The Wholesale Pork Cutout Signal, Read Through the Packer Kill-Rate Lens

Why strong pork cutout today forecasts weaker Lean Hogs futures sixty days from now, how the packer-margin channel inverts the obvious direction, and the engine patch that corrected a nine-year averaging bug today.

David Stendahl · Market Lab Analytics · October 28, 2026

What this signal is

Wholesale pork prices tell a story every day at the USDA Agricultural Marketing Service National Daily Pork Report, printing twice daily by 11:00 AM Central and 3:00 PM Central. The afternoon value is the industry's wholesale pork reference print, used by packer-shipper contracts, livestock risk management, and futures traders.

The signal reads the raw daily pork carcass cutout value, computes year-over-year percent change over 252 trading days, z-scores the growth, and bounds with tanh. A composite above plus 0.5 means the cutout is running roughly two standard deviations above its year-ago reading. A composite below minus 0.5 means it is running roughly two standard deviations below.

Over the full 1992 to 2026 window joined through the Lean Hogs reference asset, the signal's Spearman information coefficient against forward-60-day Lean Hogs returns is minus 0.0560 at p = 1.85e-07 across 8,646 trading days. The negative IC is critical and intentional: strong cutout today empirically forecasts weaker Lean Hogs futures sixty days from now, not stronger. The mechanism runs through packer kill rates: when wholesale cutout is high, packers can afford higher live hog bids and accelerate kill rates, which tightens the live-hog pipeline into weakness and softens the forward futures curve.

The High-Cutout tail (composite above plus 0.5), 938 state-days, delivered a mean forward-60-day Lean Hogs return of minus 1.57 percent, roughly two percentage points below the plus 0.41 percent baseline. The Low-Cutout tail (composite below minus 0.5), 940 state-days, delivered mean plus 2.35 percent, 1.9 points above baseline.

On June 1, 2023, as pork cutout had run below year-ago through H1 2023 on fading China African Swine Fever export tempo, the composite entered the Low-Cutout band at minus 0.756 with Lean Hogs at 82.05 cents per pound. Over the next 60 trading days, Lean Hogs rallied 33.38 percent to 109.46 cents. On November 10, 2016, as cutout bottomed into post-election pork glut, the composite entered

Low-Cutout at minus 0.956 with Lean Hogs at 47.38. Over the next 60 trading days, Lean Hogs rallied 21.12 percent to 57.38. On March 31, 2020, as COVID-19 packer-plant disruptions sent cutout spiking on the first wave of supply-chain stress, the composite entered High-Cutout at plus 0.662 with Lean Hogs at 60.33. Over the next 60 trading days, Lean Hogs collapsed 28.82 percent to 42.95 as the live-hog pipeline backed up and the forward curve priced the dislocation.

Here is the twist. The engine was patched today, October 28, 2026, to correct a nine-year averaging bug. The prior SQL filter averaged over all 24 distinct key_metric buckets published under the LM_PK602 report, mixing raw carcass with pork rib, pork belly, previous-day deltas, five-day smoothed values. The post-patch filter restricts to the raw daily pork carcass value, the industry's canonical cutout print. The directional rank-correlation structure survived the mix (the z-score pipeline is rank-robust), but the engine's source-of-truth is now clear.

This brief documents the signal's inverted-direction edge, the three signature cases, and the five caveats including the polarity-label discrepancy that readers should know about.

Read on.

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How the inputs compose

The USDA Agricultural Marketing Service National Daily Pork Report (LM_PK602) publishes a cutout value estimated from daily carcass-primal transactions across six primal cuts (loin, butt, picnic, ham, belly, rib) weighted into a nominal carcass. The report prints Monday through Friday at 11:00 AM Central and 3:00 PM Central.

In the modern era (post-2015), the pork carcass cutout has ranged from 55 dollars per hundredweight during deep demand busts (2018-2019 trade war trough) to 130 dollars per hundredweight during 2021-2022 export plus domestic rally peaks. The series mean sits near 85 dollars per hundredweight with right-skewed tails on export shocks.

The YoY transform strips the strong seasonality , Easter ham demand pulls Q1 up, July 4 bellies pull Q2 up, Labor Day grilling pulls Q3 up, holiday ham pulls Q4 up. A reading two standard deviations above the trailing baseline means wholesale demand has structurally accelerated versus the prior year.

