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ARGUS AGRIMARKETS

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The most up-to-date Argus AgriMarkets methodology is available on www.argusmedia.com

Methodology overview

Methodology rationale

Argus strives to construct methodologies that reflect the way the market trades. Argus aims to produce price assessments which are reliable and representative indicators of commodity market values and are free from distortion. As a result, the specific currencies, volume units, locations and other particulars of an assessment are determined by industry conventions.

In the agricultural products markets, Argus publishes physical market prices in the open market as laid out in the specifications and methodology guide. Argus uses the trading period deemed by Argus to be most appropriate, in consultation with industry, to capture market liquidity.

In order to be included in the assessment process, deals must meet the minimum volume, delivery, timing and specification requirements in our methodology. In illiquid markets, and in other cases where deemed appropriate, Argus assesses the range within which product could have traded by applying a strict process outlined later in this methodology.

Survey process

Argus price assessments are informed by information received from a wide cross section of market participants, including producers, consumers and intermediaries. Argus reporters engage with the industry by proactively polling participants for market data. Argus will contact and accept market data from all credible market sources including front and back office of market participants and brokers. Argus will also receive market data from electronic trading platforms and directly from the back offices of market participants. Argus will accept market data by telephone, instant messenger, email or other means.

Argus encourages all sources of market data to submit all market data to which they are a party that falls within the Argus stated methodological criteria for the relevant assessment. Argus encourages all sources of market data to submit transaction data from back office functions.

Throughout all markets, Argus is constantly seeking to increase the number of companies willing to provide market data. Reporters are mentored and held accountable for expanding their pool of contacts. The number of entities providing market data can vary significantly from day to day based on market conditions.

For certain price assessments identified by local management, if more than 50pc of the market data involved in arriving at a price assessment is sourced from a single party the supervising editor will engage in an analysis of the market data with the primary reporter to ensure that the quality and integrity of the assessment has not been affected.

Market data usage

In each market, Argus uses the methodological approach deemed to be the most reliable and representative for that market. Argus will utilise various types of market data in its methodologies, to include:

- Transactions
- Bids and offers
- Other market information, to include spread values between grades, locations, timings, and many other data.

In many markets, the relevant methodology will assign a relatively higher importance to transactions over bids and offers, and a relatively higher importance to bids and offers over other market information. Certain markets however will exist for which such a hierarchy would produce unreliable and non-representative price assessments, and so the methodology must assign a different relative importance in order to ensure the quality and integrity of the price assessment. And even in markets for which the hierarchy normally applies, certain market situations will at times emerge for which the strict hierarchy would produce non-representative prices, requiring Argus to adapt in order to publish representative prices.

Verification of transaction data

Reporters carefully analyse all data submitted to the price assessment process. These data include transactions, bids, offers, volumes, counterparties, specifications and any other information that contributes materially to the determination of price. This high level of care described applies regardless of the methodology employed. Specific to transactions, bids, and offers, reporters seek to verify the price, the volume, the specifications, location basis, and counterparty. In some transactional average methodologies, reporters also examine the full array of transactions to match counterparties and arrive at a list of unique transactions. In some transactional average methodologies, full details of the transactions verified are published electronically and are accessible by subscribers. The deals are also published in the daily report.

Several tests are applied by reporters in all markets to transactional data to determine if it should be subjected to further scrutiny. If a transaction has been identified as failing such a test, it will receive further scrutiny. For assessments used to settle derivatives and for many other assessments, Argus has established internal procedures that involve escalation of inquiry within the source's company and escalating review within Argus management. Should this process determine that a transaction should be excluded from the price assessment process, the supervising editor will initiate approval and, if necessary, documentation procedures.

Primary tests applied by reporters

- Transactions not transacted at arm's length, including deals between related parties or affiliates.
- Transaction prices that deviate significantly from the mean of all transactions submitted for that day.
- Transaction prices that fall outside of the generally observed lows and highs that operated throughout the trading day.
- Transactions that are suspected to be a leg of another transaction or in some way contingent on an unknown transaction.
- Single deal volumes that significantly exceed the typical transaction volume for that market.
- Transaction details that are identified by other market participants as being for any reason potentially anomalous and perceived by Argus to be as such.

