



הלשכה המרכזית לסטטיסטיקה
Central Bureau of Statistics
دائرة الإحصاء المركزية

Price index of Agricultural Output and Input

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CBS
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Agenda

- Input price index
 - Purpose
 - Uses
 - Methodology
 - Publications
 - Agriculture account input price index
- Output price index
 - Purpose
 - Methodology
- Combining output and input indeces

THE INDICES GOAL

- To estimate the impact of changes in prices on farmers' income from marketed produce (output), and on their expenditures for the purchase of materials, goods, and services (input).

USES OF AGRICULTURAL INDEX PRICES

- To deflate value series of inputs and outputs in Agriculture, (to change the presentation of value series from current to constant prices)
- To calculate the terms of trade in Agriculture according to prices (and not, for example, according to the influence of marketed produce quantities and of technological changes);
- To update calculations used to determine prices of agricultural produce and policies for provision of subsidies.

The Price Index of Input in Agriculture measures **changes in prices of purchases of products and services by farmers, which are required as inputs**

Purpose and Uses

The purpose of the index is to provide information on trends in purchase prices of agricultural production.

- The index is used as a deflator of nominal values for uses of national accounts.
- Indexation - In Israel, most of the financial agreements are protected by indexation. This allows for sharing of risks between the parties.
- Research tool for analysts.

Products and Services, Prices and Geographical Coverage

- ◆ The Agricultural Input index is an **INPUT TOTAL INDEX**
- ◆ It includes goods and services currently consumed in agriculture, as well as Machinery and other equipment, and Tractors and farm buildings.
- ◆ We collect prices of domestic and imported goods from domestic manufacturers and distributors. Prices collected from employers refer to wages.
- ◆ The prices do not include VAT. Discounts and credit terms are taken into account.

◆ Base Period

- ◆ Weights are determined in a periodic survey, which reflects the expenditure for inputs made by farmers over the base year.
- ◆ Weights are determined for all levels.
- ◆ Weights were last updated **in 2000.**

Work stages

◆ Data Collection

Computer Assisted Telephone Interviews (CATI), post, e-mail, fax, personal interviews

