

Standard SIMS Report Agricultural Price Indices 2024

Single Integrated Metadata Structure (SIMS) Report

For

Agricultural Price Indices

This documentation applies to the reporting period: **2024**

Last edited: 15/04/2024



1. Table of Contents

1. Table of Contents	3
2. Introduction	5
3. Contact	5
4. Metadata Update	5
4.1. Metadata last certified	5
4.2. Metadata last posted	5
4.3. Metadata last update	5
5. Statistical Presentation	6
5.1. Data Description	6
5.2. Classification System	6
5.3. Sector Coverage	6
5.4. Statistical Concepts and definitions	7
5.5. Statistical Unit	7
5.6. Statistical Population	7
5.7. Reference Area	7
5.8. Time Coverage	7
5.9. Base period	7
6. Unit of Measure	7
7. Reference Period	7
8. Institutional Mandate	8
8.1. Legal Acts and other agreements	8
8.2. Data Sharing	8
9. Confidentiality	8
9.1. Confidentiality – policy	8
9.2. Confidentiality – data treatment	8
10. Release Policy	8
10.1. Release Calendar	8
10.2. Release calendar access	8
10.3. User access	8
11. Frequency of Dissemination	9
12. Accessibility and clarity	9
12.1. News release	9
12.2. Publications	9
12.3. On-line database	9
12.3.1. AC 1. Data tables - consultations	9
12.4. Micro-data Access	9
12.5. Other	9
12.5.1. AC2. Metadata consultations	9
12.6. Documentation on Methodology	10
12.6.1. AC3 – Metadata completeness – rate	10
12.7. Quality Documentation	10
13. Quality Management	10
13.1. Quality Assurance	10
13.2. Quality Assessment	10
14. Relevance	10
14.1. User Needs	10
14.1.1. Main National Users	10
14.1.2. Principal External Users	. 11
14.2. User Satisfaction	. 11
14.3. Data Completeness	. 11
14.3.1. Data Completeness rate	. 11
15. Accuracy and reliability	. 11
15.1. Overall accuracy	. 11
15.2. Sampling Error	. 11
15.2.1. A1. Sampling error indicator	. 11



15.3. Non-sampling Error	11
15.3.1. Coverage error	11
15.3.2. Measurement error	12
15.3.3. Non-Response Error	12
15.3.4. Processing error	12
15.3.5. Model assumption error	12
16. Timeliness and punctuality	12
16.1. Timeliness	12
16.1.1. TP1. Time lag – First results	12
16.1.2. TP2. Time lag – Final results	12
16.2. Punctuality	12
16.2.1. TP3. Punctuality – Punctuality - delivery and publication	12
17. Comparability	13
17.1. Comparability – Geographical	13
17.1.1. CC1. Asymmetry for mirror flow statistics	13
17.2. Comparability over time	13
17.2.1. Length of Comparable Time series	13
17.3. Coherence – cross domain	13
17.3.1. Coherence – Sub annual and annual statistics	13
17.3.2. Coherence with National Accounts	13
17.4. Coherence – internal	13
18. Cost and Burden	13
19. Data Revision	14
19.1. Data Revision Policy	14
19.2. Data Revision Practice	14
19.2.1. Data Revision – Average size	14
20. Statistical processing	14
20.1. Source Data	14
20.1.1. Population and sampling frame	15
20.1.2. Sampling design	15
20.1.3. Survey size	15
20.1.4. Survey technique	15
20.2. Frequency of data collection	15
20.3. Data Collection	15
20.3.1. Type of Survey/Process	15
20.3.2. Questionnaire (including explanations)	15
20.3.3. Survey Participation	16
20.3.4. Data Capture	16
20.4. Data Validation	16
20.5. Data Compilation	16
20.5.1. Imputation (for Non-Response or Incomplete Data Sets)	17
20.5.2. Grossing and Weighting	17
20.6. Adjustment	17
20.6.1. Seasonal Adjustment	17
21. Comment	17



2. Introduction

The agricultural price indices are required for the compilation of the Economic Accounts for Agriculture which are compiled in compliance with Council Regulation (EC) No 138/2004.