- Transaction details that are reported by one counterparty differently than the other counterparty.
- Any transaction details that appear to the reporter to be illogical or to stray from the norms of trading behaviour. This could include but is not limited to divergent specifications, unusual delivery location and counterparties not typically seen.
- Transactions that involve the same counterparties, the same price and delivery dates are checked to see that they are separate deals and not one deal duplicated in Argus records.

Secondary tests applied by editors for transactions identified for further scrutiny

Transaction tests

- The impact of linkage of the deal to possible other transactions such as contingent legs, exchanges, options, swaps, or other derivative instruments. This will include a review of transactions in markets that the reporter may not be covering.
- The nature of disagreement between counterparties on transactional details.
- The possibility that a deal is directly linked to an offsetting transaction that is not publicly known, for example a “wash trade” which has the purpose of influencing the published price.
- The impact of non-market factors on price or volume, including distressed delivery, credit issues, scheduling issues, demurrage, or containment.

Source tests

- The credibility of the explanation provided for the outlying nature of the transaction.
- The track record of the source. Sources will be deemed more credible if they
 - Regularly provide transaction data with few errors.
 - Provide data by Argus’ established deadline.
 - Quickly respond to queries from Argus reporters.
 - Have staff designated to respond to such queries.
- How close the information receipt is to the deadline for information, and the impact of that proximity on the validation process.

Assessment guidelines

When insufficient, inadequate, or no transaction information exists, or when Argus concludes that a transaction based methodology will not produce representative prices, Argus reporters will make an assessment of market value by applying intelligent judgement based on a broad array of factual market information. Reporters must use a high degree of care in gathering and validating all market data used in determining price assessments, a degree of care equal to that applying to gathering and validating transactions. The information used to form an assessment could include deals done, bids, offers, tenders, spread trades, exchange trades, fundamental supply and demand information and other inputs.

The assessment process employing judgement is rigorous, replicable, and uses widely accepted valuation metrics. These valuation

metrics mirror the process used by physical commodity traders to internally assess value prior to entering the market with a bid or offer. Applying these valuation metrics along with sound judgement significantly narrows the band within which a commodity can be assessed, and greatly increases the accuracy and consistency of the price series. The application of judgement is conducted jointly with the supervising editor, in order to be sure that guidelines below are being followed. Valuation metrics include the following:

Relative value transactions

Frequently transactions occur which instead of being an outright purchase or sale of a single commodity, are instead exchanges of commodities. Such transactions allow reporters to value less liquid markets against more liquid ones and establish a strong basis for the exercise of judgment.

- Exchange one commodity for a different commodity in the same market at a negotiated value.
- Exchange delivery dates for the same commodity at a negotiated value.
- Exchange a commodity in one location for the same commodity at another location at a negotiated value.

Bids and offers

If a sufficient number of bids and offers populate the market, then in most cases the highest bid and the lowest offer can be assumed to define the boundaries between which a deal could be transacted.

Comparative metrics

- The relative values between compared commodities are readily discussed in the market and can be discovered through dialogue with market participants. These discussions are the precursor to negotiation and conclusion of transactions.
- Comparison to the same commodity in another market centre.
- Comparison to a more actively traded but slightly different specification commodity in the same market centre.
- Comparison to the same commodity traded for a different delivery timing.
- Comparison to the commodity’s primary feedstock or primary derived product(s).
- Comparison to trade in the same commodity but in a different modality (as in barge versus oceangoing vessel) or in a different total volume (as in full cargo load versus partial cargo load).

Volume minimums and transaction data thresholds

Argus typically does not establish thresholds strictly on the basis of a count of transactions, as this could lead to unreliable and non-representative assessments and because of the varying transportation infrastructure found in all commodity markets. Instead, minimum volumes are typically established which may apply to each transaction accepted, to the aggregate of transactions, to transactions which set a low or high assessment or to other volumetrically relevant parameters.

For price assessments used to settle derivatives, Argus will seek to establish minimum transaction data thresholds and when no such threshold can be established Argus will explain the reasons. These

thresholds will often reflect the minimum volumes necessary to produce a transaction-based methodology, but may also establish minimum deal parameters for use by a methodology that is based primarily on judgement.

