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Lean Hogs Weekly Slaughter

The cleanest real-time supply number in the Lean Hogs complex — read as context, not sized.

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A DIAGNOSTIC SIGNAL, HONESTLY

Every Friday at 3:00 PM Eastern the USDA National Agricultural Statistics Service publishes the Weekly Livestock Slaughter report. Inside is the number of hogs that moved through federally inspected plants during the prior week. FSIS inspectors count every head on every kill floor; the number is the cleanest real-time supply reading the Lean Hogs complex carries.

This signal reads that weekly number against the same week one year earlier. The year-over-year ratio is z-scored over a trailing three-year rolling window and bounded to a minus-one to plus-one scale. Positive means weekly kill is running below year-ago on the sign-flipped scale, which is structurally bullish Lean Hogs on the forward supply read.

What this brief does not do is sell the signal as a sizing lever. The honest validation grade is D. In-sample backtesting across the thirty-four-year sample cannot find a statistically meaningful forecast of forward Lean Hogs returns from this reading. The 60-day information coefficient is approximately plus 0.007. The hit rate is 49.4 percent — indistinguishable from a coin flip. The permutation p-value is 0.82. There is no sized trading edge in this series, and we are not pretending there is one.

So why publish it? Because context has value even when sizing does not. A reader asking "is weekly hog kill running hot or cold against last year, and in which direction is the trend moving?" gets a legitimate answer from this signal. That answer informs how aggressively to size positions on the signals that DO carry sized edges — the

structural breeding-herd read, the hog-corn ratio, pork cold storage. This signal is the diagnostic layer underneath those.

> *The reading is useful as context, not as a sizing input. The brief is honest about the difference.*

The current reading is plus 0.32, a Moderate Positive state nine sessions into a Healthy phase since October 16, 2026. Weekly kill has been running approximately in line with year-ago, biased slightly below on the trailing six-week trend (around minus two percent on a 2.5-million-head weekly base). On the sign-flipped scale, this reads as mildly tight supply.

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THE THESIS IN ONE PARAGRAPH

Weekly federally-inspected hog slaughter is the cleanest real-time supply number in the Lean Hogs complex. USDA FSIS inspectors count every head through every federally inspected plant. The release lands Fridays at 3:00 PM Eastern for the prior week. We compute the weekly-slaughter year-over-year ratio, score it against a trailing three-year rolling baseline, invert the sign so that an upward kill surprise reads negative-for-Lean-Hogs, and bound the output in a minus-one to plus-one range. The deployed direction is correct in mechanism (more kill this week vs year-ago means more pork hitting the market, structurally bearish lean-hog price). But the empirical linear forecast of forward Lean Hogs returns from this reading is empirically zero across the full sample. Grade D. Published as diagnostic context, not as a sized signal.

WHY THE GRADE IS HONEST

The sixty-day information coefficient against Lean Hogs forward returns is plus 0.007 across the 8,709-day sample. The hit rate is 49.4 percent — the signal is correct on direction less than half the time, which is empirically indistinguishable from a coin flip when standard error is considered. The permutation p-value is 0.82, meaning there is an 82 percent chance that a randomly-reshuffled series of the same mean and variance would produce an information coefficient at least as large as the observed one.

The regime axis is similarly empty. Across the three state buckets, forward Lean Hogs 60-day returns differ by less than three-quarters of a percentage point — within one standard error of baseline across the sample. There is no bucket spread, no tail-dominant tail, no event-conditional edge.

Why would a weekly real-time supply number not forecast Lean Hogs? Two honest explanations.

First, the information is already mostly priced. Daily packer margin, daily cutout, daily hog kill snapshot (which precedes the weekly summary by two to four days), and the forward-curve shape all incorporate the slaughter picture before the Friday weekly summary lands. By the time the weekly print lands, there is little incremental surprise most weeks.

Second, the series is noisy at the weekly resolution. Holidays shift the kill week. Plant-specific maintenance windows add variance. Weather events disrupt transport. The signal-to-noise ratio of a single weekly print against the same week year-ago is dominated by these calendar-and-event artifacts, with the signal of actual structural supply tightening or loosening buried within.

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FOUR CASES THAT FRAME HOW TO READ THIS SIGNAL

Case 1: 2008 to 2009, the ethanol feed-shock liquidation

In 2007 and 2008, Congress-mandated corn-ethanol blending drove the hog-corn ratio into the single digits for sustained stretches. Producers responded by culling sows and accelerating finishing, driving weekly hog slaughter materially above year-ago through mid-2008 (peak +4.1 percent YoY sustained for ten consecutive weeks). The signal correctly moved into the loose-supply band on the sign-flipped scale (reading below −0.5 for most of Q3 2008).

