The BLS Ground Beef Retail Signal, Read as the Consumer-Side Demand Pass-Through on Live Cattle

Why BLS 100-percent ground beef retail CPI year-over-year, z-scored on two years, catches consumer-side demand pass-through to CME Live Cattle forward returns – and why this is an overlay, not a standalone driver.

David Stendahl · Market Lab Analytics · October 31, 2026

What this signal is, with the limits stated upfront

Ground beef is where the cattle value chain terminates at the consumer. Cattle feedlots sell finished animals to packers. Packers process to boxed beef and sell to retailers. Retailers mark up and stock the grocery shelf. Consumers buy by the pound. Ground beef is roughly 60 percent of US beef volume at retail; the Bureau of Labor Statistics tracks 100-percent (non-blended) ground beef retail prices in a monthly CPI series.

This signal pulls the BLS retail ground beef series (BLS_RETAIL_MEAT_AVERAGE_PRICE_MONTHLY, series_name LIKE “%Ground beef%”), averages across sub-series by observation date, forward-fills to daily cadence, computes year-over-year percent change over 252 trading days, z-scores on a 504-day (approximately two-year) rolling window with a 126-day minimum sample, and bounds with tanh. State thresholds at plus or minus 0.2 (moderate) and plus or minus 0.5 (extreme). Monthly release cadence – intra-month retail moves read one month late.

Here is the honest finding. Daily Spearman IC against LC fwd60d is plus 0.0764 at p-value 3.98e-13 across 8,989 trading days – significant on daily data. Non-overlapping (every-60-day) IC is plus 0.0635 at p-value 0.44 – NOT significant on 150 independent samples. The per-day vs run-entry regime stats comparison diverges on sign at the Firm Retail tail: per-day phase +1 delivers +1.81 percent mean fwd60d (+0.79 pp above baseline, hit 60.9 percent), while run-entry phase +1 delivers minus 0.38 percent (opposite sign). The Soft Retail tail (phase –1) direction is consistent between methods.

This is a Grade B- demand-side OVERLAY, not a standalone directional driver. The signal reads consumer-side absorption of the cattle value chain and confirms or contradicts the supply-side primaries. Pair with the LC-corn ratio feedlot-margin signal and the commercial positioning signal for

direction. The 2016 October paradox case documents the override risk – soft retail at that time, LC rallied 27 percent as supply tightening dominated.

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How the inputs compose

The BLS 100-percent ground beef retail price is the standardized monthly CPI series that reflects the full cattle value-chain pass-through. The series includes packer wholesale (boxed beef cutout output) plus retailer markup plus regional distribution and transportation costs. Monthly updates publish approximately mid-month for the prior month's observation.

The engine averages across sub-series (regional, grade variants) by observation date, forward-fills the monthly cadence to daily rows aligned with CME trading days, then computes year-over-year percent change over 252 trading days. The year-over-year differencing isolates cyclical consumer-demand moves from trend inflation.

The YoY series is then z-scored on a 504-day (approximately two-year) rolling window with a 126-day minimum sample, bounded with tanh to the range minus 1 to plus 1. The two-year window is short enough to capture consumer-demand cycle shifts (retail prices normally shift on 6-12 month lags) but long enough to smooth seasonal noise.

The regime state machine maps composite to five bands at the plus-or-minus 0.5 and plus-or-minus 0.2 thresholds. Phase plus 1 (Firm Retail) fires when composite exceeds plus 0.3, phase minus 1 (Soft Retail) when composite is below minus 0.3; the middle is phase 0.

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What the state-conditional returns have actually done

> **Reference baseline – LC fwd60d (unconditional)**
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> CME Live Cattle back-adjusted continuous (LC20040BD) forward-60-day return baseline (unconditional): mean plus 1.02 percent, median plus 1.74 percent, standard deviation 8.01 percent, percent negative 41.8 percent. Sample window 1990-11-29 through 2026-10-30, 8,989 trading days with observable fwd60d.

Phase plus 1 (Firm Retail, composite greater than plus 0.3) covers 3,997 trading days – 44.5 percent of the sample. Per-day mean fwd60d is plus 1.81 percent, hit rate 60.9 percent. Edge above baseline: plus 0.79 pp. Note: run-entry sampling (one observation per state run, n = 47 runs) delivers minus 0.38 percent – opposite sign from per-day. For signals with persistent runs, run-entry can catch inflection-entries that systematically differ from the typical-day stat. The brief uses per-day stats in body prose; the live regime_table may show run-entry stats via the nightly refresher.

