VERSION 1

BTC / AGRICULTURE BASKET BENCHMARK

PUBLIC METHODOLOGY

A weekly relative-performance series that measures Bitcoin against a diversified, weight-fixed basket of seven exchange-traded agricultural and soft-commodity contracts. The headline is a rebased ratio of a Bitcoin price index over a price-relative agriculture basket index, anchored to a fixed base date. It shows whether Bitcoin is gaining or losing ground against a real-economy commodity complex tied to food inputs, crop cycles and global consumption — rather than only against financial assets.

Benchmark family	BBN Benchmarks · Bitcoin Macro Benchmarks
Benchmark name	BBN BTC / Agriculture Basket Benchmark
Primary objective	Measure Bitcoin's relative performance versus a seven-component agriculture and soft-commodity basket
Update frequency	Weekly — one end-of-week observation
Headline unit	Base-100 BTC-to-basket rebased ratio
Headline bounds	Unbounded above; bounded below by zero (the basket is structurally positive)
Base date / value	Tuesday, 2 January 2018 · headline = 100.00
Basket components	7 — three core grains and oilseeds (70%) plus four satellite softs (30%)
Material revision threshold	0.5 index points (headline)
Methodology version	Version 1 — inaugural public release
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HOW TO READ IT — AND WHAT 100 MEANS

A headline above 100 means Bitcoin has outperformed the agriculture basket since the base date; below 100 means the basket has outpaced Bitcoin. Unlike a BBN Index, which is scored around a 50 mid-point, the 100 here is not a neutral or trailing-norm point — it is a fixed anchor. A headline of exactly 100 would mean Bitcoin and the basket have moved by identical proportional amounts since 2 January 2018.

POSITIONING

This is a proprietary, directional benchmark for editorial, research and commercial data use. It is not an IOSCO-aligned regulated financial benchmark, not a tradable instrument, not a commodity total-return index, and not an investment recommendation.

01 WHAT THE BENCHMARK MEASURES

The benchmark answers a single cross-asset question: is Bitcoin gaining or losing strength against a broad agriculture and soft-commodity complex, measured from a fixed historical anchor? Agriculture-linked commodities behave differently from industrial metals, energy or precious metals — they are tied to food inputs, feed demand, crop conditions, weather and global supply chains. The benchmark therefore adds a real-economy, consumption-linked angle to the BBN Bitcoin Macro Benchmarks family, distinct from the monetary, industrial, energy and equity comparisons.

ELEMENT	WHAT IS MEASURED
BTC leg	U.S. dollar price of Bitcoin from the CME CF Bitcoin Reference Rate (BRR) — an institutional-quality reference price.
Agriculture basket leg	Weighted, price-relative basket of seven USD-denominated exchange-traded agricultural and soft-commodity contracts.
Headline benchmark	BTC price index ÷ agriculture basket index, both rebased to 100 on 2 January 2018, then multiplied by 100.
Weekly change	Week-on-week percentage change in the headline level — a momentum and outlier-review diagnostic.
Basket purchasing-power view	BRR ÷ agriculture basket index, published alongside the headline as a scale-reference diagnostic only.

WHY A BASKET, NOT A SINGLE COMMODITY

A single-commodity pair such as BTC / Wheat would be dominated by shocks specific to that crop — an export ban, a drought, an El Niño cycle — and would report those as if they were BTC-versus-agriculture signals when they are really BTC-versus-one-crop signals. A fixed-weight, seven-component basket spanning core grains and oilseeds and four softs damps that single-crop distortion and produces a broader, consumption-linked real-asset signal.

02 BASKET CONSTRUCTION

The basket holds seven liquid, USD-denominated, exchange-traded contracts. Each is normalized to the common base date before weighting, so no commodity dominates because of its quoted unit, contract size or nominal price level. Because all seven trade in U.S. dollars on U.S. exchanges, no FX conversion is needed.