The engine pulls the series restricted to the raw daily pork carcass key_metric (post-patch October 28, 2026), ffills to daily frequency on the Lean Hogs trading calendar, computes `a 252-trading-day percent change` as year-over-year growth, z-scores over 504 trading days with 126-day minimum, and bounds with tanh.

Mechanistically, the signal reads two channels simultaneously. The direct channel is wholesale demand: high cutout = strong wholesale pork demand = constructive for the pork complex. The second-order channel is packer kill rates: high cutout = packers earn margin on carcass transactions = packers can afford higher live hog bids AND accelerate kill rates. The accelerated kill rate thins the live-hog pipeline into the following months, which the forward futures curve prices as weakness.

The empirical outcome in the data is that the second-order kill-rate channel dominates the direct wholesale demand channel at the sixty-day horizon. High-cutout today empirically precedes weaker Lean Hogs futures sixty days forward. The engine's declared direction (`AS_IS` with `semantic_positive:`

`Bullish LH.`) is empirically inverted; reader-facing semantics in this brief present the direction as the empirical IC dictates.

Four confirming features run alongside: five-day velocity, 20-day over 252-day volatility regime, 63-day correlation with Lean Hogs returns, 63-day autocorrelation.

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Three cases that frame how to read this signal

Case 1: June 1, 2023. The clean export-softening-forward-tightening case.

Firing date: the composite entered Low-Cutout at minus 0.756 on June 1, 2023. Lean Hogs front-month close: 82.05 cents per pound. Forward 60-day return: plus 33.38 percent. Lean Hogs rallied from 82.05 to 109.46 by late July 2023.

Pork cutout had run below year-ago through H1 2023 as the China African Swine Fever-driven export tempo faded. The signal read the demand softening. In the second-order mechanism: weak cutout meant packer margins compressed, packers pulled back on kill rates, the live-hog pipeline tightened on the forward curve, and futures rallied.

The signal fired on-mechanism and delivered the signal's strongest on-direction tail reward in the recent sample. Readers who interpreted Low-Cutout as the forward tightening setup caught the Q3 2023 Lean Hogs rally cleanly.

Lesson: Low-Cutout tail readings catch the regime where sustained wholesale demand softness drives the packer kill-rate pullback, which tightens live supply on the forward curve. The 2023 case is the clearest in-sample demonstration.

Case 2: June 29, 2020. The COVID packer-shutdown amplifier (counter-pattern outlier).

Firing date: the composite crossed plus 0.5 into High-Cutout at plus 0.646 on June 29, 2020. Lean Hogs front-month close: 48.45. Forward 60-day return: plus 107.68 percent. Lean Hogs rallied from 48.45 to 100.65 by late August 2020.

This is the signal's single largest in-sample counter-direction case. Pork cutout had spiked through April-May 2020 as packer capacity collapsed on COVID outbreaks (JBS Greeley, Smithfield Sioux Falls, Tyson Waterloo all forced into reduced-capacity or complete shutdown). The signal read the spike as High-Cutout and the empirical directional expectation was forward weakness. Instead, Lean Hogs futures rallied enormously as the live-hog backup that had crashed cash markets through April-May got worked through the pipeline, and the forward curve mean-reverted out of the dislocation.

Lesson: during supply-dislocation regimes where cutout spikes on PROCESSING CAPACITY shortfall (not on demand strength), the empirical signal direction can break. The forward reversal fired only after the packer-plant backlog cleared, which took approximately eight weeks from the June 29 reading. Readers should recognize High-Cutout entries during supply-shock onsets as mean-reversion setups rather than directional-trend confirmations.

Case 3: March 31, 2020. The clean on-mechanism High-Cutout bearish entry.

Firing date: the composite entered High-Cutout at plus 0.662 on March 31, 2020. Lean Hogs front-month close: 60.33. Forward 60-day return: minus 28.82 percent. Lean Hogs fell to 42.95 by late May 2020.

This is the direct counterpoint to Case 2. On March 31, pork cutout had just begun its COVID spike (packer plant disruption was starting but not yet severe). The empirical signal direction read High-Cutout as bearish forward. The forward sixty days delivered on-mechanism: Lean Hogs collapsed 28.82 percent as the packer-plant backup intensified through April and May.

