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Output Price Index and Prices in Agriculture Q4-2022 (2015=100)

February, 2023

Prishtina, 03.02.2023, Kosovo Agency of Statistics, respectively the Department of Agriculture and Environment Statistics, has started to collect data on agriculture output prices since November 2003. At the beginning, the number of items was limited. With the change of the base year from 2003 to the base year of 2005, prices have been collected for 64 different agricultural outputs. Whereas, with the change of the base year 2005 to 2010, prices for 67 agricultural outputs were collected. Currently, with the change of the base year from 2010 to the base year 2015, prices are collected for 71 different agricultural outputs. The purpose of the agricultural output index is to measure the price movements for the products sold by the farmer. The plan for the future is to increase the number of outputs. In addition to the output price index is also the input price index.

This is the seventy – three publication (73) on the agriculture output price index and the average absolute prices of agriculture outputs, prepared by the Kosovo Agency of Statistics. In this publication, the agriculture output price index has been presented for some major agricultural products.

KAS thanks the Swedish International Development Cooperation Agency (SIDA) for their support for building the agro-monetary statistical system. KAS also thanks all collaborators of its regional offices, other co-operators (respondents) of point-of-sale places such as: agricultural farms, industrial enterprises, trade, etc.

In particular, KAS thanks Swedish price statistics expert, Mr. Anders Grönvall and others who directly or indirectly assisted in finalizing this publication.

Suggestions and remarks regarding this publication can be sent to the department's email address: infoask@rks-gov.net

Publication was prepared by:

Bajrush Qevani – Director of Department,
Violeta Arifi – Gashi – Head of Division,

Acting Chief Executive Officer, KAS
Ilir T. Berisha

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Abbreviations and Acronyms

KAS	-	Kosovo Agency of Statistics
API	-	Agriculture Price Index
EU	-	European Union
SIDA	-	Swedish International Development Cooperation Agency
Q4	-	Fourth quarter

Key to symbols

.	-	Not applicable
‰	-	Promile

In the tables where figures have (weight) have been rounded to the nearest final digit might be a slight discrepancy in the sum.

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Output Price Index for agriculture products

The data presented in this publication include data on the monthly index covering the period from October to December of the year 2022 with the base year 2015=100. To make the comparisons and to observe the changes, data for the fourth quarterly (Q4) 2015-2022 are presented in the base year of 2015 (2015 = 100)

KAS has changed the base year from 2010=100 in 2015=100 according to Eurostat methodology. In this publication are collected the prices of local agriculture outputs in Kosovo. Price collection is done in markets, farms and other places.

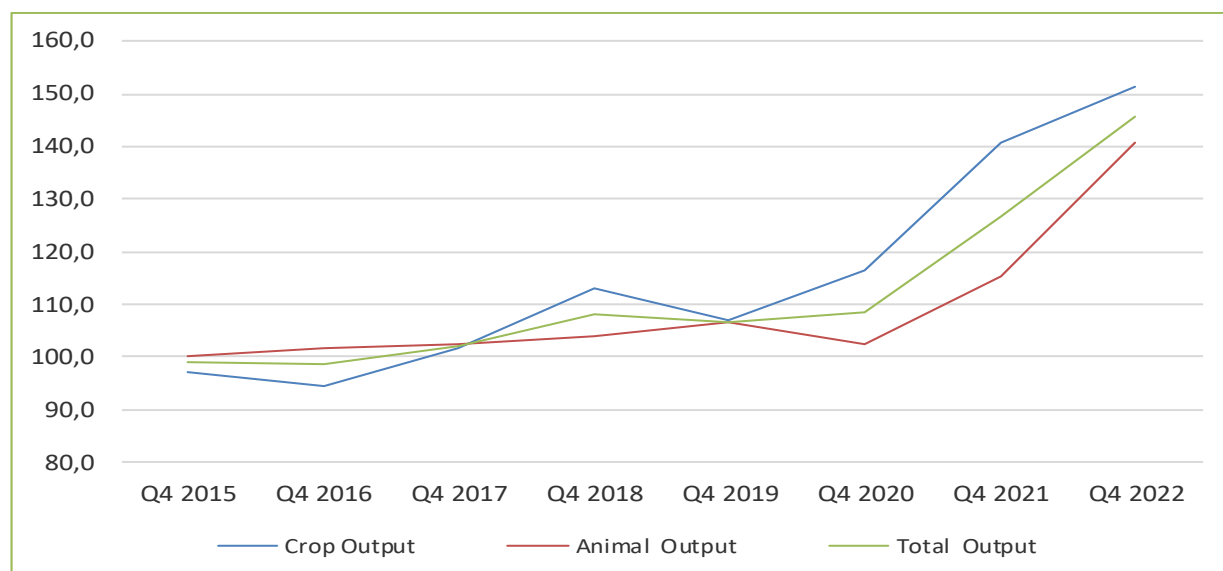
The products that make up the base for the agriculture output price index are divided into two main groups: Crop and Animal Output (plant and livestock products). Within crop output, prices are collected for these groups: cereals forage plants, vegetables, potatoes and fruits.