Phase 0 (Normal, composite between plus and minus 0.3) covers 1,481 trading days – 16.5 percent of the sample. Mean fwd60d is minus 0.57 percent, hit rate 51.9 percent. Edge below baseline: minus 1.59 pp. The middle band is noisier than the tails.

Phase minus 1 (Soft Retail, composite less than minus 0.3) covers 3,511 trading days – 39.1 percent of the sample. Per-day mean fwd60d is plus 0.80 percent, hit rate 56.7 percent. Edge below baseline:

minus 0.22 pp. Run-entry sampling at phase –1 delivers plus 0.97 percent – direction consistent with per-day. Both methods confirm Soft Retail is modestly bearish relative to baseline.

The two tails are asymmetric in their sampling-methodology robustness: Soft Retail is more reliable (both methods agree on direction, magnitudes close), Firm Retail has methodological disagreement that readers should treat as a caveat.

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Three cases that frame how to read this signal

Case 1: July 2003. Post-BSE firm-retail recovery, biggest in-sample win.

Firing date: July 22, 2003 at composite plus 0.98 (saturated-positive). Forward 60-day LC return from entry: plus 38.71 percent (from 74.20 to 102.95 cents per pound).

Context: through 2003 the US cattle industry was recovering from the December 2003 BSE case that temporarily disrupted exports and consumer confidence. Ground beef retail firmed through the summer-fall as consumer demand returned. The signal pinned saturated-positive, catching the demand-side absorption. Over the next 60 trading days LC rallied 39 percent as the demand-side firm-retail confirmation lifted the cash cattle market. 2003 Q3 is the archetype of the Firm Retail pattern and the single largest in-sample reward.

Case 2: February 1995. Pre-cycle-trough soft-retail confirmation.

Firing date: February 13, 1995 at composite minus 0.78. Forward 60-day LC return from entry: minus 21.67 percent (from 75.45 to 59.10).

Context: through 1994 the US cattle market was heading into a cyclical trough as supply expanded faster than demand. BLS ground beef retail softened through late 1994 as consumer-side demand weakened and the retail pass-through contracted. The signal fired saturated-negative. Over the next 60 trading days LC fell 22 percent to 59.10 as the retail weakness confirmed the cycle downturn. The 1995 Q1 case anchors the Soft Retail tail – when retail demand softens going into a trough, LC confirms down.

Case 3: October 2016. Paradox case – soft retail, LC rallies anyway.

Firing date: October 13, 2016 at composite minus 0.77. Forward 60-day LC return from entry: plus 26.55 percent (from 94.45 to 119.52).

Context: through 2016 BLS ground beef retail had deflated. The signal fired saturated-negative Soft Retail. However, cattle-on-feed data showed tightening forward supply and Q4 export-pull on US beef accelerated as global protein markets rebalanced. Over the next 60 trading days LC rallied 27 percent – the supply-side tightening and export-pull overrode the demand-side weakness. The 2016 October window is the critical paradox case: it documents why this signal is a demand-side OVERLAY, not a standalone directional driver. When supply fundamentals dominate, retail-side signal can be wrong on direction entirely.

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How to use the signal today

As of October 30, 2026, the composite reads minus 0.851 – Soft Retail extreme-negative, 85 trading days running. BLS 100-percent ground beef retail YoY has run well below the two-year baseline through Q3-Q4 2026 as consumer-side demand softens the pass-through through the cattle value chain. CME Live Cattle has traded in the $220-230 range through this firing – forward curve has NOT yet reflected the consumer-side weakness, suggesting the pass-through headwind is still working through the chain or is being offset by supply-side tightening.

The current state is modestly bearish per the historical pattern. Phase –1 historically delivers plus 0.80 percent fwd60d per-day (minus 0.22 pp vs the plus 1.02 percent baseline), hit rate 56.7 percent. Run-entry stat plus 0.97 percent. Both methods agree in direction: modestly below baseline. This is NOT a 1995-magnitude call – that case had broad cycle-trough context; the current firing is more measured.

Pair with four confirming reads for direction:

- **LC-Corn Ratio Signal**. Feedlot producer-margin cycle driving cattle supply 6-12 months forward. The LC fundamental stack anchor. If LC-corn ratio is compressed (feedlot stress → placements slow → forward supply tightens), supply dynamics may override the demand-side headwind as in 2016.
- **LC CFTC Positioning Signal**. Commercial NET hedge regime read. If commercials are heavily hedged short (feeder over-hedge), there's hedge-unwind-rally potential that offsets soft-retail concern.
- **USDA Cattle-on-Feed monthly reports**. Placement and marketings data directly confirm or contradict the ratio signal's forward-supply trajectory. If on-feed shows tightening, supply override risk per 2016 paradox.
- **Processed-Foods PPI**. Broader food-inflation anchor. If PPI is firm while ground beef retail is soft, retailers may be absorbing margin compression at the beef counter – a transient demand-side signal.

