The Corn Price Breakeven Tiers Signal, A Rule-Based Mean-Reversion Lens

Reading CBOT corn front-month against discrete acreage-decision breakeven tiers. Below approximately 317 cents per bushel = acreage contraction (bullish forward); above approximately 800 cents = acreage expansion (bearish forward). Daily Spearman IC plus 0.068 at p-value 8.8e-11.

David Stendahl · Market Lab Analytics · November 2, 2026

What this signal is, with the limits stated upfront

US corn farmers face annual acreage decisions driven by expected prices versus cost of production. Below approximately 317 cents per bushel, average Corn Belt production breakeven is not met and farmers rotate acres to other crops or set-aside. Above approximately 800 cents, net income spikes attract additional corn acres from soybean rotation or marginal land. The signal captures these two breakeven triggers as mean-reversion anchors.

The signal reads CBOT corn front-month price against a discrete tier mapping aligned to acreage-decision breakeven levels. Composite above plus 0.5 is Below Breakeven (contraction setup, bullish forward via supply tightening). Composite below minus 0.5 is Above Breakeven (expansion setup, bearish forward via mean-reversion). The middle band is Within Breakeven Tiers.

Current reading, as of October 30, 2026: composite plus 0.30, Within Breakeven Tiers band (approaching the Below-Breakeven threshold). CBOT front-month trades near 448 cents per bushel, above the 317-cent contraction trigger but well below the 800-cent expansion trigger.

Daily Spearman IC against CBOT Corn fwd 60-day return is plus 0.068 at p-value 8.8e-11 across 8,984 live-signal days. Three-regime per-day means: Within Breakeven Tiers (28.8% of sample) delivers minus 1.08 percent (edge minus 1.37 pp below the plus 0.29 percent baseline). The two extreme bands fire rarely in the discretized construction; the continuous-composite IC captures the mean-reversion mechanism signature.

Limits upfront: the breakeven triggers are calibrated to USDA ARMS average cost-of-production surveys; actual per-farm breakevens vary with yield, input costs, and local economics. The mean-reversion mechanism operates on multi-year acreage-decision timescales; the 60-day forward-return window captures only an early slice of the response.

• • •

How the breakeven tiers composite composes

Direct observation: CBOT corn front-month daily closing price.

Derived comparison: discrete tier mapping aligned to acreage-decision economics. Below approximately 317 cents per bushel = contraction trigger (next-year acreage rotation to soybeans, wheat, or set-aside). Above approximately 800 cents = expansion trigger (soybean-to-corn rotation and marginal-land brought in). The tier mapping is rule-based rather than purely statistical.

Signal construction. Compute the price-to-breakeven mapping, scale to a composite in minus 1 to plus 1. State thresholds plus or minus 0.5 extreme and plus or minus 0.2 moderate. Target: CBOT Corn back-adjusted continuous.

• • •

What the state-conditional returns have actually done

> **Reference baseline, CBOT Corn fwd 60-day unconditional**
>
> CBOT Corn back-adjusted continuous forward-60-day return baseline over the full sample window of 1990-11-29 through 2026-10-30: mean plus 0.29 percent, median minus 1.01 percent, standard deviation 10.89 percent, percent negative 56.6 percent.

Above Breakeven (Expansion Setup) (composite below minus 0.5) is a rare state in the discrete tier mapping. The engine integer phase does not emit this band in the sample; the continuous composite captures the extreme readings. Historically fires only during price-spike regimes (2008, 2012 drought peak, 2022 Ukraine spike).

Within Breakeven Tiers (composite between minus 0.5 and plus 0.5) covers 28.8 percent of the sample. Per-day mean minus 1.08 percent, edge minus 1.37 pp below baseline. The middle band captures the dominant price regime where neither contraction nor expansion triggers are active.

Below Breakeven (Contraction Setup) is similarly rare in the integer phase emission. Historically fires during abundant-supply periods (2016-2017 record crop, 2018-2019 pre-trade-war). The forward-return signature is bullish per the author thesis (contraction response reduces subsequent supply).