In animal output, prices have been collected for livestock and livestock products. Within livestock, prices are collected for four categories of animals: cattle, sheep, pigs and poultry. These prices are based on live weight of animals. Within livestock the output prices are collected for: milk, eggs and honey. All prices are calculated in Euro and the units are in kg, liter and pieces.

Figure 1, shows Monthly Output Price Index from January - December 2021 and fourth quarter 2022 for Total Output as well as for Crop and Animal Output (2015 = 100).

In the fourth quarter 2022 the index for Animal Output has increased by (21.95%) compared to the same period 2021. The index for Crop Output has increased by (7.69%) compared to the same period 2021. Total Output Index has also increased by (14.99%) compared to the same period 2021.

Fig. 1: Output Price Index for Crop Output,Animal Output and Total Output, 2015-2022(2015=100)



Agricultural Output Price Index Q4

Tab 1: Agricultural Output Price Index, Q4 2015-2022 (2015=100)

API code	Description	Q4 2015	Q4 2016	Q4 2017	Q4 2018	Q4 2019	Q4 2020	Q4 2021	Q4 2022
010000	CEREALS (including seeds)	98,6	96,0	78,3	83,5	105,9	92,8	136,6	169,1
011000	Wheat and spelt	98,4	95,5	77,1	82,2	106,5	92,5	137,3	169,6
011100	Soft wheat and spelt	98,4	95,5	77,1	82,2	106,5	92,5	137,3	169,6
012000	Rye and meslin	99,8	99,5	102,9	81,7	87,8	94,3	99,9	128,8
013000	Barley	102,1	103,2	95,8	84,4	84,5	84,8	89,0	123,0
013200	Malting barley	102,1	103,2	95,8	84,4	84,5	84,8	89,0	123,0
014000	Oats and summer cereal mixtures	100,2	111,1	96,0	84,5	84,1	95,4	93,4	124,1
015000	Grain maize	101,2	104,0	95,0	106,5	101,6	98,9	133,2	171,8
030000	FORAGE PLANTS	111,3	111,2	112,8	111,5	100,6	105,6	124,0	150,2
031000	Fodder maize	101,6	96,1	95,4	88,1	91,5	99,3	125,7	176,5
032000	Fodder root crops (including forage beet)	:	:	:	:	:	:	:	:
039000	Other forage plants	111,7	111,8	113,4	112,4	100,9	105,9	123,9	149,3
040000	VEGETABLES AND HORTICULTURAL PRODUCTS	91,2	90,7	94,1	108,5	100,0	106,3	125,7	147,4
041000	Fresh vegetables	91,2	90,7	94,1	108,5	100,0	106,3	125,7	147,4
041100	Cauliflower	87,0	121,8	90,2	107,6	90,2	91,8	160,6	189,9
041200	Tomatoes	120,6	120,6	128,4	142,0	120,4	168,8	154,7	159,9
041900	Other fresh vegetables	90,4	89,9	93,2	107,6	99,4	104,7	124,9	147,0
042000	Plants and flowers	:	:	:	:	:	:	:	:
050000	POTATOES (including seeds)	102,0	90,0	93,6	124,3	95,0	115,6	167,5	165,9
