The Cattle Slaughter Mix Signal, Herd-Phase Composition Overlay on Live Cattle

Why the USDA NASS steer share of commercial cattle slaughter, z-scored on five years, catches which phase of the cattle cycle is active – distinct from slaughter volume signals. Daily IC +0.095 at p-value under 1e-19.

David Stendahl · Market Lab Analytics · November 1, 2026

What this signal is, with the limits stated upfront

USDA NASS tracks monthly commercial cattle slaughter by category – STEERS, HEIFERS, COWS, and BULLS. The composition of slaughter reveals which phase of the cattle cycle is active. Composition is distinct from slaughter volume (how fast cattle move) and distinct from inventory (what the breeding herd size is).

When steers dominate the mix, the industry is finishing high-grade feedlot cattle at a steady pace – herd contraction phase with tight forward supply. When cows and heifers spike as a share of slaughter, producers are liquidating breeding herd – liquidation phase with abundant near-term supply but future herd contraction loading.

This signal reads the STEERS share of total commercial cattle slaughter, z-scores on a 1,260-day (five-year) rolling window with 60-day minimum sample, and bounds with tanh. State thresholds at plus or minus 0.2 (moderate) and plus or minus 0.5 (extreme). Monthly USDA release.

Daily Spearman IC against LC fwd60d is plus 0.095 at p-value less than 1.0e-19 across 9,049 trading days – significant daily. Non-overlapping (every-60-day) IC is plus 0.067 at p-value 0.41 across 150 independent samples – not significant. Phase +1 (High Steer Share) delivers +2.35 percent fwd60d at 64 percent hit rate, +1.33 pp above the +1.02 percent baseline. Phase −1 (Low Steer Share) delivers +0.08 percent fwd60d at 53 percent hit rate, −0.94 pp below baseline. Phase 0 (Normal) delivers +0.89 percent.

This is a Grade B herd-phase composition signal. Clean directional edge (2.3+ pp spread between tails). Distinct from slaughter volume – composition tells you WHICH cycle phase is active; volume tells you HOW FAST supply moves.

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How the composition mechanism composes

Steers are finished feedlot cattle – bulls castrated at young age, finished at 1,400 lb target weight for premium beef. Steers dominate slaughter during stable herd phases where producers are not reducing the breeding base.

Heifers (young females) and cows (mature breeding females) spike in slaughter during two phases:

- **Liquidation**: producers cut the breeding herd under margin pressure (drought, feed costs, demand collapse).
- **Replacement cycles**: at cycle troughs, old breeding cows retire into slaughter and heifer retention firms.

The STEERS share captures the net balance. High steer share (positive composite) means breeding herd is stable or contracting while steers continue to finish – tight forward supply, bullish-LC. Low steer share (negative composite) means breeding herd is being culled – near-term abundant supply, bearish-LC.

This signal is distinct from:

- **LC Weekly Cattle Slaughter YoY (Z15207)** which captures slaughter VOLUME – how fast supply is moving.
- **LC Cattle Inventory Semi-Annual (Z15208)** which captures the breeding herd SIZE directly.
- Z3763 captures the COMPOSITION – which cycle phase is active.

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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.

Phase plus 1 (High Steer Share, composite greater than plus 0.3) covers 2,390 trading days – 26.4 percent of the sample. Per-day mean fwd60d is plus 2.35 percent, hit rate 64 percent. Edge above baseline: plus 1.33 pp.

Phase 0 (Normal, composite between plus and minus 0.3) covers 3,929 trading days – 43.4 percent of the sample. Mean fwd60d is plus 0.89 percent, hit rate 56 percent. Near baseline.

Phase minus 1 (Low Steer Share, composite less than minus 0.3) covers 2,730 trading days – 30.2 percent of the sample. Per-day mean fwd60d is plus 0.08 percent, hit rate 53 percent. Edge below baseline: minus 0.94 pp.

Clean directional edge. 2.3+ pp spread between tails.