For the current Soft Retail firing, the critical confirming inputs are the next Cattle-on-Feed release and the LC-corn ratio direction. If both confirm demand-side weakness (abundant supply, healthy feedlot margins), the signal is validated and modestly cautious direction is appropriate. If either contradicts (tight supply, compressed margins), the 2016 paradox risk is live.

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Methodology notes

Data source. BLS_RETAIL_MEAT_AVERAGE_PRICE_MONTHLY in fundamentals_data.db, series_name LIKE "%Ground beef%", averaged across sub-series by obs_date. Monthly cadence, forward-filled to daily rows. Target column: CME Live Cattle back-adjusted continuous (LC20040BD) for forward-return calculations.

Signal construction. YoY = 252-trading-day pct_change. Z-score on 504-day rolling window (approximately 2 years) with 126-day minimum sample. Tanh-bounded to [–1, +1]. State thresholds plus

or minus 0.2 (moderate) and plus or minus 0.5 (extreme). Phase +1 at composite above +0.3, phase −1 below −0.3.

Validation statistics. Daily Spearman IC against LC fwd60d is plus 0.0764 at p-value 3.98e-13 (n = 8,989 trading days). Phase +1 state-conditional per-day mean fwd60d plus 1.81 percent, hit 60.9 percent (+0.79 pp above the +1.02 percent baseline). Phase 0 mean fwd60d minus 0.57 percent, hit 51.9 percent. Phase −1 per-day mean fwd60d plus 0.80 percent, hit 56.7 percent (-0.22 pp below baseline). Baseline median +1.74 percent, standard deviation 8.01 percent, pct_neg 41.8 percent.

Independence test. Non-overlapping (every-60d) sampling yields Spearman IC plus 0.0635 at p-value 0.44 across 150 independent observations – NOT statistically significant. The daily significance is partly autocorrelation-inflated by multi-month state runs.

Sampling-methodology divergence. Phase +1 per-day sampling delivers plus 1.81 percent fwd60d; run-entry sampling (one obs per state run, n=47 runs) delivers minus 0.38 percent – opposite sign. For signals with persistent runs, run-entry catches state inflection-entries and can produce stats that differ from the typical-day result. Phase −1 does NOT suffer this disagreement. The brief uses per-day stats in body prose; the live regime_table on the signal page may show run-entry stats via the nightly refresher – the two can appear to contradict on the same page at the Firm Retail tail.

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What this signal does not cover

Three things the signal does NOT read, and one broader caveat.

First, the signal does NOT read supply-side dynamics. Feedlot margins, cattle-on-feed, export-pull, packer margins can and do override the demand-side read, as the 2016 October paradox documents (soft retail + LC +27 percent through supply tightening). Pair with LC-corn ratio and cattle-on-feed for the supply side.

Second, the signal does NOT read non-ground beef pass-through. Steaks, roasts, and other beef cuts have different retail pricing dynamics. Ground beef is the volume-weighted dominant category but it is not the whole beef retail picture. Premium-cut consumer substitution patterns can diverge from ground beef trends.

Third, the signal is subject to one-month release lag. Intra-month retail moves read one month late. Rapid consumer-side demand shifts (COVID shock, snap-election macro shifts, trade-policy tariff reactions) can get captured one month after the market has already priced them.

Broader caveat: the signal is Grade B- demand-side overlay. Daily IC is statistically significant; non-overlapping independence test is not. Per-day vs run-entry sampling disagrees on sign at the Firm Retail tail. Treat this as a confirming input to the supply-side primaries, not as a standalone directional driver. When supply and demand align, forward LC direction is strongest; when they contradict, supply usually wins per the 2016 October paradox.

This research brief is for informational purposes only and does not constitute investment advice. Past performance is not indicative of future results. Signal reads reflect historical state-conditional statistics; any decision to act on signal readings is

the reader's responsibility. Data sources: BLS_RETAIL_MEAT_AVERAGE_PRICE_MONTHLY (fundamentals_data.db); CME Live Cattle back-adjusted continuous (LC20040BD). State-conditional statistics computed through 2026-10-30.