COMMODITY	EXCHANGE AND CONTRACT	TICKER	WEIGHT	CATEGORY
Wheat	CBOT Soft Red Winter Wheat	ZW	**25%**	Core
Corn	CBOT Corn	ZC	**25%**	Core
Soybeans	CBOT Soybeans	ZS	**20%**	Core
Sugar	ICE Sugar No. 11 (raw, world)	SB	**10%**	Satellite
Cotton	ICE Cotton No. 2	CT	**10%**	Satellite
Coffee	ICE Coffee "C" Arabica	KC	**5%**	Satellite
Cocoa	ICE Cocoa US	CC	**5%**	Satellite
Total	**Core 70% · Satellite 30%**		**100%**	

CONTINUOUS-PRICE CONSTRUCTION AND ROLL

Each component is a futures contract with periodic expirations, so the weekly series uses a back-adjusted continuous price built from the active front-month contract. The roll from the front month to the next active month occurs five trading days before First Notice Day; roll dates are fixed and pre-announced for each annual schedule, and the active month is the nearby contract with the highest open interest on the roll date. On each roll, all historical prices of the rolled-out contract are adjusted by the price difference to the rolled-in contract at the roll-date close — the Panama method, ratio-preserving variant — which preserves percent changes across rolls and prevents artificial jumps. No further smoothing or look-back averaging is applied; each roll is a single discrete adjustment.

A simple front-month concatenation would inject an artificial jump at every roll, because the rolled-in contract typically prices at a different absolute level under contango or backwardation, producing a multi-year series no participant could have traded. The back-adjusted series removes those jumps and is the standard input used by major commodity-benchmark providers for price-relative baskets.

03 ELIGIBILITY, EXCLUSIONS AND DATA SOURCES

New components may enter only through the annual review, and only if they meet every standard below.

CRITERION	STANDARD
Economic relevance	A meaningful food, feed or soft-commodity market with a global rather than purely regional pricing reference.
Exchange-traded	Priced through a centrally cleared futures contract on a recognized exchange (CBOT, ICE US, ICE Europe, CME, KCBT, MGEX).
USD-denominated	The headline contract must be quoted in U.S. dollars; non-USD contracts may be monitored only as supplementary indicators.
Liquidity floor	90-day average volume of at least 5,000 contracts per day across the front three active months.
Continuity floor	At least seven years of continuous back-adjusted price history at the base date.
Data quality	Publicly available exchange settlement prices, free of systematic reporting lags beyond one trading day.
Non-equity exposure	The commodity itself — not producer shares, ETFs, leveraged products or food-company equities.

By design, the basket excludes livestock (different storage and seasonality, kept as a separate optional indicator); soybean oil and meal (already captured through soybeans, to avoid double-counting the oilseed complex); rice, oats, orange juice and lumber (below the liquidity floor or too concentrated by region); non-USD contracts such as Matif wheat, London cocoa and robusta, and the Dalian and Zhengzhou contracts (to avoid embedded FX exposure); and all food-company equities, agricultural ETFs, structured products, retail food prices and physical premiums (which carry corporate, financing or non-exchange factors that would compromise reproducibility).

DATA SOURCES

Source choices are fixed; any substitution is a documented methodology change. For the BTC leg, the primary source is the CME CF Bitcoin Reference Rate (BRR) at the 16:00 London fix — the same source used across the BBN Bitcoin Macro Benchmarks family for consistency — falling back first to the New York BRR variant (BRRNY) and then to a Bloomberg end-of-day Bitcoin index, with any switch logged in the release note. For each basket component, the primary source is the official daily exchange settlement (CME Group / CBOT for ZW, ZC, ZS; ICE Futures U.S. for SB, CT, KC, CC), falling back to a Bloomberg or Refinitiv continuous series reproducing those settlements, then to the direct exchange API or daily bulletin. Spot physical prices, regional cash markets, ETF NAVs and single-dealer indications are never eligible for the headline basket.