What a trader reads from this case: when a structural feed-cost shock drives producers to liquidate, this signal shows the realization in real time. The reader can watch weekly kill accelerate ahead of the eventual Lean Hogs forward-price pressure. But the price pressure in 2008 was dominated by the broader financial-crisis demand collapse and the Lehman long squeeze (see the CFTC Positioning signal brief), not by the realized kill. The signal correctly described supply flow; it did not predict Lean Hogs direction with precision.

Case 2: 2014, the PEDv-era kill compression

In 2014 Porcine Epidemic Diarrhea Virus killed millions of pre-weaned pigs. Six to nine months later, weekly finished-hog slaughter compressed as the smaller cohort moved to market. The signal correctly moved into the tight-supply band (above +0.5) through much of Q2 2014. Lean Hogs futures rallied to an all-time high above 1.33 dollars per pound in May 2014.

What a trader reads from this case: a biological supply shock in the breeding stage shows up in weekly slaughter six to nine months later. This signal captures that realization. The Lean Hogs forward-price response was correctly directional (tight supply = bullish LH) but the magnitude was dominated by concurrent demand factors (export pull on the ASF-era pork-deficit setup starting to build).

Case 3: 2020 Q2, the COVID packer-closure collapse

In April and May 2020, line-speed collapses at JBS, Smithfield, and Tyson plants stranded market-weight hogs on farms. Weekly slaughter collapsed roughly 40 percent in the deepest week (May 10 week) against year-ago. The signal snapped to the extreme tight-supply band (above +0.9).

What a trader reads from this case: the signal correctly described the realization of the supply disruption in real time. But the forward Lean Hogs response was COUNTER-intuitive — nearby prices collapsed as stranded animals and backed-up cold storage priced in the processing-capacity failure, not the eventual tight supply. The signal was in a reading that would have predicted bullish Lean Hogs forward; the actual move was deeply bearish for roughly six weeks before the Q3 rally began. This is the Grade D framing in action: directionally mechanical but empirically unreliable as a forward-return forecast.

Case 4: October 2026, the current reading

The current reading is plus 0.32, Moderate Positive. Weekly kill has been biased slightly below year-ago on the trailing six-week trend (around minus two percent on a 2.5-million-head weekly base). Compare against the structural reads: Breeding Herd Lead is Normal (recent year-over-year trend has normalized), Hog-Corn Ratio is at Extreme POS (structural supply-tightening story), Pork Cold Storage Inversion is at Extreme NEG (pipeline-loose). The composite framework reads: structural supply tightening (hog-corn and breeding-herd), pipeline currently loose (cold storage), weekly flow approximately in line with year-ago (this signal).

A trader uses this reading as a sanity check: is the structural supply story (hog-corn, breeding-herd) actually showing up in weekly kill yet? Answer right now: slightly, but not yet decisively. This informs how aggressively to size the structural tilt, not whether to hold it.

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DOES THE SIGNAL ACTUALLY WORK AGAINST LEAN HOGS

Direction and magnitude, composite vs Lean Hogs forward returns, 1992 to 2026

Spearman rank correlation between the composite today and the Lean Hogs forward return N days later: plus 0.004 at the 5-day horizon, plus 0.006 at 20-day, plus 0.007 at 60-day — all empirically indistinguishable from zero. Twenty-day hit rate 49.4 percent, permutation p-value 0.82. The signal does not carry a measurable linear forecast of forward Lean Hogs returns. Lean Hogs all-sample forward-60-day baseline: mean plus 2.58 percent, median plus 2.66 percent across the 8,709-day sample. Both are reported because lean-hog returns are heavy-tailed and the median gives a better feel for the central tendency. State-conditional returns: Below year-ago state fwd60d mean plus 2.87 percent (edge +0.29pp above baseline); Neutral state fwd60d mean plus 2.67 percent (edge +0.09pp); Above year-ago state fwd60d mean plus 3.35 percent (edge +0.77pp). Bucket spread across the three states is approximately 0.7 percentage points, well below the sample standard deviation.

Two facts come out of this evidence.

First, the linear forecast is empirically zero. 60-day information coefficient plus 0.007 is within rounding error of a random series. The hit rate at 49.4 percent is on the wrong side of the breakeven. There is no sized directional edge.

Second, the state-conditional returns do not separate meaningfully. The three state buckets have forward-return means within three-quarters of a percentage point, well below the sample standard deviation. There is no tail-dominant bucket, no event-conditional edge, no asymmetric payoff structure that would justify sized position-sizing off state transitions.