145 questionnaires, 1100 observations

$$I_{jn} = \frac{P_{jn}}{P_{j(n-1)}} * I_{j(n-1)}$$

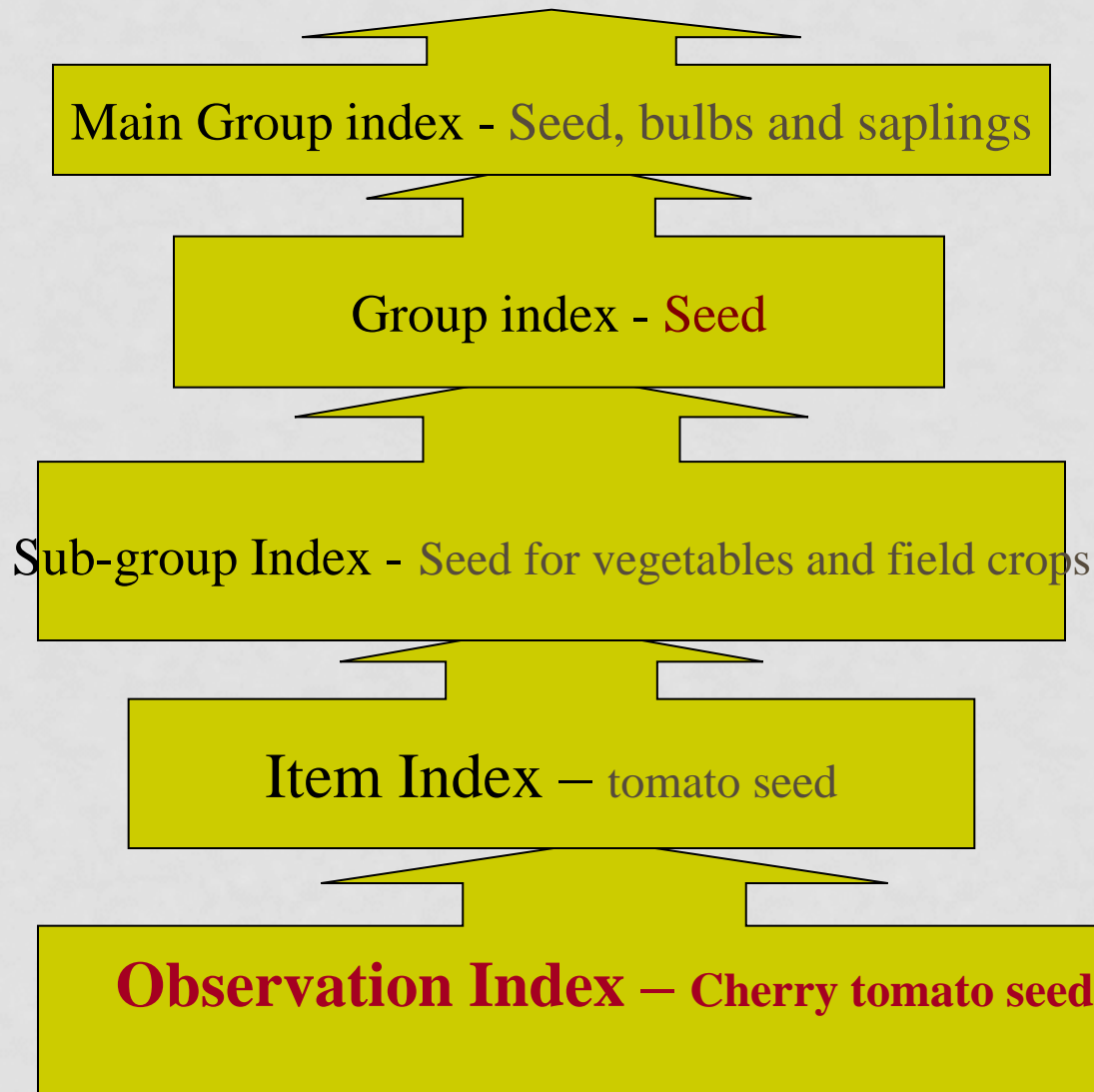
◆ Data Editing

Elementary index (observation index): The index is chained from month to month.

$$I_n = \frac{\sum_{f=1}^k I_{fn} * (P_{f0} * Q_{f0})}{\sum_{f=1}^k p_{fo} * Q_{f0}}$$

◆ **Upper level Index:** From the item price index to the groups of items price index, and up to the total index - **Laspeyres formula**

DATA EDITING - INDEX AGGREGATION



PUBLICATION AND DISSEMINATION

- ◆ Monthly publications are published on the Internet, and in press releases that accompany press conferences.
- ◆ All Input indices are published in the table “Index of Input Prices by Groups and Sub-groups”.

h. Price Indices of Input in Agriculture

Table 4.1 .- Prices Index of Input in Agriculture (Excl. V.A.T.), by Group and Sub Group

Base: Average 2000=100.0

Code of Index	Item	New weight as of I/2001	2015	2015							Percent change	
			Average	VI	VII	VIII	IX	X	XI	XII	Monthly	Annual
260010	<u>Price index of input in agriculture - general</u>	1,000.0	172.0	172.4	174.4	173.2	172.5	169.3	168.9	168.3	-0.4	-2.9
260020	<u>The index, without wages of farm hands</u>	742.2	178.9	179.4	178.2	176.7	175.7	175.3	174.6	173.9	-0.4	-5.6
Index by crops and livestock												
261010	<u>Inputs in vegetable crops</u>	568.6	172.3	173.1	177.0	176.1	175.4	170.9	170.5	170.5	0.0	0.5
261020	<u>Inputs in livestock</u>	431.4	171.5	171.3	170.8	169.4	168.6	167.1	166.5	165.3	-0.7	-7.0
Index by main group, group and sub-group⁽¹⁾												
260030	<u>Fodder</u>	214.7	191.4	189.9	187.2	185.4	184.6	183.8	183.0	181.3	-0.9	-10.5
260040	Concentrated mixed fodder	117.2	207.4	206.6	205.2	203.3	202.5	202.3	202.2	200.0	-1.1	-7.0
260050	Fodder for poultry	105.4	208.5	207.6	206.2	204.3	203.5	203.2	203.3	201.1	-1.1	-6.9
260070	Fodder for sheep and goats and other animals	11.8	198.0	197.3	195.9	193.7	193.6	193.8	193.2	190.4	-1.4	-8.2
260073	Cattle's fodder	97.5	171.8	169.7	165.2	163.7	162.7	161.2	159.5	158.4	-0.7	-15.2