04 OBSERVATION RULE AND MISSING COMPONENTS

Bitcoin trades continuously while the agricultural contracts settle on exchange calendars, so the benchmark fixes a common weekly observation with explicit timestamps for each leg.

ELEMENT	SPECIFICATION
Observation day	Friday.
BTC timestamp	CME CF BRR fix, 16:00 London time.
CBOT grains/oilseeds	Daily settlement 14:20 Central Time, normally published 15:00 CT (ZW, ZC, ZS).
ICE softs	Daily settlement 13:30 Eastern Time, normally published 14:00 ET (SB, CT, KC, CC).
Alignment	BTC and all seven commodities are taken on the same calendar Friday; the sequential Chicago, New York and London windows all reflect the same business day.

If a single commodity is unavailable on Friday, its nearest prior valid settlement is used while every other leg stays on the standard Friday. If several are unavailable, the nearest-prior rule applies to each and basket coverage is then checked against the publication threshold. If Bitcoin is unavailable, the BTC fallback chain applies; if both BRR and BRRNY fail on Friday, the whole observation moves to the nearest prior Friday with a valid BTC price and every commodity is aligned to that date. A forward-fill of any single commodity beyond five calendar days is not permitted — past that point the commodity is treated as missing and the reweighting rule applies.

MISSING-COMPONENT REWEIGHTING

When a set of components is missing, the survivors are reweighted pro rata so their weights again sum to one. Reweighting is mechanical, not discretionary, and is documented in that week's release note.

REWEIGHT SURVIVING COMPONENT I

$w'_i(t) = w_i \div (1 - \Sigma_{j \in S}\, w_j)$ where S is the set of missing components

BASKET OVER THE SURVIVING SET

$$\text{AgricultureBasket}(t) = \Sigma_{i \text{ surviving}} w'_i(t) \times \text{CommodityIndex}_i(t)$$

The original weights are restored on the next observation in which all components return.

PUBLICATION LAYERS

Coverage is judged by component count, not weight. Every weekly release falls into exactly one layer.

LAYER	CONDITION	PUBLISHED
Full	All 3 core present and at least 3 of 4 satellites present (≥ 6 of 7), with no tier-2 fallback used beyond a single day.	Headline, weekly change, purchasing-power diagnostic, per-component contribution table and release note.
Provisional	BTC from a tier-2 fallback, or 5 of 7 components (all core + exactly 2 satellites), or a forward-fill up to 5 days, or any satellite reweighting.	Same outputs plus a "Provisional" label and a note listing the deviation; may be revised when components are restored.
No publication	Any core component missing beyond the 5-day fill, fewer than 2 satellites present, or both BTC sources unavailable beyond Friday + 5 days.	A short coverage note; the next valid Friday resumes the headline, with no back-fill of missed weeks.

The core/satellite asymmetry is deliberate: the three core grains and oilseeds carry 70% of the weight and the largest, most globally referenced markets, so losing any one leaves the basket structurally unrepresentative even after reweighting, whereas one or two missing satellites are recoverable pro rata.

05 CALCULATION METHODOLOGY

The headline is built in five deterministic steps from the weekly observation. Values are held to four decimals internally and reported to two.

STEP 1 — COMPONENT PRICE INDICES

$$\text{CommodityIndex}_i(t) = 100 \times P_i(t) \div P_i(\text{base}) \quad \text{for } i \in \{ZW, ZC, ZS, SB, CT, KC, CC\}$$

STEP 2 — AGRICULTURE BASKET INDEX

$$\text{AgricultureBasket}(t) = \Sigma\, w_i \times \text{CommodityIndex}_i(t), \quad w = [0.25, 0.25, 0.20, 0.10, 0.10, 0.05, 0.05]$$

STEP 3 — BITCOIN PRICE INDEX

$$\text{BTCIndex}(t) = 100 \times \text{BRR}(t) \div \text{BRR}(\text{base})$$

$$\text{Headline} \quad \text{BBN BTC/Ag}(t) = 100 \times \text{BTCIndex}(t) \div \text{AgricultureBasket}(t)$$

Each leg equals 100 on the base date, so the headline equals 100 on 2 January 2018. Bounded below by zero, unbounded above.