Should no transaction threshold exist, or should submitted data fall below this methodology's stated transaction data threshold for any reason, Argus will follow the procedures outlined elsewhere in this document regarding the exercise of judgement in the price assessment process.

Transparency

Argus values transparency in energy markets. As a result, where available, we publish lists of deals in our reports that include price, basis, counterparty and volume information. The deal tables allow subscribers to cross check and verify the deals against the prices. Argus feels transparency and openness is vital to developing confidence in the price assessment process.

Swaps and forwards markets

Argus publishes forward assessments for numerous markets. These include forward market contracts that can allow physical delivery and swaps contracts that swap a fixed price for the average of a floating published price. Argus looks at forward swaps to inform physical assessments but places primary emphasis on the physical markets.

Publications and price data

Argus agricultural product prices are published in the Argus AgriMarkets report. Subsets of these prices appear in other Argus market reports and newsletters in various forms. The price data are available independent of the text-based report in electronic files that can feed into various databases. These price data are also supplied through various third-party data integrators. The Argus website also provides access to prices, reports and news with various web-based tools. All Argus prices are kept in a historical database and available for purchase. Contact your local Argus office for information.

A publication schedule is available at www.argusmedia.com

Corrections to assessments

Argus will on occasion publish corrections to price assessments after the publication date. We will correct errors that arise from clerical mistakes, calculation errors, or a misapplication of our stated methodology. Argus will not retroactively assess markets based on new information learned after the assessments are published. We make our best effort to assess markets based on the information we gather during the trading day assessed.

Ethics and compliance

Argus operates according to the best practices in the publishing field, and maintains thorough compliance procedures throughout the firm. We want to be seen as a preferred provider by our subscribers, who are held to equally high standards, while at the same time maintaining our editorial integrity and independence. Argus has a strict ethics policy that applies to all staff. The policy can be found on our website at www.argusmedia.com. Included in this

policy are restrictions against staff trading in any energy commodity or energy related stocks, and guidelines for accepting gifts. Argus also has strict policies regarding central archiving of email and instant messenger communication, maintenance and archiving of notes, and archiving of spreadsheets and deal lists used in the price assessment process. Argus publishes prices that report and reflect prevailing levels for open-market arms length transactions (please see the [Argus Global Compliance Policy](#) for a detailed definition of arms length).

Consistency in the assessment process

Argus recognises the need to have judgement consistently applied by reporters covering separate markets, and by reporters replacing existing reporters in the assessment process. In order to ensure this consistency, Argus has developed a programme of training and oversight of reporters. This programme includes:

- A global price reporting manual describing among other things the guidelines for the exercise of judgement
- Cross-training of staff between markets to ensure proper holiday and sick leave backup. Editors that float between markets to monitor staff application of best practices
- Experienced editors overseeing reporting teams are involved in daily mentoring and assisting in the application of judgement for illiquid markets
- Editors are required to sign-off on all price assessments each day, thus ensuring the consistent application of judgement.

Review of methodology

The overriding objective of any methodology is to produce price assessments which are reliable and representative indicators of commodity market values and are free from distortion. As a result, Argus editors and reporters are regularly examining our methodologies and are in regular dialogue with the industry in order to ensure that the methodologies are representative of the market being assessed. This process is integral with reporting on a given market. In addition to this ongoing review of methodology, Argus conducts reviews of all of its methodologies and methodology documents on at least an annual basis.

Argus market report editors and management will periodically and as merited initiate reviews of market coverage based on a qualitative analysis that includes measurements of liquidity, visibility of market data, consistency of market data, quality of market data and industry usage of the assessments. Report editors will review:

- Appropriateness of the methodology of existing assessments
- Termination of existing assessments
- Initiation of new assessments.

The report editor will initiate an informal process to examine viability. This process includes:

- Informal discussions with market participants
- Informal discussions with other stakeholders
- Internal review of market data

Should changes, terminations, or initiations be merited, the report editor will submit an internal proposal to management for review and approval. Should changes or terminations of existing assessments be approved, then formal procedures for external consultation are begun.

Changes to methodology

Formal proposals to change methodologies typically emerge out of the ongoing process of internal and external review of the methodologies. Formal procedures for external consultation regarding material changes to existing methodologies will be initiated with an announcement of the proposed change published in the relevant Argus report. This announcement will include:

- Details on the proposed change and the rationale
- Method for submitting comments with a deadline for submissions
- For prices used in derivatives, notice that all formal comments will be published after the given consultation period unless submitter requests confidentiality.