051000	Potatoes for consumption	102,0	90,0	93,6	124,3	95,0	115,6	167,5	165,9
060000	FRUITS	97,4	97,5	119,4	121,0	126,2	140,1	150,9	144,0
061000	Fresh fruit (excluding citrus fruit and grapes)	94,0	113,1	142,8	102,9	122,5	135,6	123,0	138,2
061100	Dessert apples	100,3	101,8	144,7	112,1	101,7	119,5	120,5	135,0
061200	Dessert pears	96,7	116,9	133,5	112,3	125,1	118,9	127,6	143,9
061300	Peaches	:	:	:	:	:	:	:	:
061900	Other fresh fruit, nuts and dried fruit	87,5	118,0	148,3	89,7	135,1	159,0	121,4	136,2
062000	Citrus fruit	:	:	:	:	:	:	:	:
063000	Tropical fruit	:	:	:	:	:	:	:	:
064000	Grapes	99,3	89,2	106,7	130,8	128,2	142,5	166,0	147,1
100000	CROP OUTPUT (010000 TO 090000), including fruits (060000) and vegetables (040000)	97,1	94,7	101,6	113,2	106,9	116,4	140,6	151,5
101000	CROP OUTPUT (010000 TO 090000), excluding fruits (060000) and vegetables (040000)	103,7	96,9	95,4	112,3	98,8	108,2	149,4	162,4
110000	ANIMALS	99,4	97,4	98,1	103,6	104,4	103,7	119,9	148,4
111000	Cattle	99,2	97,1	96,8	107,8	107,1	109,8	121,8	149,4
111100	Cattle excluding calves	99,6	97,7	99,0	111,5	108,1	109,2	121,4	152,4
111200	Calves	98,3	95,8	92,2	100,2	105,1	111,2	122,6	142,9
112000	Pigs	96,5	97,7	98,5	100,8	100,8	102,5	118,3	155,8
113000	Equines	:	:	:	:	:	:	:	:
114000	Sheep and goats	101,5	97,3	99,3	100,0	102,5	91,1	118,9	149,6
115000	Poultry	99,4	98,7	99,7	99,1	104,0	114,7	116,5	124,6
115100	Chickens	99,4	98,7	99,7	99,1	104,0	114,7	116,5	124,6
115900	Other poultry	99,4	98,7	99,7	99,1	104,0	114,7	116,5	124,6
119000	Other animals	:	:	:	:	:	:	:	:
120000	ANIMAL PRODUCTS	100,7	103,6	104,0	103,9	107,6	101,8	113,7	137,8
121000	Milk	98,7	100,1	101,0	100,7	106,9	97,4	109,7	132,2
121100	Cows' milk	98,7	100,1	101,0	100,7	106,9	97,4	109,7	132,2
121900	Other milk types								
122000	Eggs	109,9	122,7	118,4	118,8	108,1	119,3	131,8	166,0
129000	Other animal products	105,2	103,8	109,1	112,1	118,4	122,3	125,2	144,7
130000	ANIMAL OUTPUT (110000+120000)	100,3	101,9	102,3	103,9	106,7	102,4	115,4	140,8
140000	AGRICULTURAL GOODS OUTPUT (100000+130000), including fruits (060000) and vegetables (040000)	98,9	98,7	102,0	108,0	106,8	108,6	126,7	145,7
141000	AGRICULTURAL GOODS OUTPUT (101000+130000), excluding fruits (060000) and vegetables (040000)	101,1	100,8	100,9	105,6	105,0	103,6	122,7	145,6

Monthly Agricultural Output Price Index

Tab. 2: Monthly Agricultural Output Price Index October-December 2022 (2015=100)