The current series of agricultural output and input price indices is with the base year 2020 as 100. The rebasing of the two series is in line with EU recommendations to update the base reference periods at regular five-year intervals.

The output aims at measuring the change in the level of prices paid and received by farmers for goods and services.

3. Contact

Contact Organisation: Contact Organisation Unit: Contact Name: Contact person function: Contact Person function: Contact person function: Contact Mail address: Contact email address: Contact Phone Number: Contact Fax Number: Central Statistics Office Business Statistics, Agriculture Prices Dr Nele van der Wielen Statistician Carmel Hinchion Higher Executive Officer Skehard Road, Cork, T12X00E, Ireland agprices@cso.ie +353 21 453 5000

4. Metadata Update

4.1. Metadata last certified

04/2024

4.2. Metadata last posted

04/2024

4.3. Metadata last update

03/2024

5. Statistical Presentation

5.1. Data Description

The Agricultural Price Indices comprise of:

- The index of producer prices of agricultural products the Output Price Index.
- The index of purchase prices of the means of agricultural production the Input Price Index.

A price index is a measure of the change in the prices of goods and services either as they leave their place of production or as they enter the production process. A measure of the change in the prices received by domestic producers for their outputs or of the change in the prices paid by domestic producers for their intermediate inputs. Therefore, basically, a price index illustrates how the price of a product or of a basket of products has changed since the base period. The base price of an index is 100 by agreement, meaning that, for instance, an index equal to 110 reflects an increase in the absolute price of 10% and an index equal to 95 a decrease of 5%.

An Agricultural Price Index shows how agricultural revenue and expenditure are influenced by their price component and is therefore connected with Economic Accounts for Agriculture (EAA).

The agricultural output price indices are intended to measure trends in the price of agricultural produce sold by farmers.

The agricultural input price indices are designed to measure trends in the price of farm inputs purchased for current consumption (i.e. non-capital materials and services).

Monthly prices are used for most products. Annual prices are only available for some items e.g. cereals, and for these products the annual price (or the price for the crop year) is used each month to calculate the monthly indices until the beginning of the next season or harvest.

Standardised prices are used for milk and cereals to ensure that products of identical quality are priced in successive periods. In the case of milk for manufacturing, this means pricing each month at a fixed butterfat (3.7%) and protein (3.3%) content. In the case of cereals, prices are standardised at 20% moisture content each year.

5.2. Classification System

Due to the connection with Economic Accounts for Agriculture (EAA), the Agricultural Price Indices nomenclature is harmonised to the greatest possible extent with the nomenclature of EAA, which is an integral part of the European System of Accounts (ESA). Therefore, Eurostat's general classification of economic activities (NACE) is used for the compilation of price indices.

For a detailed breakdown of classifications see the EU Handbook for Agricultural Price Indices <u>https://ec.europa.eu/eurostat/cache/metadata/Annexes/apri_pi_esms_an1.pdf</u>

5.3. Sector Coverage

The *output price indices* cover agricultural goods and services. They include crops, livestock and livestock products.

The *input price indices* cover agricultural inputs including intermediate consumption of goods and services (fertilisers, pesticides, feed, seed, energy and lubricants, maintenance and repairs, etc.) and gross fixed capital formation related to investments goods (machinery and equipment, farms, buildings, etc.).



5.4. Statistical Concepts and definitions

The producer prices index of agricultural products (output) represents the measure of transaction prices reflecting revenue received by the producer for goods and services actually sold to customers over a period.

The index of purchase prices of the means of agricultural production (input) is the measure of transaction prices reflecting the expenditure incurred by farmers in purchasing the means of production (goods and services as well as investment goods), including crop products from other agricultural units for intermediate consumption, over a given period. It is the basic value for calculating the value weights of the input index if it falls in the base period. It includes taxes less subsidies on products (but excludes deductible taxes like deductible VAT).