Argus will provide sufficient opportunity for stakeholders to analyse and comment on changes, but will not allow the time needed to follow these procedures to create a situation wherein unrepresentative or false prices are published, markets are disrupted, or market participants are put at unnecessary risk. Argus will engage with industry throughout this process in order to gain acceptance of proposed changes to methodology. Argus cannot however guarantee universal acceptance and will act for the good order of the market and ensure the continued integrity of its price assessments as an overriding objective.

Following the consultation period, Argus management will commence an internal review and decide on the methodology change. This will be followed by an announcement of the decision, which will be published in the relevant Argus report and include a date for implementation. For prices used in derivatives, publication of stakeholders' formal comments that are not subject to confidentiality and Argus' response to those comments will also take place.

Ukraine

Ukraine prices are for deliveries to or from ports around Odessa. Information about trade at other regional ports may be considered for inclusion in the assessment if deemed relevant to the price at the listed locations.

Argus Ukraine wheat (UW)

Argus surveys a wide cross section of market participants via telephone, e-mail, instant messenger and other means of communication and collects bids, offers, trades and other market information.

Prices are published in \$/t as the range of the best, or highest, bid and the best, or lowest, offer. A midpoint of the bid-offer range is also published.

fob Ukraine

Classes: 11.5pc protein (UW1), 12.5pc protein and feed grade

Timing: market information received after 5.30pm UK time may not be considered for inclusion in the assessment

Loading period: 15-45 days forward of the date of assessment

Cargo size: standardised to 25,000-50,000t. Information about larger or smaller cargoes may be considered for inclusion in the assessment if it is deemed relevant to the price of a standard cargo.

Harvest years

Prices are published for each year's harvest from 15 May until 15 June of the following year. Accordingly, from 15 May until 15 June each year, prices are published separately for two harvests, the current year's harvest and the previous year's harvest.

Continuous price series

Argus also publishes a continuous price series that gradually transitions from the previous to the current year's harvest during the month of overlap.

For example, on 14 May 2020, the continuous series was equal to the 2019 harvest price. On 15 May 2020, the continuous series was equal to an average of one part 2020 harvest price and 32 parts 2019 harvest price. That ratio adjusted incrementally for each calendar day between 15 May and 15 June, until on 15 June when it was one part 2019 and 32 parts 2020. On 16 June 2020, the continuous series was equal to the 2020 harvest price.

cpt Ukraine

Classes: 11.5pc protein (UW2), 12.5pc protein and feed grade

Timing: market information received after 3pm Kyiv time may not be considered for inclusion in the assessment

Delivery period: 30 days forward of the date of assessment

Cargo size: standardised to 1,000-10,000t. Information about larger or smaller cargoes may be considered for inclusion in the assessment if it is deemed relevant to the price of a standard cargo.

Domestic conversion: cpt prices including VAT and converted to Ukrainian hryvnia (UAH)/t using the National Bank of Ukraine rate are also distributed electronically.

Harvest years

Prices are published for each year's harvest from 1 June until 30 June of the following year. Accordingly, from 1-30 June each year, prices are published separately for two harvests, the current year's harvest and the previous year's harvest.

Continuous price series

Argus also publishes a continuous price series that gradually transitions from the previous to the current year's harvest during the month of overlap.

Wheat classes

Prices are published for three classes of wheat.

Wheat specifications

	11.5pc protein	12.5pc protein	Feed grade
Type	Milling	Milling	Feed grade
Protein (pc)	min 11.5	min 12.5	
Test weight (g/l)	min 760	min 770	min 720
Moisture (pc)	max 14	max 14	max 14
Bug damage (pc)	max 1.5	max 1.5	max 4
Foreign matter (pc)	max 2	max 2	max 2
Falling number (seconds)	min 230	min 250	

Argus Ukraine corn (UC)

Argus surveys a wide cross section of market participants via telephone, e-mail, instant messenger, and other means of communications and collects bids, offers, trades and other market information.

