs.

The challenge then is obvious. If some subset of producers have base prices for their SPMF-priced hogs tied to a percentage of the cutout value, packers will likely still have opportunities to extract extra margins on other hogs in order to pay the higher costs driven by more Saturday operations. However, if all or a substantially large share of SPMF-prices are based on a flat percentage of the cutout, packers will have less incentive to work extra shifts to handle the normal fourth quarter and January surge of market hogs.

---

<sup>5</sup> Over time (not necessarily for a day, a week, a month, or even a year) the market is expected to pay, on average, the fair cost of production—no more and no less. This includes a fair return to the resources used and the risk of employing them to produce. As such, cutout values should reflect processing costs over a long horizon.

<sup>6</sup> It is difficult for the standard yields used in the calculation of the cutout to include value-added products, so the producer would not necessarily be able to capture value from these innovations. Going further, it does not capture case-ready pork, which is expected to keep gaining volume.



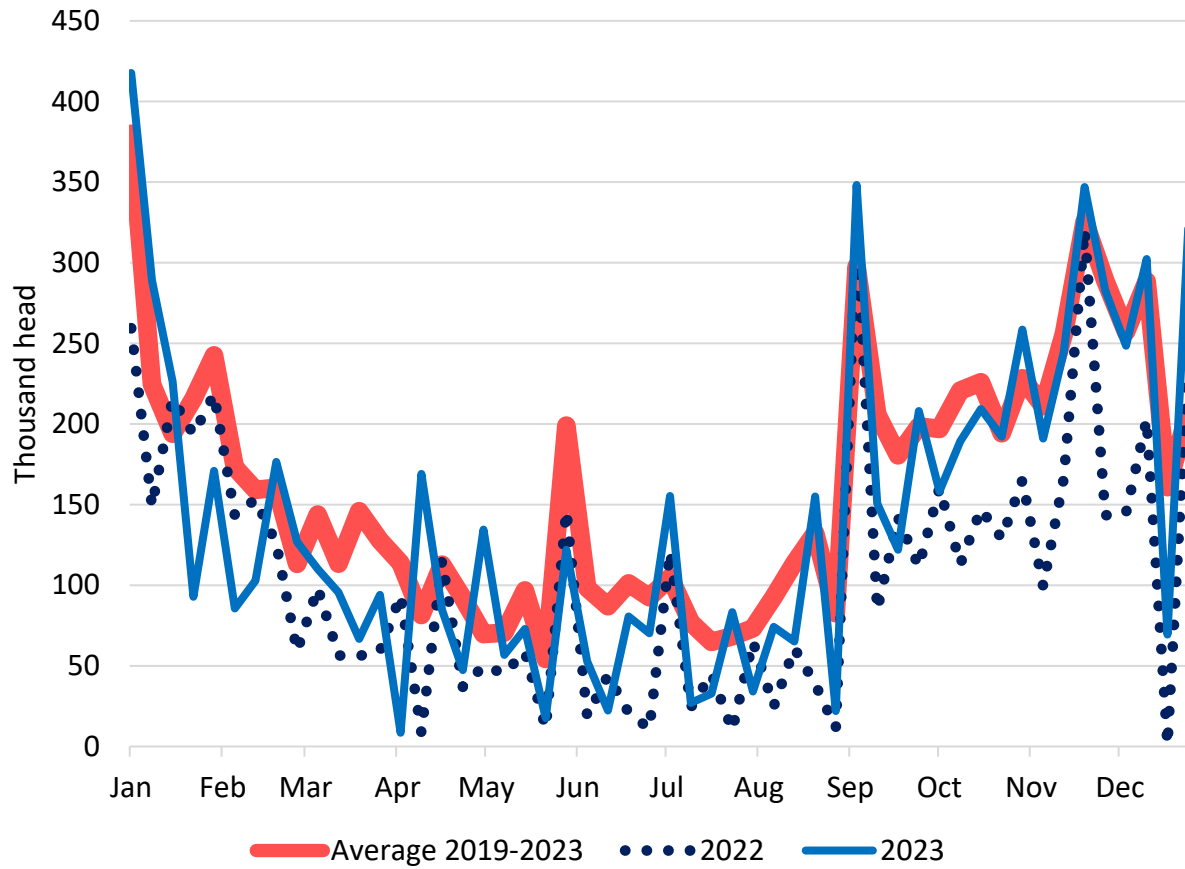
**Figure 3. USDA Weekly Estimated Pork Carcass Cutout Value.**

*Data Source.* USDA-AMS National Weekly Pork Report FOB Plant - Negotiated Sales (LM\_PK610), compiled by the Livestock Marketing Information Center.