For consistency with similar price indices at EU level, the prices used are based on the market price concept. The market price is defined as the price received by the producer without the deduction of bonuses, taxes or levies (except deductible VAT and third-party levies) and without the inclusion of subsidies.

Both indices are compiled on the basis of the average farm concept. The average farm concept includes both sales to other economic sectors as well as sales/purchases of agricultural output between agricultural units for intermediate consumption purposes, excluding trade in animals between agricultural units.

5.5. Statistical Unit

The statistical units consist of traders involved in the sales of agricultural products and the purchases of the means of agricultural production.

5.6. Statistical Population

Merchants, Co-operatives, creameries, Department of Agriculture, Food and the Marine, Teagasc, veterinaries operating in the republic of Ireland involved in the sales of agricultural products and/or purchases of the means of agricultural production.

5.7. Reference Area

National level data is produced - no regional data is calculated.

5.8. Time Coverage

2020 - current

5.9. Base period

2020

6. Unit of Measure

% change index

7. Reference Period

2023



8. Institutional Mandate

8.1. Legal Acts and other agreements

The Agricultural Price Indices are compiled on the basis of Regulation (EU) 2022. They are required for the compilation of the Economic Accounts for Agriculture which are compiled in compliance with Council Regulation (EC) No 138/2004.

8.2. Data Sharing

Not applicable.

9. Confidentiality

9.1. Confidentiality – policy

All information supplied to the CSO (Central Statistics Office) is treated as strictly confidential. The Statistics Act, 1993 sets stringent confidentiality standards: Information collected may be used only for statistical purposes, and no details that might be related to an identifiable person or business undertaking may be divulged to any other government department or body.

These national statistical confidentiality provisions are reinforced by the following EU legislation: Council Regulation (EC) No 223/2009 on European statistics for data collected for EU statistical purposes. Further details are outlined in the CSO's Code of Practice on Statistical Confidentiality.

For more information on the CSO confidentiality policy please visit: https://www.cso.ie/en/aboutus/lgdp/csodatapolicies/statisticalconfidentiality/

9.2. Confidentiality - data treatment

All data from respondents are treated as strictly confidential in accordance with the Statistics Act 1993.

Any index where there are less than 4 respondents is marked confidential in the data transmission to Eurostat. These indices are aggregated with another category in the National Release.

10. Release Policy

10.1. Release Calendar

The date of dissemination of all statistics released by CSO can be found in the Release Calendar published in CSO.ie. This calendar is regularly updated.

10.2. Release calendar access

The release calendar can be accessed via the CSO website, www.cso.ie, or directly from this link: <u>https://www.cso.ie/en/csolatestnews/releasecalendar/</u>

10.3. User access

In accordance with Principle 6 of the European Statistics Code of Practice all users of CSO statistics have equal access via the CSO website at the same time of 11 am. Any privileged pre-release access to any outside user is limited, controlled and publicised. In the event that leaks occur, pre-release arrangements are revised so as to ensure impartiality.

The CSO recognises that in very limited circumstances a business need for pre-release access may be



substantiated. Any form of pre-release access is a privilege and a strict CSO pre-release access policy is adhered to for these special requests. The full pre-release access policy can be accessed at https://www.cso.ie/en/aboutus/lgdp/csodatapolicies/csopolicyonpre-releaseaccess/

The various results are published nationally in statistical release format as well as on the CSO website (www.cso.ie). Selected extracts from the results are posted on the CSO's data dissemination database, PxStat.

The release is made available on the CSO website at 11am on the day of release. PxStat is updated on the morning of the release to ensure the entire series, back to 2019, is available through the Database Direct section of the CSO website. Background notes on the indices are included in each monthly release.

11. Frequency of Dissemination

Agricultural price indices are published monthly.

12. Accessibility and clarity

12.1. News release

Not applicable.