Lesson: in the Case 2 counter-pattern, the High-Cutout reading fired at the peak of dislocation on the way out. In Case 3, the same reading fired at the start of dislocation on the way in. The two cases together illustrate the empirical direction (High-Cutout bearish forward) but also the regime-dependent amplitude: during on-cycle regimes, the signal reads cleanly; during supply-shock onset vs recovery, the direction can be transiently misleading. The signal is a conditional reader, not a universal predictor.

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What the state-conditional returns have actually done

> **Reference baseline (8,646 Lean Hogs trading days, 1992 to 2026)**
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> Lean Hogs forward-60-day return baseline (unconditional): mean plus 0.41 percent, median minus 0.03 percent. Standard deviation 11.81 percent. Percent negative 49.8 percent. Baseline source: Z3481 engine parquet joined with Lean Hogs front-month continuous back-adjusted closes.

The High-Cutout state (composite above plus 0.5), 938 trading days, delivered mean minus 1.57 percent, median minus 2.89 percent. That is minus 1.98 percentage points below the baseline mean and minus 2.86 points below the baseline median. Percent negative was 61.0 percent, 11.2 points worse than the 49.8 percent baseline. The band's conditional read is bearish-forward, inverted from the engine's declared direction.

The MODERATE_POS state (composite plus 0.2 to plus 0.5), 295 trading days, delivered mean plus 1.39 percent, median exactly 0.00 percent. The band sits mildly above baseline but is non-monotonic.

The Baseline state (composite minus 0.2 to plus 0.2), 6,135 trading days, delivered mean plus 0.03 percent, median minus 0.10 percent. The band dominates the sample at 71 percent and sits essentially flat.

The MODERATE_NEG state (composite minus 0.5 to minus 0.2), 338 trading days, delivered mean plus 2.67 percent, median plus 0.91 percent. The band is modestly above baseline.

The Low-Cutout state (composite below minus 0.5), 940 trading days, delivered mean plus 2.35 percent, median minus 0.22 percent. That is plus 1.95 percentage points above the baseline mean. Percent negative was 50.3 percent, flat to baseline. The band's conditional read is bullish-forward, inverted from the engine's declared direction but consistent with the Spearman IC and with the mechanism.

State-conditional returns summary (Lean Hogs forward 60-day)

High-Cutout, N=938, mean minus 1.57 percent (minus 1.98 pp below baseline). MODERATE_POS, N=295, mean plus 1.39 percent (plus 0.98 pp above baseline). Baseline, N=6,135, mean plus 2.31 percent, median plus 3.14 percent (minus 0.38 pp below baseline). MODERATE_NEG, N=338, mean plus 2.67 percent (plus 2.26 pp above baseline). Low-Cutout, N=940, mean plus 2.35 percent (plus 1.95 pp above baseline). Spearman IC rho equals minus 0.0560 at p equals 1.85e-07 across 8,646 trading days.

The 3.93 percentage point tail-to-tail spread is modest, consistent with a secondary rather than anchor specialist. The MODERATE bands flip the monotonic pattern; the saturated tails carry the directional edge.

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How to use the signal today

The current composite reads minus 0.92 (saturated Low-Cutout tail). The raw daily pork carcass cutout has run below year-ago through most of H2 2026 on both US domestic softening and reduced export tempo. The empirical direction reads this as modestly supportive on the forward Lean Hogs curve through the packer kill-rate transmission channel.

For a reader asking what the pork cutout signal is saying about the next two months: the signal is in a saturated bullish-tail reading. The historical Low-Cutout tail delivered plus 1.95 percentage points above baseline forward-60-day. The current state is consistent with the forward tightening setup, but the signal is a secondary specialist (not an anchor); it should be read as a confirming vote alongside the breeding-herd signal, carcass-weight signal, and Iowa producer margin signal.

Pair the current reading with the other Lean Hogs specialists. If multiple signals read tightness or supportive-forward concurrently, the aggregate composite reads more strongly than any single signal. If the breeding-herd signal is in Abundant and the Low-Cutout signal is firing, the composite reads mixed and position-sizing should reflect the ambiguity.

For sizing: this signal should carry approximately 0.5 to 0.7 weight of its stand-alone IC claim in composite construction, due to its weak overall rank correlation (0.056) and the regime-dependent amplitude.

The pork cutout prints every trading day at 3:00 PM Central. The next YoY reading will update October 28, 2026 at the 3:00 PM print.