Prices are published in \$/t as the range of the best, or highest, bid and the best, or lowest, offer. A midpoint of the bid-offer range is also published.

fob Ukraine

Timing: market information received after 5:30pm UK time may not be considered for inclusion in the assessment

Loading period: 15-45 days forward of the date of assessment

Cargo size: standardised to 25,000-50,000t. Information about larger or smaller cargoes may be considered for inclusion in the assessment if it is deemed relevant to the price of a standard cargo.

Harvest years

Prices are published for each year's harvest from 15 August until 15 September of the following year. Accordingly, from 15 August until 15 September each year, prices are published separately for two harvests, the current year's harvest and the previous year's harvest.

Continuous price series

Argus also publishes a continuous price series that gradually transitions from the previous to the current year's harvest during the month of overlap.

cpt Ukraine

Timing: market information received after 3pm Kyiv time may not be considered for inclusion in the assessment

Loading period: 30 days forward of the date of assessment

Cargo size: standardised to 1,000-10,000t. Information about larger or smaller cargoes may be considered for inclusion in the assessment if it is deemed relevant to the price of a standard cargo.

Domestic: cpt prices including VAT and converted to Ukrainian hryvnia (UAH)/t using the National Bank of Ukraine rate are also distributed electronically.

Harvest years

Prices are published for each year's harvest from 1 September until 30 September of the following year. Accordingly, from 1-30 September each year, prices are published separately for two harvests, the current year's harvest and the previous year's harvest.

Continuous price series

Argus also publishes a continuous price series that gradually transitions from the previous to the current year's harvest during the month of overlap.

Corn specifications

Moisture (pc)	max 14.5
Foreign matter (pc)	max 2
Broken kernels (pc)	max 5
Damaged kernels (pc)	max 5

Argus Ukraine feed barley

Argus surveys a wide cross section of market participants via telephone, e-mail, instant messenger and other means of communication and collects bids, offers, trades and other market information.

Prices are published in \$/t as the range of the best, or highest, bid and the best, or lowest, offer. A midpoint of the bid-offer range is also published.

Argus also assesses feed barley bound for China, which requires a specific phytosanitary protocol. Prices for Ukrainian feed barley bound for China are published as a differential bid, offer and midpoint to barley without a specified destination and as outright prices. cpt Ukraine

Timing: market information received after 3pm Kyiv time may not be considered for inclusion in the assessment

Delivery period: 30 days forward of the date of assessment

Cargo size: standardised to 500-5,000t. Information about larger or smaller cargoes may be considered for inclusion in the assessment if it is deemed relevant to the price of a standard cargo.

Domestic: cpt prices including VAT and converted to Ukrainian hryvnia (UAH)/t using the National Bank of Ukraine rate are also distributed electronically.

Harvest years

Prices are published for each year's harvest from 1 June until 30 June of the following year. Accordingly, from 1-30 June each year, prices are published separately for two harvests, the current year's harvest and the previous year's harvest.

Continuous price series

Argus also publishes continuous price series that gradually transitions from the previous to the current year's harvest during the month of overlap.

Forward prices

Argus assesses physical forward prices for wheat, corn and barley (including China-bound barley) delivered to and loading from Ukraine.

Wheat and corn

For each market, prices are assessed for three forward months and for months at the start of the new harvest each year — July, August and September for wheat and October and November for corn. The new harvest prices will duplicate the published forward months for

part of the year, and are not published once the September wheat and November corn contracts have expired.

Barley

For each market, prices are assessed for two forward months and for two months at the start of the new harvest each year — July and August. The new harvest prices will duplicate the published forward months for part of the year, and are not published once the August barley contracts have expired.

Schedule

Fob price assessments roll on the first day of the month two months before loading. For example, the April contract will last be assessed as a forward month on 28 of February.

Cpt price assessments roll on the 16th day of the month before delivery, except for February, when assessments roll on the 15th day of the month before delivery.

Russia

Russia prices are for delivered to or from Novorossiysk. Information about trade at other regional ports may be considered for inclusion in the assessment if deemed relevant to the price at the listed locations.

Argus Russia wheat

Argus surveys a wide cross section of market participants via telephone, e-mail, instant messenger and other means of communication and collects bids, offers, trades and other market information.