12.2. Publications

The latest monthly Agricultural Price Index electronic publication can be found on the CSO website directly from this link: https://www.cso.ie/en/statistics/agriculture/agriculturalpriceindices/

Agricultural Price Indices Introduction of New Series to Base Year 2020=100 <u>https://www.cso.ie/en/statistics/agriculture/agriculturalpriceindices/</u>

12.3. On-line database

Most price indices and some absolute prices are available on the CSO dissemination database PxStat. They can be accessed directly from the following link: <u>https://data.cso.ie/product/api</u>

12.3.1. AC 1. Data tables - consultations

During the time period 01/07/2023 to 01/04/2024 the most recently published monthly API releases were accessed 4704 times from 2699 different users.

12.4. Micro-data Access

Not applicable.

12.5. Other

Agricultural Price Indices Introduction of New Series to Base Year 2020=100 https://www.cso.ie/en/releasesandpublications/ep/p-api/agriculturalpriceindicesmarch2024/

NewCRONOS can be consulted by the external users free of charge via the Eurostat web site <u>http://ec.europa.eu/eurostat/web/agriculture/data/database</u>

12.5.1. AC2. Metadata consultations

Not calculated.



12.6. Documentation on Methodology

The methodology of the current series is available in the publication *Agricultural Price Indices Introduction of New Series to Base Year 2020=100* published in May 2020. <u>https://www.cso.ie/en/releasesandpublications/ep/p-api/agriculturalpriceindicesmarch2024/</u>

Further methodological documents are available through the CSO's Methods page, accessible from this link: <u>https://www.cso.ie/en/methods/agricultureandfishing/agriculturalpriceindices/</u>

12.6.1. AC3 - Metadata completeness - rate

Not calculated.

12.7. Quality Documentation

For more information on the quality of the API release please consult the CSO's Methods page <u>https://www.cso.ie/en/methods/agricultureandfishing/agriculturalpriceindices/</u>

13. Quality Management

13.1. Quality Assurance

Quality Management Framework

The CSO avails of an office wide Quality Management Framework (QMF). This framework allows all CSO processes and outputs to meet the required standard as set out in the European Statistics Code of Practice (ESCOP). The QMF foundations are based on establishing the UNECE's Generic Statistical Business Process Model (GSBPM) as the operating statistical production model to achieve a standardised approach to Quality Management. All and any changes implemented to CSO processes and outputs require adherence to the QMF.

13.2. Quality Assessment

The CSO requires that all produced output carry out an annual self-assessment exercise to evaluate the quality of the processes leading to the output and the quality of the disseminated products. The last iteration of this exercise for the API showed that both the current processes and outputs are of sufficient quality to meet user demands,

14. Relevance

14.1. User Needs

The Agricultural Price Indices are required by Eurostat. The indices are also used by DAFM (Department of Agriculture, Food and the Marine), Teagasc, IFA (Irish Farmers' Association) and other farming groups and researchers.

The agricultural price indices are required under Regulation (EU) 2022/2379 and required for the compilation of the Economic Accounts for Agriculture which are compiled in compliance with Council Regulation (EC) No 138/2004.

14.1.1. Main National Users

- CSO production of Agriculture Accounts
- Department of Agriculture, Food and the Marine (DAFM)
- Teagasc
- Bord Bia



• General Public

14.1.2. Principal External Users

Eurostat

14.2. User Satisfaction

Not measured.

14.3. Data Completeness

Data is complete at national level where all required variables are disseminated. However, at European level not all the products required by Eurostat are disseminated.

14.3.1. Data Completeness rate

Not applicable.

15. Accuracy and reliability

15.1. Overall accuracy

This is a sample survey and all the data is verified therefore data is as accurate as possible.

15.2. Sampling Error

Several surveys are carried out, some data is calculate based on matched sample and others are based on sample survey.

While technically it is a sample, the sample is not pulled from a sampling frame but instead we have a fixed set of respondents and if a respondent drops out, we ask them to provide a new contact or we find a similar replacement. On account of this the sampling error is not measured.

15.2.1. A1. Sampling error indicator

Not applicable.