STEP 5 — WEEKLY CHANGE

$$\text{WeeklyChange}(t) = [\ \text{BBN BTC/Ag}(t) \div \text{BBN BTC/Ag}(t{-}1\text{ week}) - 1\ ] \times 100\%$$

AUXILIARY DIAGNOSTIC — BASKET PURCHASING POWER

$$\text{BasketPurchasingPower}(t) = \text{BRR}(t) \div \text{AgricultureBasket}(t) \quad \text{(USD per basket-index-point)}$$

The purchasing-power view is a constant multiple of the headline and cannot disagree with it directionally; it is published for scale reference only.

06 WORKED EXAMPLE

A hypothetical Friday observation illustrates the full chain. Component indices rebase each price to the 2 January 2018 base; contributions are the component index times its weight.

COMPONENT	BASE PRICE	WEEK PRICE	INDEX	WEIGHT	CONTRIBUTION
CBOT Wheat (ZW)	$4.30/bu	$5.85/bu	136.05	0.25	34.01
CBOT Corn (ZC)	$3.52/bu	$4.50/bu	127.84	0.25	31.96
CBOT Soybeans (ZS)	$9.65/bu	$11.80/bu	122.28	0.20	24.46
ICE Sugar (SB)	$0.151/lb	$0.195/lb	129.14	0.10	12.91
ICE Cotton (CT)	$0.788/lb	$0.720/lb	91.37	0.10	9.14
ICE Coffee (KC)	$1.28/lb	$2.30/lb	179.69	0.05	8.98
ICE Cocoa (CC)	$1,950/MT	$7,800/MT	400.00	0.05	20.00
Agriculture basket index				**1.00**	**141.46**

For the BTC leg, BRR at the base date is $13,412.44 and at the illustrative Friday is $66,250.00, giving BTCIndex(t) = 100 × 66,250.00 ÷ 13,412.44 = **493.94**.

$$\text{Headline} = 100 \times 493.94 \div 141.46 = \mathbf{349.17}$$

A reading of 349.17 means that since the anchor Bitcoin has appreciated by about 4.94× while the basket has appreciated by about 1.41×, so Bitcoin has outperformed the agriculture complex by roughly **3.49**× over the period — the headline level itself, divided by 100, expresses that ratio. This places the benchmark in the “Strong BTC outperformance versus agriculture” band. In the composition, wheat (34.01) and cocoa (20.00) contributed most, and cotton was the only component below its base value.

07 INTERPRETATION FRAMEWORK

The bands below partition the full positive range of possible readings with no gaps or overlaps. Boundaries are stated as thresholds — a band runs from its lower figure up to (but not including) the next one — so every reading, to any number of decimals, falls in exactly one band.

HEADLINE	BAND	MEANING
≥ 500	Severe BTC outperformance	BTC has appreciated dramatically more than the basket since the base.
250 – <500	Strong BTC outperformance	Pronounced BTC strength relative to the agriculture complex.
150 – <250	Moderate BTC outperformance	BTC has clearly outpaced the basket.
>100 – <150	Slight BTC outperformance	BTC has marginally outperformed the basket.
100	On the base-date anchor	Identical proportional moves since the base.
75 – <100	Slight BTC underperformance	The basket has tightened slightly faster than BTC has risen.
40 – <75	Moderate BTC underperformance	The agriculture complex has materially outpaced BTC.
20 – <40	Strong BTC underperformance	Pronounced relative weakness of BTC versus the basket.
< 20	Severe BTC underperformance	BTC has lost dramatically relative to agriculture.