The evidence supports the Grade D framing. The signal has legitimate diagnostic value (describes supply flow in real time) but no sized trading edge.

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HOW TO USE THE SIGNAL TODAY

The current reading is plus 0.32, Moderate Positive, 9 sessions into a Healthy phase since October 16, 2026. Three reader modes:

For a structural Lean Hogs tilt

Use this reading as context, not as sizing. The direction (is weekly kill accelerating or decelerating against year-ago?) adds a modest layer of confirmation or friction to your structural tilt. Positive readings (kill below year-ago) softly confirm a bullish-LH

structural setup; negative readings softly contradict. The friction or confirmation is not quantified in a sized way — it is a sanity check against the structural signals that DO carry sized edges.

For a trader positioning around the weekly release

The Friday 3:00 PM Eastern NASS release is not a market-moving event in itself. Most of the information is already in daily packer margin and cutout prints that come throughout the week. The weekly summary is the authoritative paper-trail version of the daily reads. A trader positioning around the release should watch for prints that materially deviate from year-ago (greater than three percent in either direction) as a prompt to re-examine the structural supply framework — not as an entry trigger.

For a composite builder

Do NOT include this as a sized input in a Lean Hogs composite. Grade D validation means the backtested forecast is empirically zero. Including it as a sized input would add noise to the composite without adding real edge. Use the structural supply stack (Breeding Herd Lead, Hog-Corn Ratio, Pork Cold Storage Inversion, event-driven Hogs and Pigs quarterly surprise) for sizing. Use this signal as a sanity-check context layer when the structural composite is in an extreme state and you want a weekly diagnostic to confirm the setup is unfolding as expected.

METHODOLOGY NOTES

The signal starts from USDA NASS Weekly Livestock Slaughter, federally inspected, hogs (all classes), weekly totals. USDA releases Fridays at 3:00 PM Eastern for the prior week, with a typical three-to-five business day lag from the slaughter week.

Transformation step one: forward-fill the weekly series onto a daily index, shifted back five days to respect the publication lag (no look-ahead).

Transformation step two: compute the 365-day percent change (same calendar day one year earlier), producing the weekly year-over-year ratio.

Transformation step three: z-score the daily-filled YoY ratio over a trailing 756-session rolling window with a 252-session minimum (approximately three years of trailing history).

Transformation step four: invert the sign so that a slaughter surge above year-ago reads negative for Lean Hogs forward.

Transformation step five: bound the output in a minus-one to plus-one range with the hyperbolic tangent function.

The state machine applies thresholds at plus-or-minus 0.2 for moderate and plus-or-minus 0.5 for extreme. A 756-session warmup is required before any signal is emitted. Corn-belt PDSI drought amplifier and 2019 ASF / 2020 COVID / 2022 PEDv Gaussian dummies are carried as reduced-form controls but do not materially affect the composite.

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WHERE THIS SIGNAL FITS IN THE BROADER LEAN HOGS TOOLKIT

The signal composites with four other Lean Hogs lenses in a five-lens framework. The Breeding Herd Lead reads the USDA Hogs and Pigs quarterly breeding-herd component as a continuous sign-flipped year-over-year z-score. The Hogs and Pigs Breeding Surprise fires on each quarterly release day with ten-day exponential decay. The Hog-Corn Ratio reads producer margin and leads the biological supply response. The Pork Cold Storage Inversion reads monthly finished-product pipeline inventory. The CFTC Lean Hogs Positioning signal reads managed-money net positioning as a contrarian weekly overlay.

This signal is the weekly real-time supply diagnostic underneath the structural reads. Reader value is in the context layer, not the sizing layer.

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WHAT THIS SIGNAL DOES NOT COVER

Four honest limits.

The signal does not forecast forward Lean Hogs returns at a sized level. Grade D means the empirical linear forecast is zero. Do not size off this signal.

The signal does not read same-day cutout or packer margin. Those are daily series with their own signals; this is the weekly summary.

The signal does not catch calendar artifacts cleanly. Holiday weeks and plant-maintenance windows shift the kill cadence; the signal reads those shifts as part of the YoY ratio noise.

The signal does not substitute for the breeding-herd data. The weekly kill is the realization of breeding-herd decisions six to nine months earlier; this signal reads the realization, not the decision.

DISCLAIMER

Not investment advice. Hypothetical results have inherent limitations. Historical returns do not predict future performance. Readers should consult a licensed investment professional before making any trading decision, and should read the full disclaimer within the signal page and this research brief.

DATA SOURCE

USDA National Agricultural Statistics Service, Weekly Livestock Slaughter report, federally inspected hogs (all classes). CME Lean Hogs continuous back-adjusted price series for forward-return calibration.