Item Code	Groups	Weight		2022		
		%	1000 Euro	Oct	Nov	Dec
0 1	Cereals	27	8.940	169,7	168,2	169,1
0 1.1	Wheat	26	8.455	170,4	168,6	169,6
0 1.3	Barley	0	48	122,7	122,7	123,6
0 1.5	Maize	1	364	170,8	173,9	170,8
0 1.9	Other cereals	0	73	124,0	128,7	126,4
0 3	Forage plants	36	11.643	152,0	152,1	149,0
0 3.1	Fodder maize	1	425	174,6	177,7	177,7
0 3.9	Other forage plants	34	11.218	151,1	151,1	147,9
0 3.9.1	Hay	26	8.493	149,2	149,2	145,2
0 3.9.2	Straw	4	1.234	161,0	161,0	149,1
0 3.9.9	Other forage plants ;others	5	1.491	154,2	154,2	162,3
0 4	Vegetables	210	68.778	155,8	135,8	127,5
0 4.1	Fresh vegetables	210	68.778	155,8	135,8	127,5
0 4.1.2	Tomatoes	31	10.107	159,9	:	:
0 4.1.9	Other fresh vegetables	179	58.671	155,6	135,8	127,5
0 4.1.9	Pepper	105	34.293	168,0	165,0	:
0 4.1.9.1	Cabbage	1	388	129,9	123,7	129,9
0 4.1.9.4	Cucumbers	1	429	249,7	:	:
0 4.1.9.6	Onions	8	2.569	135,3	135,3	138,5
0 4.1.9.7	Beans	49	16.071	130,4	133,1	130,4
0 4.1.9	Water melon	2	550	:	:	:
0 4.1.9.9.9	Other fresh vegetable;other	13	4.371	108,8	106,3	106,4
0 5	Potatoes	62	20.348	160,7	169,2	169,2
0 6	Fruits	87	28.598	147,3	141,6	126,6
0 6.1	Fresh fruits	52	16.970	146,1	128,0	126,6
0 6.1.1	Apple	7	2.360	141,5	123,8	132,7
0 6.1.2	Pears	6	1.963	144,3	144,3	142,9
0 6.1.9	Other fresh fruit	39	12.646	148,9	96,2	93,8
0 6.1.9.2	Plums	22	7.221	151,9	:	:
0 6.1.9.4	Nuts and dried fruit	3	846	83,6	91,1	90,7
0 6.1.9.9	Other fresh fruits; other	14	4.579	181,4	116,5	112,8
0 6.4.1	Desert grapes	12	3.899	113,8	110,1	:
0 6.4.9	Wine grapes	24	7.729	160,0	160,0	:
10	Crop Output	423	138.307	155,4	145,4	138,0
11	Animals	162	52.824	147,9	147,8	149,5
11.1	Cattle	74	24.125	148,9	149,8	149,4
11.2	Pigs	28	9.199	156,0	153,3	157,9
11.4	Sheep	46	14.944	148,8	148,8	151,2
11.5	Poultry	14	4.556	123,1	123,1	127,4
11,9	Other animals (horses)	0	-	-	-	-
12	Animal Products	415	135.853	135,9	137,4	140,2
12.1	Milk	334	109.198	130,5	131,9	134,3
12.2	Eggs	62	20.112	162,4	164,9	170,6
12.9	Other animal products	20	6.543	144,7	144,7	144,7
13	Animal Output	577	188.677	139,3	140,3	142,8
14	Total Output	1000	326.984	146,1	142,5	141,0

Monthly Absolute Average Price for some agriculture products

Tab 3: Monthly Absolute Average Prices in euro for some major agriculture products, October- December 2022 (2015=100)

