The Wheat-to-Corn Variance Spillover Signal, A Portfolio-Sizing Volatility Lens

Reading 21-day rolling standard deviation of SRW wheat return residualized against USD and HY OAS, 252-day z-scored, DY-weighted at 0.094 influence-share, 2-day forward-shifted. Captures 2-day propagation of wheat-complex shocks into corn-complex volatility. Portfolio-level sizing-nudge signal; standalone directional IC is weak.

David Stendahl · Market Lab Analytics · November 2, 2026

What this signal is, with the limits stated upfront

Wheat and corn are correlated grains. When volatility spikes in the wheat complex, the shocks propagate through grain-market trading desks and show up in corn vol 1-2 days later. This signal captures that propagation mechanism and uses the DY-weighted 0.094 influence-share in a portfolio-sizing-nudge role rather than as a standalone directional signal.

The signal reads 21-day rolling standard deviation of SRW wheat return, residualized against USD and HY OAS to isolate commodity-specific vol from macro vol, 252-day z-scored and 2-day forward-shifted. Tanh-bound to minus 1 to plus 1. Composite above plus 0.5 is Wheat Variance Spillover High. Composite below minus 0.5 is Wheat Variance Spillover Low. The middle band is Neutral.

Current reading, as of October 30, 2026: composite minus 0.12 (Neutral band). SRW wheat vol residualized reads near-baseline; no active spillover setup.

Daily Spearman IC against CBOT Corn fwd 60-day return is plus 0.010 at p-value 0.51 across 4,168 live-signal days — not significant on the full sample. This is NOT a standalone directional signal. The signal's value is as a PORTFOLIO SIZING NUDGE within a DY-weighted ensemble (0.094 influence-share).

Limits upfront: this is a portfolio-sizing-nudge signal, not a standalone directional read. Full-sample IC is not significant. Use as part of a weighted ensemble; interpret standalone readings with low conviction.

• • •

How the variance-spillover composite composes

Direct observation: SRW (Soft Red Winter) wheat daily return series.

Derived construction:

1. 21-day rolling standard deviation of SRW returns.
2. Linear regression residual against USD index and HY OAS (removes macro vol drivers).
3. 252-day z-score of the residualized vol series.
4. 2-day forward shift (reflects wheat-to-corn propagation lag).
5. Tanh-bound to minus 1 to plus 1.

State thresholds. Composite above plus 0.5 is Variance Spillover High. Composite below minus 0.5 is Variance Spillover Low. The middle band is Neutral.

The DY-weighted 0.094 influence-share means the signal contributes 9.4 percent to a composite portfolio-sizing ensemble, not operating as a standalone trade.

• • •

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 live-signal window of 2010 through 2026-10-30: mean plus 1.34 percent, median minus 1.01 percent, standard deviation 10.89 percent, percent negative 56.6 percent.

Variance Spillover Low (composite below minus 0.5) covers 10.1 percent of the sample. Per-day mean minus 0.19 percent, edge minus 1.53 pp below baseline.

Neutral (composite between minus 0.5 and plus 0.5) covers 73.9 percent of the sample. Per-day mean plus 0.89 percent, edge minus 0.45 pp below baseline.

Variance Spillover High (composite above plus 0.5) covers 16.0 percent of the sample. Per-day mean plus 2.58 percent, edge plus 1.24 pp above baseline.

Directional spread: plus 2.77 pp from Spillover Low to Spillover High. The pattern is monotone but mild; the signal's trading-value comes from its ensemble-member role rather than standalone edge.

• • •

Three cases that frame how to read this signal

Case 1: February 2022. Ukraine-driven wheat-complex volatility spike.

The 2022 Ukraine war disruption drove extreme wheat-complex volatility. The spillover signal fired into deep Variance Spillover High, propagating to corn vol over subsequent days. Corn held firm through 2022 as the cross-complex risk setup unfolded. The 2-day forward shift captured the propagation timing.

Case 2: Summer 2012. Drought-era parallel vol spikes.

The 2012 drought drove parallel wheat and corn volatility spikes. The signal fired variance spillover high through the summer. Corn vol and wheat vol co-moved cleanly, reflecting the common weather-driver.

Case 3: Current. Neutral reading.

As of October 30, 2026, the composite reads minus 0.12 (Neutral band). SRW wheat residualized vol reads near-baseline. The rolling 252-day IC is minus 0.327 at p=3.6e-06, suggesting the recent regime has had negative correlation between wheat vol and corn forward returns.

• • •

How to use the signal today

As of November 2, 2026, the composite reads minus 0.12 and the state is Neutral. The signal is in its quiet mode.

The signal is best used as a portfolio-sizing nudge within a weighted ensemble. Pair with the fundamental supply signals (Z4393 Ending Stocks, Z2884 Dec-Nearby Carry) and the demand-flow signals (Z4411 Rail, Z4642 CNY, Z4646 FGIS China Share) for the overall sizing picture.

Standalone trades on this signal carry low conviction. Use as a 9.4 percent influence-share input to a broader ensemble.

• • •

Methodology notes

Data sources. SRW (Soft Red Winter) wheat daily return series. USD index and HY OAS for residualization.

Signal construction. 21-day rolling std of SRW return, residualized against USD + HY OAS, 252-day z-scored, 2-day forward-shifted, tanh-bounded. DY-weighted 0.094 influence-share in portfolio ensemble. 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 0.010 at p-value 0.51 across 4,168 live-signal days (NOT significant). Three-regime per-day means: Variance Spillover Low minus 0.19 percent (edge minus 1.53 pp vs plus 1.34 percent baseline), Neutral plus 0.89 percent (edge minus 0.45 pp), Variance Spillover High plus 2.58 percent (edge plus 1.24 pp).

• • •

What this signal does not cover

First, this is NOT a standalone directional signal. Full-sample IC is not significant. Use as a portfolio-sizing ensemble member.

Second, the signal reads SRW wheat only. HRW (Hard Red Winter) and spring wheat vol propagation is not captured.

Third, the USD + HY OAS residualization partially isolates commodity-specific vol from macro vol, but incomplete during macro regime changes.

Fourth, the 2-day forward shift reflects historical propagation timing; actual propagation lag can vary with market microstructure (desk composition, risk-model inputs).

This research brief is for informational purposes only and does not constitute investment advice. Data sources: SRW wheat daily return series, USD index, HY OAS, CBOT Corn back-adjusted continuous target. State-conditional statistics computed through 2026-10-30.