*Notes.* Week ending January 4, 2019, through week ending December 29, 2023.

A solution to this challenge would be to have the cutout value percentage used in formulas vary during the year so packers are paid enough in the fourth quarter and January to incentivize the extra work hours. Figure 6 shows three-week averages (to smooth the data) of the weighted average producer-sold negotiated, OMF, and SPMF national net price percentage of the cutout for four time periods, all of which do not include 2020.<sup>7</sup> Note that the percentage peaks in the summer and is lowest in the late-fall and early-winter. The 2014-2023 and 2017-2023 periods average near the same at 88.974% and 88.828%, respectively. Similarly, both shorter-term periods average near the same—90.428% for 2019–2023 and 90.892% for 2021–2023.

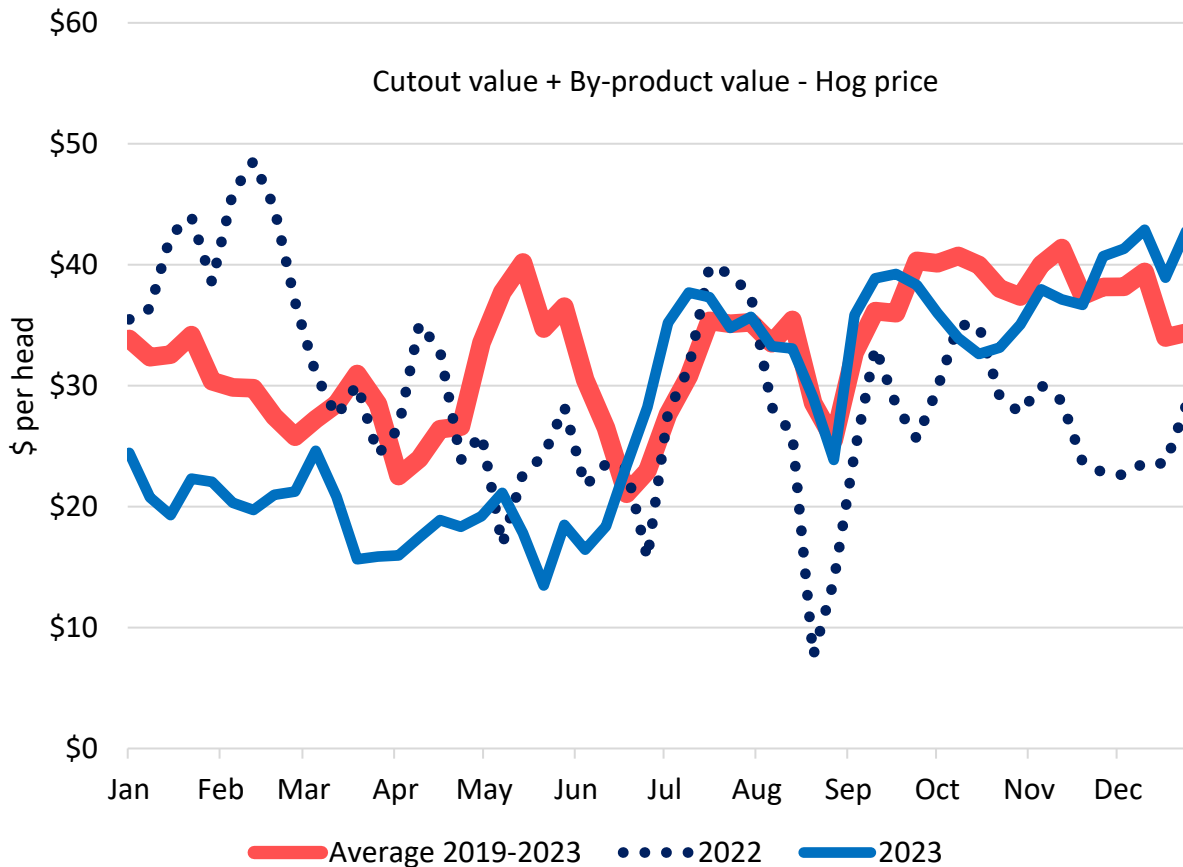
<sup>7</sup> Producer-sold negotiated, OMF, and SPMF purchase types have averaged 71% of the national producer-sold volume over the 2014–2023 period. Hog prices published in the OPA category are not included in this weighted average price due to the presumed higher cost of raising those hogs.



**Figure 4. Federally-Inspected Saturday Hog Slaughter.**

*Data Source:* USDA Daily Livestock Slaughter under Federal Inspection (SJ\_LS710), compiled by the Livestock Marketing Information Center.