Item Code	Groups	Unit	2022		
			Oct	Nov	Dec
01.1.	Wheat ¹	kg	0,33	0,33	0,33
01.3.	Barley ²	kg	0,40	0,40	0,41
01.5.	Maize ³	kg	0,40	0,41	0,40
01.2.	Rye ⁴	kg	0,45	0,45	0,44
01.4.	Oats ⁵	kg	0,38	0,41	0,40
03.9.1	Hay ⁶	kg	0,22	0,22	0,21
03.9.2	Straw ⁷	kg	0,12	0,12	0,11
03.9.9.	Lucern ⁸	kg	0,25	0,25	0,26
05.1.	Potatoes ⁹	kg	0,54	0,57	0,57
04.1.9.1	Cabbage ¹⁰	kg	0,30	0,29	0,30
04.1.9.6	Onion ¹¹	kg	0,60	0,60	0,61
04.1.9.9.9	Pepper ¹²	kg	1,36	:	:
04.1.9.3	Spinach ¹³	kg	0,83	0,79	:
04.1.9.7	Beans ¹⁴	kg	3,50	3,57	3,50
04.1.2	Tomatoe ¹⁵	kg	:	:	:
04.1.9.4	Cucumber ¹⁶	kg	1,13	:	:
04.1.9.9.9.1	Watermelon ¹⁷	kg	:	:	:
04.1.9.9.9.2	Leek ¹⁸	kg	0,94	0,91	0,90
04.1.9.9.9.3	Garlic ¹⁹	kg	3,71	3,86	3,79
06.1.1	Apple ²⁰	kg	0,69	0,60	0,64
06.1.2	Pear ²¹	kg	1,41	1,41	1,40
06.1.3	Chestnuts ²²	kg	1,83	1,86	1,79
06.1.9	Walnuts ²³	kg	2,36	2,57	2,57
06.1.4.1	Grape ²⁴	kg	1,03	1,00	:
11,1	Cattle ²⁵	kg	3,40	3,43	3,43
11,2	Pigs ²⁶	kg	3,50	3,44	3,54
11,4	Sheep ²⁷	kg	3,67	3,67	3,73
11,5	Chickens (wilages) ²⁸	1 pieces	12,71	12,71	13,11
11.5.1	Chickens (farms) ²⁹	1 pieces	2,50	2,50	2,63
12,1	Milk ³⁰	1 lit	0,39	0,40	0,41
12,9	Honey ³¹	kg	14,14	14,14	14,14
12,2	Eggs ³²	30 pieces	3,62	3,68	3,81

1 .) Shows that in these months we do not collect prices for these agriculture products (Cabbage, Pepper, Spinach, Tomatoes, Cucumber, Watermelon, Apple, Pear, Chestnuts, Grape)

1 - 1 Wheat – is domestic, 2 Barley, 3 Maize – Hybrid 448, 4 Rye, 5 Oats, 6 Hay produced in meadow, 7 Wheat straw (Stubble wheat), 8 Lucerne, 9 potatoes, 10 Cabbage (Hybrid 4 11 Onions- second quality, 12 Pepper- variety Sombork, 13 Spinach- variety Matador, 14 Beans- second quality, 15 Tomatoes- variety Arleta, 16 Cucumber- variety Cornishon, 17 Watermelon– is domestic product, 18 Leek, 19 Garlic, 20 Apple, 21 Pear, 22 Chesnuts, 23 Walnuts, 24Grape, 25 Live weight per 1kg for bulls and heifers aged 18-22 months domestic pedigree, 26 Live weight per 1kg for pigs aged 10-12 months domestic pedigree, 27 Live weight per 1kg for sheep domestic pedigree (white, mug) aged older than 12 months, 28 Chicken (Willage)– domestic (18 weeks old), 29 Chicken (farms)– domestic (18 weeks old) , 30 Milk –price for 1litre cow milk with 3.2% fat, 31 Honey domestic product, 32 Price for 30 pieces of eggs, first class of quality,

Fig. 2: Absolute average prices for wheat and maize, January-December 2021 and 2022 (2015=100)

