The US Herd Inventory Signal, Strongest-IC Structural Anchor in the LC/FC Library

Why USDA NASS semiannual total cattle and calves inventory year-over-year is the single strongest-IC signal across the entire LC/FC library – daily IC +0.297 AND non-overlap +0.275 at p-under-0.001 both independently significant.

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What this signal is, with the limits stated upfront

USDA NASS publishes the Cattle Inventory report twice per year – January 31 and July 24 – covering the TOTAL US cattle and calves count across every category: beef cows, dairy cows, bulls, heifers, steers, and calves. This TOTAL herd count is distinct from the breeding-herd subset (beef cows only) that drives the LC cycle – the TOTAL captures the full pipeline including young cattle that will become feeders over the next 12 to 18 months.

This signal is the strongest-IC signal in the entire LC/FC library. Daily Spearman IC against FC fwd60d is plus 0.297 at p-value less than 1e-182 across 9,049 trading days – the highest IC I have found across any signal in the LC or FC market stacks. Non-overlapping (every-60-day) IC is plus 0.275 at p-value less than 0.001 across 150 independent samples – INDEPENDENTLY SIGNIFICANT.

Phase +1 (Large Herd Regime) delivers +4.12 percent fwd60d at 69 percent hit rate, +2.92 pp above the +1.20 percent baseline. Phase –1 (Small Herd Regime) delivers –1.69 percent fwd60d at 40 percent hit rate, –2.89 pp below baseline. Phase 0 (Normal) delivers –0.07 percent (below baseline). 5.8+ pp directional spread between tails.

This signal reads NASS semiannual total cattle inventory YoY, z-scores on a 504-day rolling window, and bounds with tanh. State thresholds at plus or minus 0.2 (moderate) and plus or minus 0.5 (extreme). Semiannual USDA release cadence.

Current reading: Normal regime at composite +0.097 – total inventory is tracking the 2-year baseline. The signal is DORMANT. Watch for transition to Phase +1 (strongly bullish FC forward) or Phase –1 (strongly bearish FC forward) for an actionable high-conviction read.

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How the structural mechanism composes

The TOTAL cattle inventory captures the full pipeline. Beef cow herd (Z15208) tells you about breeding capacity. Steer and heifer counts tell you about near-term feedlot throughput. Calf counts tell you about the next 12-18 months of feeder supply. The TOTAL integrates all of these into a single structural signal.

Large Herd Regime (positive composite) means US total cattle+calves is running materially above year-ago. The pipeline is full. Feeder supply is ample. This regime historically coincides with cycle EXPANSION phases where:

- Cash cattle trade firm as processors have sufficient slaughter supply
- Feeder cattle feel steady demand from feedlots
- The broader protein complex supports firm pricing

Historical pattern: Phase +1 delivers +4.12 percent fwd60d (+2.92 pp above baseline).

Small Herd Regime (negative composite) means total inventory is below year-ago. The pipeline is tight. This should be bullish for FC on scarcity logic, but historically Phase −1 delivers BEARISH forward returns – the small-herd regime typically coincides with contraction phases where:

- Herd liquidation is already underway (drought, feed cost shocks)
- Demand destruction is dominant (recessions, exogenous shocks)
- Scarcity does NOT translate to firmness because the demand destruction is faster than the supply contraction

Historical pattern: Phase −1 delivers −1.69 percent fwd60d (-2.89 pp below baseline).

Normal Regime (Phase 0) is the equilibrium zone where inventory tracks baseline. No clear cycle-phase signal. Historical pattern: slightly below baseline (-1.27 pp).

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What the state-conditional returns have actually done

> **Reference baseline – FC fwd60d (unconditional)**
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> CME Feeder Cattle back-adjusted continuous (FC_110ARD) forward-60-day return baseline (unconditional): mean plus 1.20 percent, median plus 1.60 percent, standard deviation 7.8 percent, percent negative 42 percent. Sample window 1990-11-29 through 2026-10-30, 9,049 trading days with observable fwd60d.

Phase plus 1 (Large Herd Regime, composite greater than plus 0.3) covers 3,512 trading days – 38.8 percent of the sample. Per-day mean fwd60d is plus 4.12 percent, hit rate 69 percent. Edge above baseline: plus 2.92 pp.

Phase 0 (Normal, composite between plus and minus 0.3) covers 3,516 trading days – 38.9 percent of the sample. Mean fwd60d is minus 0.07 percent, hit rate 49 percent. UNDERPERFORMS baseline by 1.27 pp.

Phase minus 1 (Small Herd Regime, composite less than minus 0.3) covers 2,021 trading days – 22.3 percent of the sample. Per-day mean fwd60d is minus 1.69 percent, hit rate 40 percent. UNDER-PERFORMS baseline by 2.89 pp.

Clean asymmetric directional pattern: Phase +1 strongly bullish, Phase −1 strongly bearish, Phase 0 modestly below baseline. 5.8 pp spread between the two tails. The signal fires meaningfully in 61 percent of sample combined.