*Notes:* Week ending January 5, 2019 through week ending December 30, 2023.



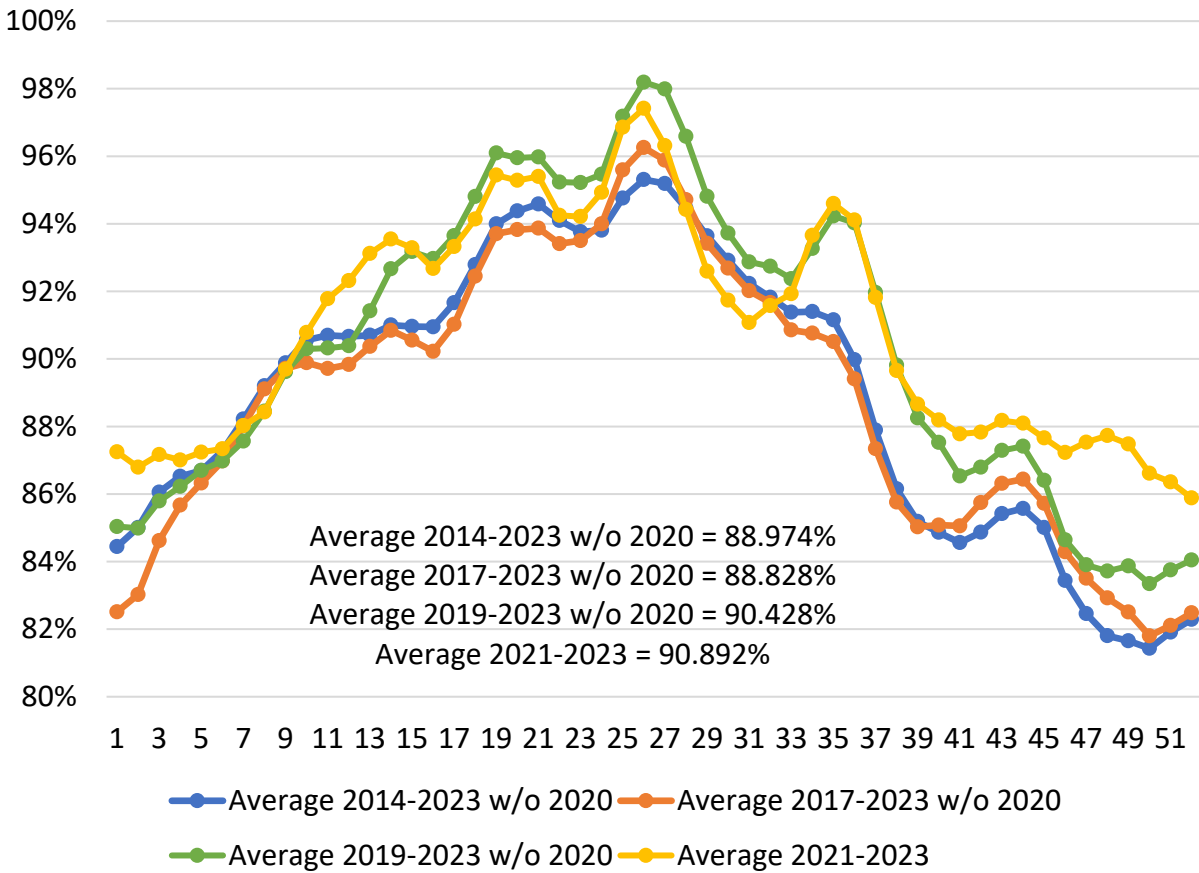
**Figure 5. Estimated Pork Packer Gross Margin.**

*Data Source:* USDA-AMS National Daily Direct Hog Prior Day Report - Slaughtered Swine (LM\_HG201), USDA-AMS National Weekly Pork Report FOB Plant - Negotiated Sales (LM\_PK610) and USDA-AMS USDA By-Product Drop Value Report-Hogs (NW\_LS446), compiled by the Livestock Marketing Information Center.  
*Notes:* Week ending January 4, 2019 through week ending December 29, 2023.

Producers and packers could use historical weekly patterns (e.g., the aforementioned ten-, seven-, five-, or three-year calculations) to find an agreed-upon annual average to utilize in formula prices. This could be somewhat-akin to how USDA-AMS updates the pork carcass cutout and primal value calculations annually.<sup>8</sup> Yearly yield updates help ensure that carcass cutout and primal values in USDA reports represent current market practices.