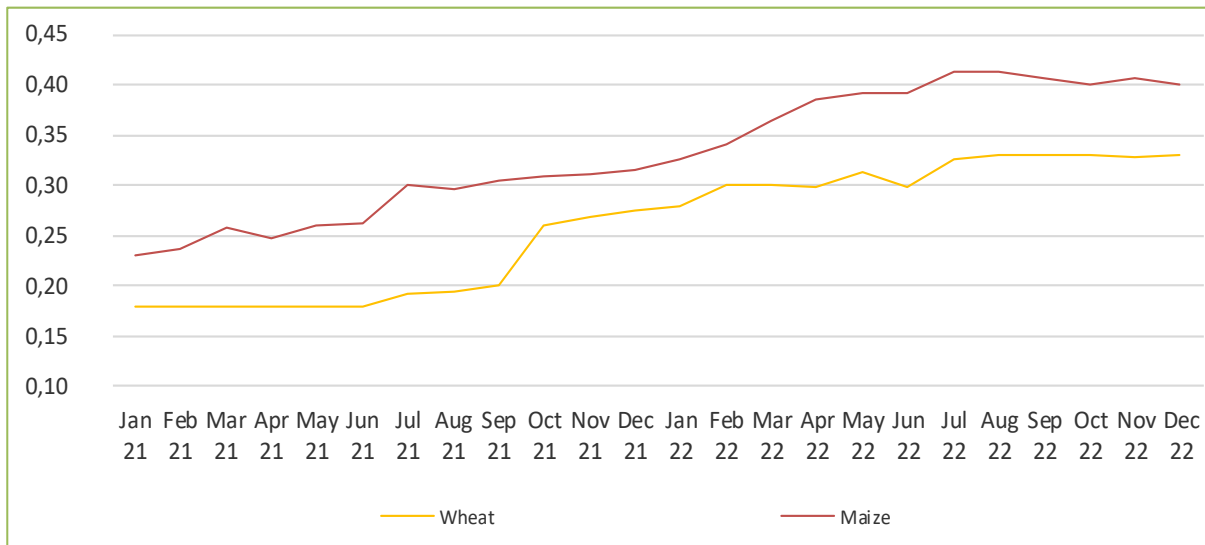


Fig. 3: Absolute average prices for hay, straw and lucerne, January-December 2021 and 2022 (2015=100)

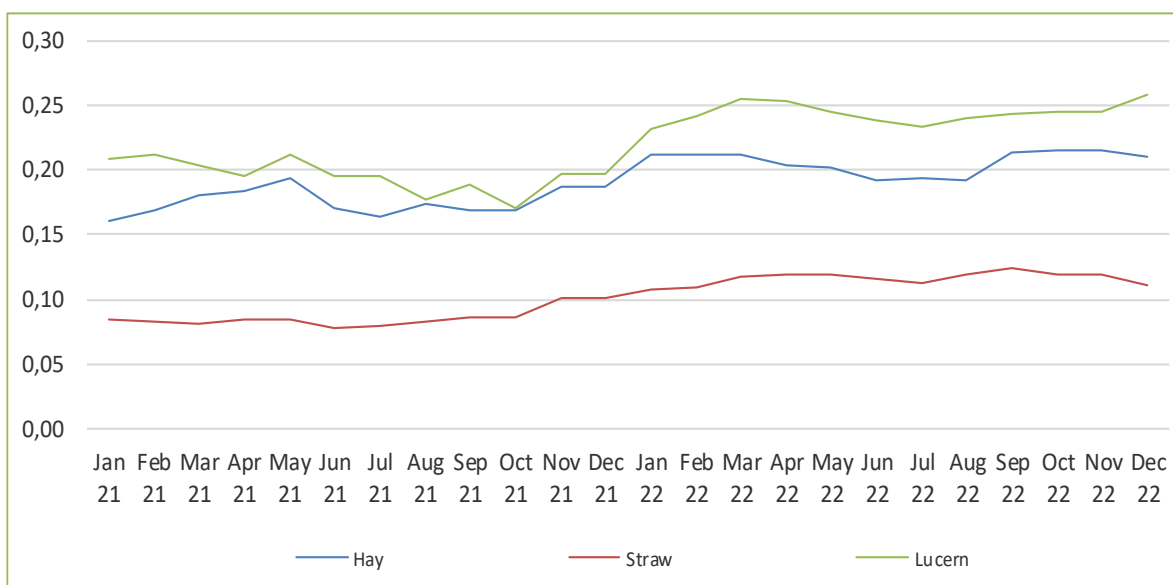


Fig. 4: Absolute average prices for potatoes, tomatoes, pepper and cabbage, January-December 2021 and 2022 (2015=100)