15.3. Non-sampling Error

There are no major sources of non-sampling errors that affect the overall accuracy of the API outputs. See the breakdown in the following subsections.

15.3.1. Coverage error

Not applicable

15.3.1.1. A2. Over coverage rate

Not applicable.

15.3.1.2. A3. Common units - proportion

Not applicable.



15.3.2. Measurement error

As the questionnaires are straight forward and the data required is easily available there is a low risk of measurement errors.

15.3.3. Non-Response Error

A matched sample of respondents is used each month and in general the respondents reply either by post or by follow-up telephone calls. Imputation is rarely used but, if necessary, the last recorded price is used for the current month.

15.3.3.1. Unit non-response rate

Not calculated.

15.3.3.2. Item non-response rate

Not calculated.

15.3.4. Processing error

Data is keyed and then checked by someone else. Then edits are run. Macro edits are completed on the final data to check for consistency with historical data.

15.3.5. Model assumption error

Weighting is based on the weights that pertained in the base year so may have changed since the base year.

16. Timeliness and punctuality

16.1. Timeliness

16.1.1. TP1. Time lag – First results

Preliminary annual results are sent to Eurostat 60 days before the end of the reference year. The preliminary release at national level is published 55 days before the end of the reference year.

16.1.2. TP2. Time lag - Final results

Quarterly data is sent to Eurostat 45 days after reference quarter. Annual data is sent to Eurostat 60 days after reference year.

The national monthly release is published no later than 48 days after reference month. The annual data is included in the December release disseminated in February, i.e. t+2 months.

16.2. Punctuality

The transmission of data to Eurostat is always within the deadline set up by the relevant domain.

At national level the output is always disseminated in accordance with the date specified in the CSO's advance release calendar.

16.2.1. TP3. Punctuality - Punctuality - delivery and publication

0 days.

17. Comparability



17.1. Comparability – Geographical

Not applicable at national level.

At European level the APIs time series are comparable among all Member States due to the adoption of the agreed common EU methodology.

17.1.1. CC1. Asymmetry for mirror flow statistics

Not applicable.

17.2. Comparability over time

While Eurostat require quarterly and annual output and input indices, the indices published in the national release are of a monthly and annual frequency to provide continuity with the previous monthly series. It is important to note that there are differences between the methodology used to calculate the quarterly output indices for Eurostat and the methodology used to calculate the monthly output indices for the Agricultural Price Indices release. The weighting scheme used in the calculation of the quarterly output indices for Eurostat is compiled using base year quarterly weights to reflect the seasonal character of output products. The weighting scheme used in the calculation of the monthly output indices is compiled using fixed annual weights.

17.2.1. Length of Comparable Time series

Since 2019, 4 years.

17.3. Coherence – cross domain

Consistency checks against other data providers, Teagasc, IFA, DAFM are carried out on a regular basis.

17.3.1. Coherence - Sub annual and annual statistics

Consistency checks against other data providers, Teagasc, IFA, DAFM, depending on availability.

17.3.2. Coherence with National Accounts

Not applicable.

17.4. Coherence – internal

Not applicable.

18. Cost and Burden

Estimates of Cost and Burden can be obtained from the Response Burden Barometer <u>https://www.cso.ie/en/statistics/enterprisestatistics/responseburdenbarometer/</u>

Survey specific information is available via CSO's dissemination database PxStat. <u>https://data.cso.ie/product/RBB</u>

19. Data Revision



19.1. Data Revision Policy

Published statistics are subject to correction and revision for a variety of reasons. The most common reasons include the receipt of additional information (for example, late survey responses) and updated seasonal factors. Occasional revisions also occur as a result of changes to definitions, methodology, classifications and general updating of statistical series.

It is recognised internationally that the existence of a sound revisions policy maintains credibility in official statistics. The CSO General Revisions Policy, which details how revisions should be managed and communicated to users, outlines the three main types of revisions:

- Planned Routine Revisions
- Planned Major Revisions
- Unplanned Revisions.