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Three cases that frame how to read this signal

Case 1: March 2004. Large Herd Regime – 2004 post-BSE recovery.

Firing date: March 29, 2004 at composite plus 0.85. Forward 60-day FC return: plus 27.78 percent (from $89.00 to $113.72).

Context: US total cattle inventory had rebuilt materially through 2003-2004 following the pre-BSE expansion phase. December 2003 BSE discovery had briefly disrupted exports but the structural herd expansion continued. Feeder cattle were at $89. Forward FC rallied 28 percent as the full-pipeline supply met strong cash demand. Canonical Large Herd anchor.

Case 2: March 2023. Large Herd Regime – post-drought rebuild.

Firing date: March 17, 2023 at composite plus 0.88. Forward 60-day FC return: plus 27.32 percent (from $188.85 to $240.44).

Context: US total cattle inventory was running above year-ago as the post-2022-drought rebuild began. Feeder cattle were at $189. Forward FC rallied 27 percent through Q2 2023 as the rebuild window coincided with firm cash cattle demand and the start of a multi-year FC bull market. Modern-era Large Herd anchor.

Case 3: January 2020. Small Herd Regime – pre-COVID contraction.

Firing date: January 8, 2020 at composite minus 0.89. Forward 60-day FC return: minus 26.27 percent (from $146.83 to $108.26).

Context: US total cattle inventory was running materially below year-ago. Feeder cattle were at $147. Forward FC fell 26 percent as COVID compounded the small-herd contraction. The 2020 case is confounded by COVID but documents the Small Herd signal firing bearish BEFORE the exogenous shock – the structural cycle context aligned with the exogenous shock.

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How to use the signal today

As of November 1, 2026, the composite reads plus 0.097 – Normal regime, 30 trading days running. NASS semiannual total cattle+calves inventory is tracking the 2-year baseline closely. CME Feeder Cattle trades the $330-340 range.

The signal is DORMANT in the Normal band. Normal regime delivers −1.27 pp below baseline historically. Watch for transition to Phase +1 (Large Herd, strongly bullish, +2.92 pp above baseline) or Phase −1 (Small Herd, strongly bearish, −2.89 pp below baseline) for an actionable high-conviction read.

Pair with four confirming reads for direction:

- **FC Term Structure Curve (Z3302)**. Market consensus on forward FC supply.

- **FC LC/FC Ratio (Z6634)**. Feeder vs finished cattle relative pricing.
- **LC-Corn Ratio Signal (Z15201)**. Grade A LC fundamental anchor (feedlot margin).
- **LC Cattle Inventory Semi-Annual (Z15208)**. Beef cow breeding-herd subset.

US total herd is the longest-lead FC structural supply anchor. When this signal, LC inventory, and the term structure all align, direction is high-conviction. In the current Normal regime, direction is unclear.

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Methodology notes

Data source. USDA NASS semiannual Cattle Inventory report (January 31 and July 24 release dates), US TOTAL ALL CATTLE AND CALVES series.

Signal construction. Composite = total cattle+calves YoY percent change. Z-score on 504-day (two-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 above +0.3, phase −1 below −0.3. Target: CME Feeder Cattle back-adjusted continuous (FC_110ARD).

Validation statistics. Daily Spearman IC against FC fwd60d is +0.297 at p-value < 1e-182 (n = 9,049) – STRONGEST in the LC/FC library. Phase +1 state-conditional per-day mean fwd60d plus 4.12 percent (+2.92 pp above +1.20 percent baseline). Phase 0 mean minus 0.07 percent (-1.27 pp below baseline). Phase −1 per-day mean minus 1.69 percent (-2.89 pp below baseline). 5.8 pp directional spread.

Independence test. Non-overlapping (every-60d) sampling yields Spearman IC +0.275 at p-value < 0.001 across 150 independent observations – INDEPENDENTLY SIGNIFICANT. Among the few LC/FC signals that clear the non-overlap independence test with margin to spare.

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What this signal does not cover

First, semiannual cadence means slow signal updates. Composite can be stale between January and July reports as the structural signal updates only twice per year.

Second, Normal regime (39 percent of sample) is dormant – the signal only fires actionable reads at Phase +1 or Phase −1. The current reading is in the dormant zone.

Third, the 12-18 month biological lead means forward 60-day return is partly noise relative to the signal time horizon. Use for cycle-phase direction, not tactical trigger.

Broader caveat: Grade A structural supply anchor and the strongest-IC signal in the LC/FC library. The signal provides high-conviction cycle-phase reads when it transitions out of the Normal band. Pair with LC fundamentals and FC term structure for stacked confirmation.

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 semiannual Cattle Inventory (US total all cattle and calves); CME Feeder Cattle back-adjusted continuous (FC_110ARD). State-conditional statistics computed through 2026-10-30.