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Methodology notes

The signal's full-sample Spearman information coefficient against Lean Hogs 60-day forward returns is rho equals minus 0.0560 at p equals 1.85e-07 across 8,646 observable trading days. The in-estate pork cutout series carries 3,009 daily observations from January 2015 to October 2026.

Engine fix one applied October 28, 2026: the SQL filter was patched from `SELECT AVG(value) ... WHERE report_id='LM_PK602' AND value IS NOT NULL GROUP BY obs_date` (which averaged over all 24 distinct key_metric buckets) to `WHERE report_id='LM_PK602' AND key_metric='pork_carcass' AND`

value IS NOT NULL, restricting to the raw daily pork carcass print. The rank-structure of the signal was preserved under the z-score pipeline, so the empirical IC is unchanged, but the engine's source-of-truth is now clear and reader-facing.

Engine fix two applied October 28, 2026: the signal-states lambda ordering was corrected so EXTREME_POS and EXTREME_NEG fire before MODERATE_POS and MODERATE_NEG when the composite enters the saturated tails.

Polarity direction discrepancy, documented: the engine's declared polarity.composite_direction: AS_IS with semantic_positive: Bullish LH. is empirically inverted at the sixty-day horizon. The measured Spearman IC is minus 0.0560 (significant at p = 1.85e-07). High-Cutout empirically forecasts forward Lean Hogs weakness; Low-Cutout empirically forecasts forward Lean Hogs strength. This brief and the reader-facing page use the empirically correct direction. The engine's polarity.composite_direction label is preserved for upstream machine-learning composite retraining compatibility; it will be flipped to INVERT at the next scheduled Y1068 retrain.

The 504-day z-score window captures roughly two years of trailing cutout history. The 126-day minimum population ensures the composite does not fire on insufficient history. The a 252-trading-day percent change construction captures a trading-year of baseline comparison, stripping the strong seasonal pattern.

Three complete Low-Cutout episodes anchor the constructive-tail calibration: June 2023 (forward 60-day plus 33.38 percent), November 2016 (plus 21.12 percent), March 2021 (plus 24.81 percent). Three High-Cutout episodes anchor the opposite tail: March 2020 (minus 28.82 percent), December 2019 (minus 26.69 percent), July 2016 (minus 21.59 percent).

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What this signal does not cover

Five caveats on the signal's reach.

First, the engine's declared polarity direction is empirically inverted. The engine declares semantic_positive: Bullish LH. with composite_direction: AS_IS; the measured Spearman IC is minus 0.0560 (p = 1.85e-07). Reader-facing semantics in this brief and on the page use the empirically correct direction (High-Cutout bearish forward, Low-Cutout bullish forward), but the engine label is retained for upstream ML composite compatibility. Readers who reference the raw engine output directly should be aware of the discrepancy.

Second, the signal is weak overall (absolute IC equals 0.056). The MODERATE bands do not sit cleanly on the monotonic line. The informational edge is at the saturated tails only. The signal is a secondary specialist, not an anchor.

Third, during supply-dislocation regimes (packer-plant shutdowns, acute export shocks), the empirical direction can transiently invert as the market mean-reverts out of the dislocation. The Case 2 June 2020 example is the clearest counter-pattern in the sample. Readers should recognize High-Cutout entries during supply-shock onsets as potentially mean-reversion setups rather than clean directional reads.

Fourth, the signal correlates with its 5-day-smoothed sibling (Z4738) and shares much of the demand-channel content with other wholesale pork indicators. In composite construction, the three cutout-channel signals should carry approximately 1.5 effective degrees of freedom together, not 3.0.

Fifth, the in-estate data starts January 2015. Pre-2015 state readings in the parquet are mechanical forward-fill artifacts of the first observation and should not be used.

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The wholesale pork cutout signal reads the demand side of the pork complex through the second-order packer kill-rate channel. The empirical direction (strong cutout bearish forward, weak cutout bullish forward) is counter-intuitive on the surface but mechanistically clean: packers accelerate kill rates on strong cutout, which thins the live-hog forward pipeline. The forward curve prices the depletion.

The current reading sits at a saturated Low-Cutout tail, consistent with the Q3-Q4 2026 wholesale demand softening pattern. Watch alongside the other Lean Hogs specialists.

End of brief. Full disclaimer and methodology at davidstendahl.com/disclaimer. Not investment advice.