One reason for unplanned revisions occurring can be when errors are detected after publication. The 'CSO Error Correction Policy – How to deal with Publication Errors' outlines the steps taken when these errors are detected. As required under Principle 6.3 of the European Statistics Code of Practice, errors detected in published statistics are corrected at the earliest possible date and users are informed. An important step in the process is the documentation and analysis of errors that have occurred and their causes. This allows the CSO to take measures preventing similar errors from occurring in the future and uniformity in dealing with them when they do.

The data revision policy that CSO statistics adheres to can be found via the following link: <u>https://www.cso.ie/en/methods/quality/treatmentofrevisions/</u>

19.2. Data Revision Practice

Revisions are rare but if occur are included in the next release. The milk price index is an area where you might find revisions due to bonuses being paid later in the year.

19.2.1. Data Revision - Average size

Not calculated.

20. Statistical processing

20.1. Source Data

The underlying data in the Agricultural Price Indices releases are based on both administrative data and CSO survey data.

The main data sources are:

- DAFM provide prices of livestock, eggs, poultry, pigs, sheep, AI quantities
- · Merchants provide prices of fertilisers, cereals, feeding stuffs, wool, pesticides and seeds
- · Teagasc provide prices of vegetables
- Dublin Wholesale Market, Teagasc and DAFM provide prices of potatoes
- Livestock Marts provide prices of livestock
- Co-operatives provide milk prices
- CSO Consumer Price Index provide indices for electricity, fuel, maintenance of materials and buildings and other goods and services.
- CSO Wholesale Price Index provide indices for building materials, pipes and machinery.
- Quarries provide prices for fertilisers
- Veterinary Surgeons provide prices for vets' fees and products
- AI stations provide prices

• Factories provide pig prices also

20.1.1. Population and sampling frame

The survey population is all farmers where the prices they receive for their agricultural products sold and the prices they pay for the means of production are to be recorded.

It is not possible to survey all farmers, therefore administrative sources data are used where possible and a sample survey of merchants and co-operatives, etc. is used.

20.1.2. Sampling design

Where possible, administrative data is used. For the sample survey a sample of merchants and cooperatives is selected and this sample is used until the next base year (matched sample).

20.1.3. Survey size

Surveys of 41 co-ops/merchants, 11 marts, 9 co-ops and 21 vets. Additional data is sourced from administrative data sources.

20.1.4. Survey technique

Administrative data from DAFM by email. The Marts data is received by email/secure deposit box. Some survey forms are received by post and email and some respondents reply by telephone.

20.2. Frequency of data collection

The surveys are issued on a monthly basis. Monthly prices are used for most products. Annual prices are only available for some items e.g. cereals, and for these products the annual price (or the price for the crop year) is used each month to calculate the monthly indices until the beginning of the next season or harvest.

20.3. Data Collection

Data from administrative sources is used mainly for the output prices while survey data is mainly used for the input prices.

Prices are collected for all categories. VAT is excluded. Third party levies are deducted. Bonuses are included. Subsidies are not included.

The composition of each monthly basket is based on the monthly pattern of sales of vegetables, potatoes and sheep respectively averaged over the three years 2019 to 2021 inclusive.

The collected variables are the sales of agricultural products, and the purchases of the means of agricultural production by agricultural producers.

20.3.1. Type of Survey/Process

Combined survey and administrative data.

20.3.2. Questionnaire (including explanations)

Several different surveys are used in the compilation of information from merchants, comprising of:

- Artificial Insemination prices
- Creamery milk prices
- Fertilisers and feeds



- Marts Survey
- Pesticides
- Seed Suppliers Survey
- Veterinary Surgeons Fees Surveys.

Merchants and co-operatives are asked to list the current month's prices for each of the products listed on the form.

The forms issued are available to view directly from this link <u>https://www.cso.ie/en/methods/surveyforms/agriculturalpriceindices/</u>

20.3.3. Survey Participation

Participation in the survey is voluntary.

