The FC WOAH Screwworm Event Signal, Grade B Crisis-Receding Policy Detector

Why the WOAH New World screwworm hemispheric event-count crisis-receding detector is a Grade B directional signal with marginal independent-sample significance on CME Feeder Cattle forward returns.

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The signal and why it matters today

The World Organisation for Animal Health (WOAH) WAHIS surveillance system tracks New World screwworm (Cochliomyia hominivorax) outbreaks across the Western Hemisphere. Screwworm detection in Mexico or Central America triggers USDA APHIS border closures on live cattle imports from affected zones.

When outbreak reports collapse off their recent peak, APHIS begins the border-reopen sequence, Mexican supply returns, and feedlot competition for domestic feeders drops. The released feeder-supply demand pulse hits CME Feeder Cattle 60 days forward.

This signal reads 60-day rolling outbreak counts across Mexico plus Central America plus US WOAH reports. The event fires when the 60-day sum has dropped at least 50 percent off its trailing 252-day peak – the inflection moment where the trade-restriction policy relaxes. A 40-day exponential decay carries the event forward until the next peak.

The honest grade: Daily Spearman IC against FC fwd60d is plus 0.145 at p-value below 1e-21 across 4,314 trading days – strongly significant daily. Non-overlapping (every-60-day) IC is plus 0.158 at p-value 0.184 across 72 independent samples – MARGINAL (fails the standard 0.05 significance bar). The non-overlap sample is sample-constrained – the live window (2009+) provides only 72 non-overlap observations.

Phase +1 (Crisis Receding firing) historically delivers plus 3.17 percent fwd60d (plus 1.13 pp above baseline, hit 63 percent). The signal is highly event-driven – Phase +1 covers only 24 percent of sample.

Current reading: Crisis Receding extreme-positive at composite plus 0.762, 36 trading days running. The hemispheric outbreak count has dropped meaningfully off recent peak.

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How the screwworm-policy mechanism composes

New World screwworm (Cochliomyia hominivorax) is a parasitic fly larva that infests warm-blooded animals. The US was declared screwworm-free in 1966 via the sterile insect technique, but outbreaks persist in Central America and periodically reach Mexico. When WOAH surveillance detects outbreaks approaching the US border, USDA APHIS imposes immediate live-cattle import restrictions from affected zones.

Crisis Receding (positive composite, Phase +1) means the 60-day rolling outbreak count has dropped at least 50 percent off its trailing 252-day peak. This is the inflection moment when the policy response begins to relax. The mechanism:

- APHIS begins the border-reopen sequence for cleared zones
- Mexican feeder cattle imports resume (approximately 10-15 percent of annual US feeder supply)
- Feedlot competition for domestic feeders drops as the supply pulse hits
- Historical pattern: Phase +1 delivers plus 1.13 pp above baseline, 63 percent hit rate

Normal regime (Phase 0) means no crisis-receding event is firing. The 60-day outbreak count is either at or near its recent peak, or there is no active outbreak. The signal is DORMANT in this band 76 percent of the time.

Phase –1 (Not Fired) does not fire in the sample – the engine only emits positive-direction events.

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What the state-conditional returns have actually done

> **Reference baseline – FC fwd60d (unconditional)**
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> CME Feeder Cattle forward-60-day return baseline over the live-signal window: mean plus 2.04 percent, median plus 2.40 percent, standard deviation 7.6 percent, percent negative 40 percent. Sample window 2009-04-15 through 2026-10-30, 4,314 trading days with observable fwd60d.

Per-day sampling (used for daily Spearman IC):

Phase plus 1 (Crisis Receding, composite greater than plus 0.3) covers 1,027 trading days – 23.8 percent of the sample. Per-day mean fwd60d is plus 3.17 percent, hit rate 63 percent. OUTPERFORMS baseline by plus 1.13 pp.

Phase 0 (Normal) covers 3,287 trading days – 76.2 percent of the sample. Per-day mean fwd60d is plus 1.69 percent, hit rate 58 percent. Below baseline (minus 0.35 pp).

Asymmetric event-driven pattern: Phase +1 bullish, Phase 0 near-neutral. Signal is DORMANT 76 percent of the time; actionable at Phase +1 crisis-receding events.

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Three cases that frame how to read this signal

Case 1: Q4 2016. Florida outbreak reopen.

Context: The 2016-2017 Florida Key deer screwworm outbreak was contained by Q3 2017. APHIS reopened affected zones. Though US-domestic rather than Mexico-import related, the WOAH surveil-

lance system captured the receding leg and the mechanism (supply constraint lifting) was analogous. Non-crisis Crisis Receding anchor.

Case 2: Q1 2025. First Mexico border reopen.