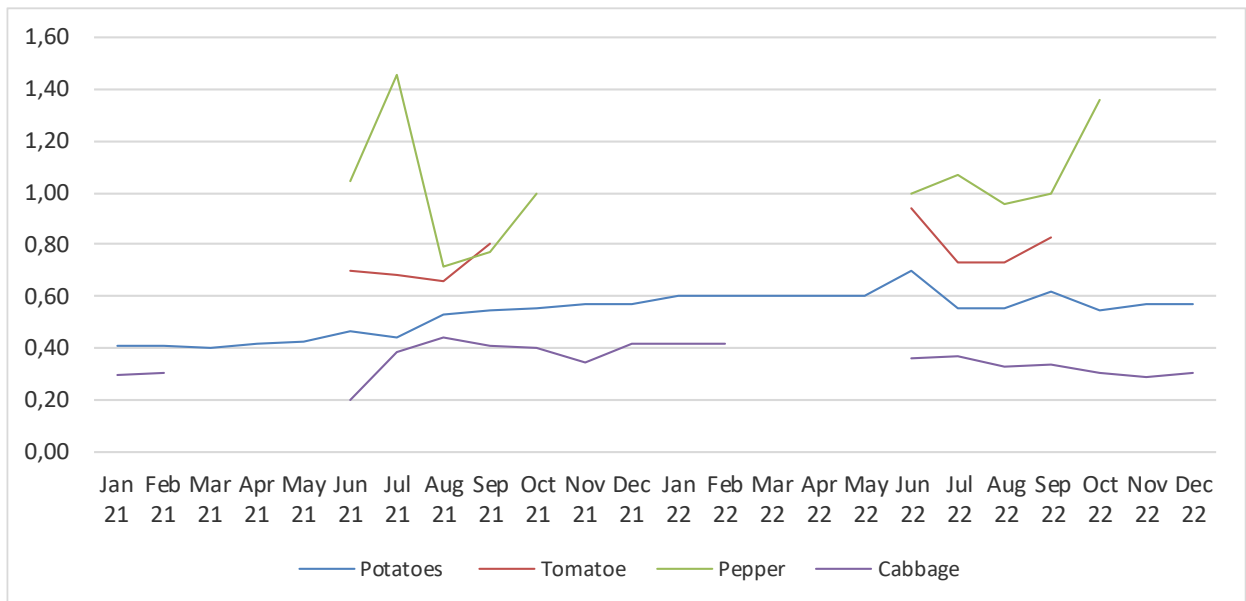
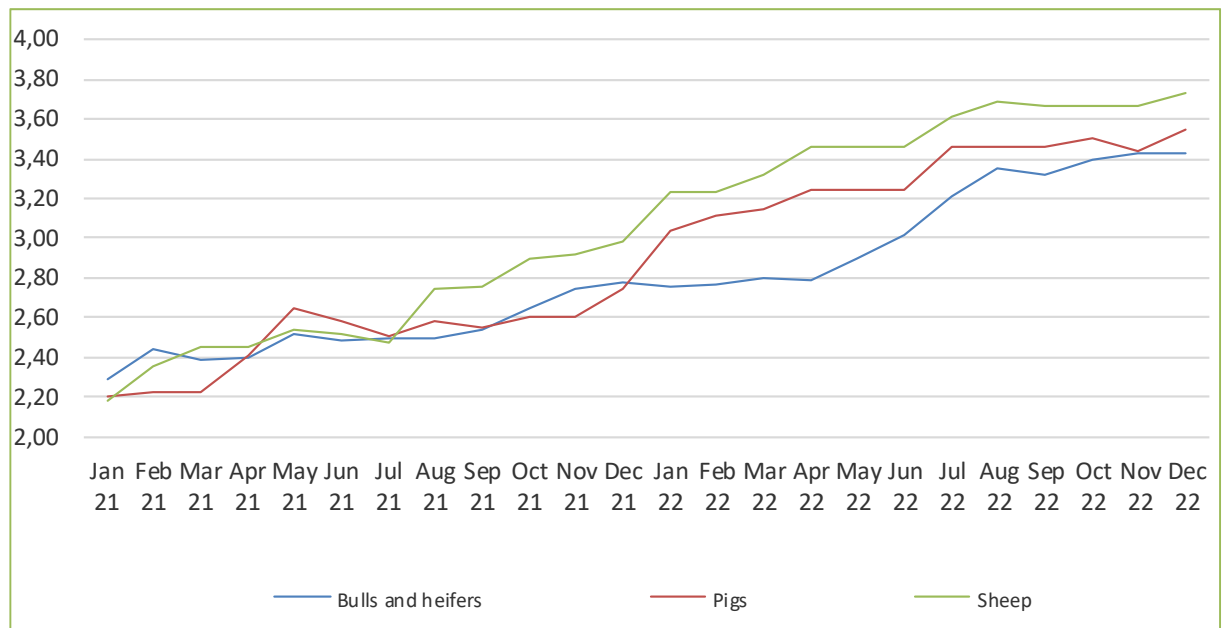