20.3.4. Data Capture

Manual data entry into datasets.

20.4. Data Validation

Administrative data is checked at a macro level. Micro and macro edit checks are carried out on survey data. Respondents are contacted to confirm the accuracy of their data where necessary.

20.5. Data Compilation

The Laspeyres index formula, involving the use of fixed base year weights, has been used in the compilation of the monthly index numbers for all commodity groupings except vegetables, potatoes and sheep. Since the weights used are based on average values of sales, not on quantities, the following adapted Laspeyres index formula is used:

$$I_t = \sum_j W_{jo} \left(\frac{P_{jt}}{P_{jo}} \right) \times 100 = \sum_j (\text{base period value weight} \times \text{ price relative})_j \times 100$$

where:

- $W_{jo} = \frac{P_{jo}Q_{jo}}{\sum_{j} P_{jo}Q_{jo}}$ (i.e. the base year value weight of item j)
- I_t = the overall index in month t
- P_{io} = the price of item *j* in the base year (i.e. the average price in the year 2020)
- P_{it} = the price of item *j* in month *t* = the average annual sales/purchases of
- $P_{jo}Q_{jo}$ item *j* around the base year (i.e. the average value of sales/purchases in the years 2019 to 2021)
- P_{jo}/P_{io} = the "price relative" of item j for month t compared with the base year

With the exception of vegetables, potatoes and sheep the price index of a given commodity *j* in month *t* is given by the expression:

$$\frac{P_{jt}}{P_{jo}} \times 100$$
 i.e. the price relative multiplied by 100.

As vegetables, potatoes (i.e. early and main varieties) and sheep (i.e. lambs and hoggets) are highly seasonal commodities, it is not appropriate to use fixed annual weights when calculating these price indices. Accordingly, an approach using variable monthly baskets is used for these sub-indices. The composition of each monthly basket is based on the monthly pattern of sales of vegetables, potatoes and sheep respectively averaged over the three years 2019 to 2021 inclusive. The monthly index is then calculated using the following formula:

$$I_{mt} = \frac{\sum_{i} Q_{imo} P_{imt}}{\sum_{i} Q_{imo} P_{io}} \times 100$$

i.e. (value of monthly basket at reference month prices/value of basket at average base year prices) x 100 where:

- I_{mt} = price index in month *m* in year *t*
- *Q_{imo}* = quantity of vegetable *i*/ potato *i*/ sheep *i* in basket in month m in the base year 2020
- P_{imt} = price of vegetable *i*/potato *i*/sheep *i* in month *m* in year *t*
- P_{io} = weighted annual average price of vegetable *i* / potato *i* / sheep *i* in the base year 2020

20.5.1. Imputation (for Non-Response or Incomplete Data Sets)

Imputation is rarely used but where necessary the last recorded price is usually carried forward to the current month.

20.5.1.1. A7. Imputation rate

Not calculated.

20.5.2. Grossing and Weighting

The monthly total output price indices are the weighted average of the individual output price indices using the average annual value of sales off farms from the Economic Accounts for Agriculture in the period 2019 to 2021 as weights. A spread of three years is used to counteract any abnormalities which might have occurred in agricultural production in a single year. The annual output indices are calculated as the weighted arithmetic mean of the monthly indices.

The monthly total input price indices are the weighted average of the individual input price indices using the expenditure on farm inputs from the Economic Accounts for Agriculture in the period 2019 to 2021 as weights. A spread of three years is also used to counteract any abnormalities which might have occurred in purchases of inputs in a single year. The annual input indices are calculated as the simple arithmetic mean of the monthly indices.

All results are calculated in SAS.

20.6. Adjustment

Adjustment is carried out for certain inputs to the survey such as vegetables, potatoes (i.e. early and main varieties) and sheep (i.e. lambs and hoggets) since they are highly seasonal commodities. This adjustment is described under the 'Data Compilation section'.

20.6.1. Seasonal Adjustment

As above.

21. Comment