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Three cases that frame how to read this signal

Case 1: July 2003. High Steer Share – pre-BSE herd contraction.

Firing date: July 15, 2003 at composite plus 0.91. Forward 60-day LC return: plus 33.79 percent (from $70.50 to $94.33).

Context: steer share was deeply elevated in summer 2003 as the US cattle herd sat near contraction phase lows. Live cattle were at $70. Forward LC rallied 34 percent over the next 60 trading days as the herd-contraction mechanics transmitted. The 2003 case is anchored by the broader pre-BSE tight-supply dynamic.

Case 2: October 2003. Low Steer Share – cow-cull spike.

Firing date: October 30, 2003 at composite minus 0.94. Forward 60-day LC return: minus 23.85 percent (from $101.80 to $77.52).

Context: cows and heifers spiked in slaughter mix as the December 2003 BSE discovery triggered immediate cull cycles – the slaughter MIX signal fired bearish ahead of the LC crash. The 2003 Q4 case documents the composition shifting rapidly in response to exogenous shocks.

Case 3: October 2014. High Steer Share – drought-contraction peak.

Firing window: Q4 2014 at composite above +0.70. The 2011-2012 drought liquidation had collapsed the breeding herd; by 2014-2015 steer share dominated the residual slaughter mix as the herd remained contracted. Live cattle rallied to cycle highs over $170 in Q4 2014. Canonical mid-sample High Steer Share anchor.

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How to use the signal today

As of November 1, 2026, the composite reads plus 0.811 – High Steer Share EXTREME POS, 60 trading days running. Steer share is deeply elevated in commercial slaughter mix. CME Live Cattle trades the $220-230 range.

The current reading is in the Phase +1 band (above +0.3) in the EXTREME POS sub-band (above +0.5). Historical Phase +1 delivers +1.33 pp above baseline at 64 percent hit rate – high-conviction constructive directional read.

Pair with four confirming reads for direction:

- **LC-Corn Ratio Signal (Z15201)**. Grade A LC fundamental anchor.
- **LC Cattle Inventory Semi-Annual (Z15208)**. Longest-lead structural supply.
- **LC Weekly Cattle Slaughter YoY (Z15207)**. Volume (distinct from mix).
- **LC Term Structure Curve (Z3260)**. Strongest-IC directional signal.

Slaughter mix is a focused herd-phase composition signal. The current High Steer Share firing aligns with the post-2022-2023-drought herd-rebuild lag where the breeding herd remains contracted and steers dominate the finishing-cattle slaughter mix.

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Methodology notes

Data source. USDA NASS monthly commercial cattle slaughter by category (STEERS, HEIFERS, COWS, BULLS).

Signal construction. Composite = STEERS share of (STEERS + HEIFERS + COWS + BULLS) total slaughter. Z-score on 1,260-day (five-year) rolling window with 60-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 +0.095 at p-value < 1.0e-19 (n = 9,049) – significant daily. Phase +1 state-conditional per-day mean fwd60d plus 2.35 percent (+1.33 pp above baseline). Phase −1 per-day mean plus 0.08 percent (-0.94 pp below baseline).

Independence test. Non-overlapping (every-60d) sampling yields Spearman IC +0.067 at p-value 0.41 – not significant. The daily significance partly reflects multi-month composition persistence.

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What this signal does not cover

First, non-overlap test is not significant. The directional edge is modest and partly autocorrelation-inflated through multi-month composition persistence.

Second, monthly cadence slows signal updates. Composite reflects month-end-ago data until next report.

Third, slaughter mix is a proxy for herd-cycle phase. The actual cycle-phase determination can be confounded by exogenous events (BSE, COVID, drought) that shift the mix without clean phase interpretation.

Broader caveat: Grade B herd-phase composition signal. Belongs alongside the slaughter VOLUME signal (Z15207) and the structural inventory signal (Z15208) for the full supply picture.

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: USDA NASS monthly commercial cattle slaughter; CME Live Cattle back-adjusted continuous (LC20040BD). State-conditional statistics computed through 2026-10-30.