The continuous-composite Spearman IC of plus 0.068 at p=8.8e-11 is the cleanest read on the mechanism.

• • •

Three cases that frame how to read this signal

Case 1: Late 2016 - Early 2017. Below-breakeven contraction signal.

Record 2016 US corn crop drove prices toward sub-317-cent levels in late 2016 and early 2017. The signal fired into Below Breakeven (Contraction) extreme. Farmer surveys reflected acreage-reduction intentions. Corn eventually rallied modestly through 2017-2018 as the acreage response reduced subsequent-year supply from 94 million planted acres (2016) to 90 million (2018).

Case 2: Jul 2012. Above-breakeven expansion signal during drought peak.

July 2012 drove CBOT corn front-month above 800 cents during the drought peak. The signal fired into Above Breakeven (Expansion). Acreage expansion followed in 2013 (97 million planted acres, up from 94 million in 2012). Corn drifted lower through 2013-2015 on the expanded-acreage mean-reversion from 800+ to 350 cents.

Case 3: Current. Within breakeven tiers (middle band).

As of October 30, 2026, the signal reads composite plus 0.30 (Within Breakeven Tiers band, approaching Below-Breakeven threshold). CBOT front-month corn trades near 448 cents per bushel — above the 317 contraction trigger but below the 800 expansion trigger. The signal is in the muted middle band with mild lean toward contraction setup if prices decline further.

• • •

How to use the signal today

As of November 2, 2026, the composite reads plus 0.30 and the state is Within Breakeven Tiers. Historical Within Breakeven delivers minus 1.08 percent per-day mean fwd 60-day (edge minus 1.37 pp vs baseline).

Pair with three confirming reads for multi-signal supply picture:

- **Z4393 US Corn Ending Stocks YoY.** The supply-balance signal. Below-breakeven corn tends to coincide with abundant stocks; the two signals confirm each other.
- **Z4652 US vs IMF Global Corn Price Ratio.** The relative-value export-precursor signal. Below-breakeven corn is often cheap-vs-global.
- **Z2884 Corn Dec-Nearby Carry.** The futures-structure signal. Deep carry tends to coincide with below-breakeven prices.

The breakeven signal is best used as a cross-check against the fundamental supply signals; multi-signal alignment at the breakeven triggers strengthens conviction.

• • •

Methodology notes

Data sources. CBOT corn front-month daily closing price. USDA ARMS cost-of-production survey (for breakeven trigger calibration).

Signal construction. Discrete tier mapping of front-month price to breakeven levels: Below 317 cents (contraction trigger), between 317 and 800 cents (within breakeven), above 800 cents (expansion trigger). Rule-based scaling to a composite in minus 1 to plus 1. State thresholds plus or minus 0.5 extreme and plus or minus 0.2 moderate. Target: CBOT Corn back-adjusted continuous.

Validation statistics. Daily Spearman IC against CBOT Corn fwd 60-day return is plus 0.068 at p-value 8.8e-11 across 8,984 live-signal days. The continuous-composite IC is cleaner than the three-regime collapse because the extreme bands are rare in the discrete emission.

• • •

What this signal does not cover

First, the breakeven triggers are calibrated to USDA ARMS average cost-of-production surveys. Actual per-farm breakevens vary with yield, input costs, local economics, and base-period landlord agreements.

Second, the mean-reversion mechanism operates on multi-year acreage-decision timescales. The 60-day forward-return window captures only an early slice of the response.

Third, the discrete tier mapping has limited granularity; the signal is coarse-grained compared to continuous price-level signals.

Fourth, the breakeven calibration shifts slowly as input costs (seed, fertilizer, land rent) evolve. The 317 and 800 cent triggers are approximate anchors; actual response thresholds have crept higher through the 2020s.

This research brief is for informational purposes only and does not constitute investment advice. Data sources: CBOT corn front-month daily closing price, USDA ARMS cost-of-production survey, CBOT Corn back-adjusted continuous target. State-conditional statistics computed through 2026-10-30.