The annual averages shown in figure 6 are simple averages of the 52 weekly figures. A more appropriate annual average computation would be to weight each week by the normal percentage of annual slaughter that occurs in that week since fewer hogs are sold when the percentages are high and more hogs are sold when the percentages are low. Under this approach, all periods are still close to the simple annual averages—88.815% for 2014-2023, 88.683% for 2017-2023, 90.271% for 2019-2023, and 90.783% for 2021-2023—but exhibit differences in the weekly percentages.

<sup>8</sup> The latest updated yields went into effect on 01/08/2024 according to the National Daily Pork Report FOB Plant - Negotiated Sales - Afternoon (LM\_PK602), [https://mymarketnews.ams.usda.gov/filerepo/sites/default/files/2498/2024-01-09/791735/ams\\_2498\\_00987.pdf](https://mymarketnews.ams.usda.gov/filerepo/sites/default/files/2498/2024-01-09/791735/ams_2498_00987.pdf). For more information see: A User's Guide to USDA's Pork Carcass Cutout, <https://www.ams.usda.gov/sites/default/files/media/LMRPorkCutoutHandout.pdf>.



**Figure 6. Weighted Average Producer Sold Negotiated, Other Market Formula, and Swine or Pork Market Formula National Net Price as Percentage of Cutout, 3-week Average.**

*Data Source:* USDA-AMS National Daily Direct Hog Prior Day Report - Slaughtered Swine report (LM\_HG201) and USDA-AMS National Weekly Pork Report FOB Plant - Negotiated Sales (LM\_PK610).

*Notes:* Week ending January 3, 2014 through week ending December 29, 2023.

Collective action by either producers or packers to force any pricing mechanism would run afoul of antitrust laws. Unless federally mandated, individual producers will continue to negotiate pricing arrangements with their packer customers. Allowing the cutout value percentage used in formulas to vary during the year could be part of those negotiations.

## References

- Butcher, E. and L.L. Schulz. 2021. Hog Price and Volume Comparisons across Alternative Sale Types, Emphasis on COVID-19 Disruptions. CARD Policy Brief 21-PB 36. September 2021. <https://www.card.iastate.edu/products/publications/pdf/21pb36.pdf>.
- Cox, T. 2017. "USDA Market News Swine Report Review." US Department of Agriculture Agricultural Marketing Service, Washington, DC. Available at: <https://www.ams.usda.gov/sites/default/files/media/LPSNationalPorkBoardPresentation20170907.pdf>.
- Franken, J.R. and J.L. Parcell. 2012. Evaluation of Market Thinness for Hogs and Pork. *Journal of Agricultural and Applied Economics* 44(4): 461-475. <https://doi.org/10.1017/S1074070800024044>.
- Hayes, D.J, L.L. Schulz, C.E. Hart, and K.L. Jacobs. 2021. A Descriptive Analysis of the COVID-19 Impacts on US Pork, Turkey, and Egg Markets. *Agribusiness: An International Journal* 37(1): 122-141. <https://doi.org/10.1002/agr.21674>.
- Lusk, J.L., G.T. Tonsor, and L.L. Schulz. 2021. Beef and Pork Marketing Margins and Price Spreads during COVID-19. *Applied Economic Perspectives and Policy* 43(1): 4-23. <https://doi.org/10.1002/aep.13101>.
- Meyer, S.R. 2019. Red-letter day for industry; red ink still on horizon. *National Hog Farmer*. March 4, 2019. <https://www.nationalhogfarmer.com/market-news/red-letter-day-for-industry-red-ink-still-on-horizon>.
- Tonsor, G.T. and L.L. Schulz. 2020. Assessing Impact of Packing Plant Utilization on Livestock Prices. Kansas State University Department of Agricultural Economics Extension Publication. *AgManager.info*. April 2020. <https://agmanager.info/livestock-meat/marketing-extension-bulletins/price-risk/assessing-impact-packing-plant-utilization>.
- US Department of Agriculture Agricultural Marketing Service (USDA-AMS). 2008. "Livestock Mandatory Reporting; Reestablishment and Revision of the Reporting Regulation for Swine, Cattle, Lamb, and Boxed Beef." 73 FR 28606, US Department of Agriculture Agricultural Marketing Service, Washington, DC. Available at: <https://www.federalregister.gov/documents/2008/05/16/E8-10185/livestock-mandatory-reporting-reestablishment-and-revision-of-the-reporting-regulation-for-swine>.
- US Department of Agriculture Agricultural Marketing Service (USDA-AMS). 2024. Swine Contract Library. US Department of Agriculture Agricultural Marketing Service, Washington, DC. Available at: <https://www.ams.usda.gov/rules-regulations/packers-and-stockyards-act/regulated-entities/swine-contract-library>.