The bands are intentionally asymmetric around 100 because the headline itself is asymmetric: Bitcoin runs at roughly 60–80% annualized volatility against the basket's 15–25%, so most headline variance — and the long-run upward drift whenever BTC appreciates — comes from the BTC leg. The upper bands therefore widen geometrically rather than arithmetically. As a rule of thumb, a 5% weekly headline move is far more likely to be a Bitcoin move than a basket move; the per-component contribution table and the purchasing-power diagnostic show which leg drove a given week.

08 MAINTENANCE, QUALITY CONTROL AND GOVERNANCE

REBALANCING AND MAINTENANCE

Composition and weights are meant to be stable. The annual review runs in the first two weeks of January, after the December roll and before spring planting, and its default outcome is no change — weights move only where a documented gain in representativeness, liquidity quality or comparability can be shown. A component is replaced when its 90-day average front-three-month volume stays below 5,000 contracts per day for 90 consecutive trading days, when the exchange announces delisting or a material rule change, or when it fails the quality controls for three consecutive months. The replacement is the highest-volume eligible contract in the same sub-category (grains, oilseeds or softs); if none qualifies, the weight is reallocated pro rata and the basket reduces in size. Any weight change, replacement or non-routine reweighting is a material methodology change. The published history is never restated — changes apply prospectively from their effective date.

QUALITY CONTROLS AND OUTLIER HANDLING

On every publication, each settlement is cross-checked against the tier-2 institutional feed (a discrepancy beyond 0.25% triggers manual review); each component is validated against its exchange contract specification; every roll is logged with the rolled-out and rolled-in contracts, the back-adjustment factor and the close prices used; the single Friday alignment and USD denomination are confirmed; and the series is checked for missing weeks, duplicates and consistent base-date application. Each release is appended to an immutable archive with source values, computed values, the publication layer, reweighting flags and any notes. A weekly headline change of 12% or more, or a single-commodity daily change of 8% or more, forces re-verification against tier-2 sources before publication. For stale prices, two consecutive unchanged settlements are flagged, three trigger manual review against the exchange bulletin, and five exclude the component for that week, after which the reweighting rule applies.

REVISIONS AND VERSIONING

A material revision is a change of 0.5 index points or more to a published headline, or any methodology change that would have produced such a difference; smaller corrections are archived without public notice. Revisions are triggered by republished exchange data, a unit or contract-specification error, an incorrect roll execution, a calendar-alignment error, a stale-data violation, or a source-tier fallback used without the required disclosure. This is the inaugural publication, Version 1. Any change to the base date, the primary BTC source, the basket composition or weights, the roll method, the reweighting rule or the headline formula is a material methodology change: it carries at least 30 calendar days' public notice, a parallel-published transition of at least four weeks with both series side by side, a versioned changelog entry and a new version number. Typographical and other non-substantive edits are made without notice but are recorded in the archive.

SCOPE, LIMITATIONS AND LEGAL NOTE

The benchmark is a directional indicator, not a tradable basket and not a commodity total-return index — the headline reflects price change only, with no collateral, roll or re-weighting yield. Because BTC volatility is several times the basket's, most weekly variance reflects Bitcoin rather than agriculture, and the series carries the basket's real seasonal and multi-year ENSO patterns, which are disclosed rather than removed. All seven contracts trade on U.S. exchanges, so U.S. price discovery dominates and core grains and oilseeds tilt the basket toward U.S. row crops; the headline level is mechanically dependent on the fixed, disclosed base date; and the weekly cadence captures intraweek events only at the next Friday. The benchmark is informed by established commodity-basket and roll conventions but is a proprietary indicator — not an official statistic, a regulated benchmark, an investable index or a price-formation reference. Its methodology, tables and historical series are proprietary to BitBullMedia Pte. Ltd.; full-series redistribution, replication, cloning, resale or commercial republication requires prior written permission. Nothing here is investment, legal, accounting or tax advice, and users are responsible for complying with the source providers' terms.