Prices are published in \$/t as the range of the best, or highest, bid and the best, or lowest, offer. A midpoint of the bid-offer range is also published.

fob Russia

Class: 12.5pc protein

Timing: market information received after 5.30pm UK time may not be considered for inclusion in the assessment

Loading period: 28-45 days forward of the date of assessment

Cargo size: standardised to 25,000-50,000t. Information about larger or smaller cargoes may be considered for inclusion in the assessment if it is deemed relevant to the price of a standard cargo.

Harvest years

Prices are published for each year's harvest from 15 May until 31 May of the following year. Accordingly, from 15 May until 31 May each year, prices are published separately for two harvests, the current year's harvest and the previous year's harvest.

Continuous price series

Argus also publishes a continuous price series that gradually transitions from the previous to the current year's harvest during the period of overlap.

Wheat specifications

	12.5pc protein
Type	Milling
Protein (pc)	min 12.5
Test weight (g/l)	min 770
Moisture (pc)	max 14
Bug damage (pc)	max 1.5
Foreign matter (pc)	max 2
Falling number (seconds)	min 250

China

Soybeans

Cfr China

Prices are assessed and published daily as the range of the best, or highest, bid and the best, or lowest, offered differentials to the latest available Cbot futures settlement for the month named below. A midpoint of the bid-offer range of differentials and outright bid, offer and midpoint prices are also published.

Location: north China, extending as far south as Ningbo and Zhoushan

Cargo size: 60,000t +/- 10pc

Timing: market information received after 4:30pm Beijing time may not be considered for inclusion in the assessment

Currency/unit: US cents/bushel

Specifications: soybeans from Brazil meeting the ANEC — As sociação Nacional dos Exportadores de Cereais — specification during the Latin American export season in February-August, and soybeans from the US meeting the No.2 Yellow specification as defined by the US Federal Grain Inspection Service during the US export season in September-January

Forward timing: Prices are published for seven loading months forward from the date of assessment

Soybeans China cfr assessment timing

Month	CBOT	Earliest assessment date	Latest assessment date
January	January (F)	16 May	15 December
February	March (H)	16 June	15 January
March	March (H)	16 July	15 February
April	May (K)	16 August	15 March
May	May (K)	16 September	15 April
June	July (N)	16 October	15 May
July	July (N)	16 November	15 June
August	July (N)	16 December	15 July
September	November (X)	16 January	15 August
October	November (X)	16 February	15 September
November	November (X)	16 March	15 October
December	January (F)	16 April	15 November

Brazil

Soybeans and Corn

Argus AgriMarkets includes the price of Brazil-delivered soybean futures and physical corn as differentials to Chicago Board of Trade (Cbot) futures prices.

Soybean prices are published daily from mid-September to mid-June for product loading during months and two-month strips from February to July. Corn prices are published daily from mid-May to mid-November for product loading during months and two-month strips from July to December.

See the [Argus Brazil Grains and Fertilizer methodology](#).

Canada

Wheat

Wheat 13.5pc (CWRS) Canada fob Vancouver

Prices are published in US dollars per tonne (\$/t) as the range of the best, or highest, bid and the best, or lowest, offer. A midpoint of the bid-offer range is also published. Argus will accept market information about outright prices and about differentials to other physical or financial markets.

Location: Vancouver

Cargo size: 50,000-60,000t

Timing: market information received after 5.30pm UK time may not be considered for inclusion in the assessment

Loading period: 30-45 days forward of the date of the assessment

Harvest years: prices are published for each year's harvest from 1 August until 31 July of the following year

Grade: No.2 Canada Western Red Spring, as defined by the Canadian Grain Commission. Minimum protein content 13.5pc on a 13.5pc moisture basis.

Rapeseed oil (RSO)

Argus AgriMarkets includes spot and forward prices for crude rapeseed oil (RSO) republished from Argus Biofuels.

Prices are published for prompt loading and for loading during the first three of the forward three-month periods listed below.

- February, March, April (FMA)
- May, June, July (MJJ)
- August, September, October (ASO)
- November, December, January (NDJ)

See the [Argus Biofuels methodology](#).

Freight

Argus AgriMarkets includes spot freight rates republished from Argus Freight.

Grains

- Santos to Qingdao 60,000t
- Kalama to Qingdao 65,000t

See the [Argus Freight methodology](#).