Fig. 5: Absolute average prices for heifers and bulls, pigs and sheep calculated as live weight January-December 2021 and 2022 (2015=100)



Methodological explanations

Prices and Price indices in this publication have been calculated according standards for price statistics in European Union. The project for calculating these Prices and Price Indices was conducted in the frame of the project of “Improving agro monetary statistics” in cooperation with Statistic Sweden and with financial support by Sida (Swedish International Development Cooperation Agency).

Prices have been collected since November 2003 and are collected in seven regions: Pristina, Mitrovica, Peja, Gjakova ,Prizren, Ferizaj and Gjilan,. Prices are collected around the 15th in every month. Since the start the number of different prices that are collected have increased step by step. Therefore, some prices are not available for the whole period. Prices are now collected for 71 products and measures prices that farmers receive for the part of their production that are sold. Weights to calculate aggregated indices are mainly based on Economic Accounts of Agriculture (EAA) from 2015, which is the base year in the indices (2015=100). It should be pointed out that the weights, in value or promille, only reflect the part of the agricultural production in Kosovo that are sold outside the agricultural household. For some products the value of the total production can be considerably higher than what is reflected in the weights.

According to EU standards, quarterly and annual indices are supposed to be calculated by each member state. The EU indices in this publication follow the methodology developed in EU. For national needs, also a monthly index is calculated. This index is calculated slightly different from the quarterly index. In short, the monthly index does not use monthly weights on aggregated level (when calculating code 10, 13 and 14). However, for most crop groups (code 01, 03, 04 and 06) monthly weights are used within the group to calculate the group aggregates. On the other hand, the quarterly index has variable quarterly weights everywhere. For this reason, the monthly and the quarterly indices might have slightly different developments if they are compared. However, the EU annual index and the Kosovo annual index are exactly the same. In both cases, the index is calculated as weighted annual index with monthly respectively quarterly weights.

The total weights, quarterly weights and monthly weights are fix during the base period. They all reflect the situation that was present in 2015. By having fix weights, the index is guaranteed only to measure price movements, which is the purpose of the index.

To compare the EU index presented in this publication with other countries, the Eurostat website is recommended (<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home>).

Calculation of elementary Price Index

Calculations of elementary indices are in general done by using following formula, with un-weighted arithmetic mean price.

$$R_i^t = \frac{\frac{1}{n} \sum P_{ij}^t}{\frac{1}{n} \sum P_{ij}^o} \cdot 100$$

R_i^t – Elementary index for month t and product i

P – Collected price

i – Product i

j – Price j recorded for product (in general price for region 1,2,...,n)

t – Observed month

0 – Base month

Calculation of aggregated Price Index

Calculating aggregated index for total Output or subgroups of Output Index is done using following formula.

$$I^t = \sum \left(R_i^t \cdot \frac{w_i^0}{\sum w_i^0} \right)$$

I^t – Aggregated index for period t

w_i^0 – Weighting factor in base period for product i

i – Product i

t – Observed month

0 – Base month

Questionnaire

Target definition

Item number	Item name				Quantity	Unit
Price Collector				Collection place/ Company		
Date						
Price						

Enumerators notes

- Detailed description of specific variety selected for re-pricing
- Changes in the detailed description, date for changes
- Treatment of quality change when description changed (information of over-lap Price observation, alt. valuation of quality change)

- o **Adresa: KOSOVO AGENCY OF STATISTICS**
- o Street. "Zenel Salihu", No. 4, 10000 Pristina
- o **Telefoni:** +383 (0) 38 200 31 129
- o **CEO:** +383 (0) 38 200 31 112
- o **Fax:** +383 (0) 38 235 033
- o **E-mail:** infoask@rks-gov.net
- o **Website:** <http://ask.rks-gov.net>
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