Firing date: February 15, 2025 at composite near plus 0.80. Context: The November 2024 Mexico outbreak receded through winter 2024-2025 and APHIS executed the first border-reopen sequence in February 2025. Mexican feeder supply began returning. Feeder cattle at approximately 250 dollars. Forward FC rallied modestly as the supply-pulse mechanism played through.

Case 3: Q4 2026. Current crisis-receding firing.

Context: Hemispheric WOAH outbreak counts have dropped at least 50 percent off their recent 252-day peak. The current firing began September 11, 2026 and is 36 trading days running. CME Feeder Cattle trades in the 330 to 340 dollar range. Watch for continued trade-policy relaxation as the mechanism confirmation.

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How to use the signal today

As of November 1, 2026, the composite reads plus 0.762 – Crisis Receding extreme-positive firing, 36 trading days running. The hemispheric outbreak count has dropped at least 50 percent off recent 252-day peak. CME Feeder Cattle trades the 330 to 340 dollar range.

Historical Phase +1 per-day delivers plus 1.13 pp above baseline (63 percent hit rate). Bullish-FC lean. But non-overlap significance is MARGINAL (p=0.184) – treat as supportive-but-not-standalone evidence.

Pair with four confirming reads for direction:

- **FC US Herd Inventory Signal**. Strongest-IC structural supply anchor.
- **FC Light Placement Pace Signal**. Grade A placement flow.
- **FC TX Panhandle Polar Vortex Event Signal**. Weather event-detector cousin.
- **FC Cattle Crush Margin Signal**. Full three-leg crush margin.

The screwworm event-detector is a POLICY-TRIGGERED signal distinct from structural, weather, and margin signals. When crisis-receding fires alongside tight structural supply or quiet placements, bullish-FC conviction is highest.

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Methodology notes

Data source. WOAH WAHIS (World Animal Health Information System) surveillance reports for New World screwworm (Cochliomyia hominivorax), filtered to Western Hemisphere countries (Mexico, United States, Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica, Panama).

Signal construction. Composite = 60-day rolling outbreak count. Measure receding fraction off trailing 252-day peak: (peak_lookback minus roll60) / peak_lookback. Fire an event when the receding fraction exceeds 0.5 and the peak was non-zero (meaning there was a crisis to recede from). Apply 40-day exponential decay to carry the event forward. State thresholds plus or minus 0.2 (moderate) and

plus or minus 0.5 (extreme). Phase +1 at composite above +0.3; phase −1 does not fire. Target: CME Feeder Cattle first-nearby close (FC_0_L1ND).

Validation statistics. Daily Spearman IC against FC fwd60d is plus 0.145 at p-value below 1e-21 across 4,314 observations – strongly significant daily. Phase +1 per-day mean fwd60d plus 3.17 percent (plus 1.13 pp above plus 2.04 percent baseline, hit 63 percent). Phase 0 (Normal) mean plus 1.69 percent (near baseline).

Independence test. Non-overlapping (every-60d) sampling yields Spearman IC plus 0.158 at p-value 0.184 across 72 independent observations – MARGINAL. The standard significance threshold is 0.05; this signal falls well above it. The non-overlap failure is SAMPLE-CONSTRAINED: the live window (2009+) provides only 72 non-overlap observations.

Why Grade B. Signals in this library are graded on dual significance: daily IC must be strong (p less than 1e-10) AND non-overlap IC must be independently significant (p less than 0.05). Z3735 passes daily IC strongly (p less than 1e-21) but fails the non-overlap threshold (p equals 0.184). Grade B signals pass daily but fail non-overlap and are published with explicit disclosure.

Reformulation note. The prior continuous-z-score frame failed non-overlap more severely (p=0.427) because 60-day sum rolling-z inflated daily IC via autocorrelation. The reformulation to crisis-receding event-detector pattern matches the polar vortex event detector shape.

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What this signal does not cover

First, MARGINAL non-overlap significance (p=0.184) means the signal is Grade B, not Grade A/B+. Treat as supportive-but-not-standalone evidence.

Second, non-overlap sample is CONSTRAINED (72 observations in the 2009+ live window). The test lacks statistical power to strongly confirm 60-day forward independence. Longer history would strengthen or weaken the signal depending on additional outbreak events.

Third, event-driven asymmetry means the signal is dormant 76 percent of the time. Actionable reads come only during crisis-receding events – 24 percent of trading days.

Fourth, WOAH reporting completeness and timeliness varies by country. Smaller Central American nations may underreport, delaying the receding-fraction trigger.

Broader caveat: Grade B directional crisis-receding event signal with marginal independent-sample significance. The signal provides a tactical lean on FC positioning when Phase +1 fires. Pair with structural supply, placement pace, weather, and margin signals 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: WOAH WAHIS surveillance system for New World screwworm (Cochliomyia hominivorax) in Western Hemisphere countries; CME Feeder Cattle first-nearby close target. State-conditional statistics computed through 2026-10-30.