h. Price Indices of Input in Agriculture

**Table 2.1 .- Price Index of Input in Agriculture -
Contribution and Percent Change
December 2015**

Code	Main Group	Change Compared to November 2015		Percent Change Compared to December 2014
		Percent Change	Contribution (%)	
260010	<u>Price index of input in agriculture - general</u>	-0.4	-0.4	-2.9
260030	Fodder	-0.9	-0.2	-10.5
260100	Chicks	-3.0	-0.1	-3.2
260110	Seed, bulbs and saplings	-0.2	0.0	-2.2
260150	Fertilizers and manures	-0.6	-0.1	-4.6
260230	Pesticides	0.0	0.0	-0.1
260280	Water	0.0	0.0	8.0
	Fuel, lubricants			
260290	and electricity	0.9	0.0	-19.3
260330	Packing materials	0.1	0.0	-0.6
	Building materials for agricultural structures			
260340	and plastic covers	-0.5	0.0	-1.5
	Machines, vehicles, equipment, spare			
260350	parts and tools	-0.2	0.0	-0.4
260450	Labour cost of employees	0.1	0.0	7.6
260500	Hired transportation	0.0	0.0	-1.3
	Veterinary services			
260510	and medicines	0.0	0.0	-0.7
260520	Insurance	-0.1	0.0	1.2
260530	Taxes and fees	-0.2	0.0	-0.2
260540	Rentals	0.0	0.0	0.0
	Miscellaneous (accountancy, computer services, stationery)			
260550		-0.6	0.0	-1.0

PRICE INDEX

	Price index (index sector)	Price and quantity index (agriculture sector)
Formula	laspeyres	paasche
Base year	2000	Current year
Content	All products	Only the products in two consecutive years

Price index - Input

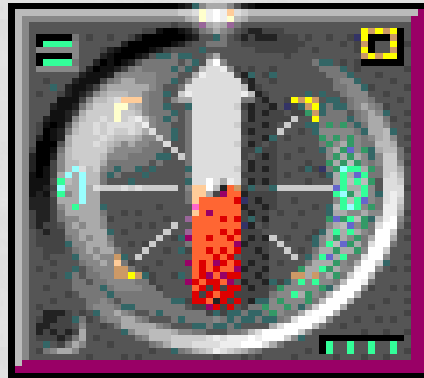
- Based on Annual Input survey
- Yearly price changes
- Updated every year according to reporters changes
- The trends are same as the input price index
- The changes are quite different

	השינוי במחיר		
	Price change		
	*2015	R2014	R2013
TOTAL	-3.5	-1.2	0.6
Fodder	-7.0	-3.8	-2.5
Water	8.4	5.0	7.7
Packing materials	1.6	1.0	-0.8
Fertilizers and manures	-5.0	-8.8	-1.0
Hired transport	0.9	0.9	2.1
Spare parts and repairs	3.5	1.7	3.0
Fuel, lubricants and electricity	-18.9	-2.9	1.3
Pesticides	1.1	1.1	4.4
Chicks, seeds and seedlings	7.3	4.3	6.7
Administration and miscellaneous	0.0	-0.2	-0.5
Depreciation	0.5	0.1	-0.1

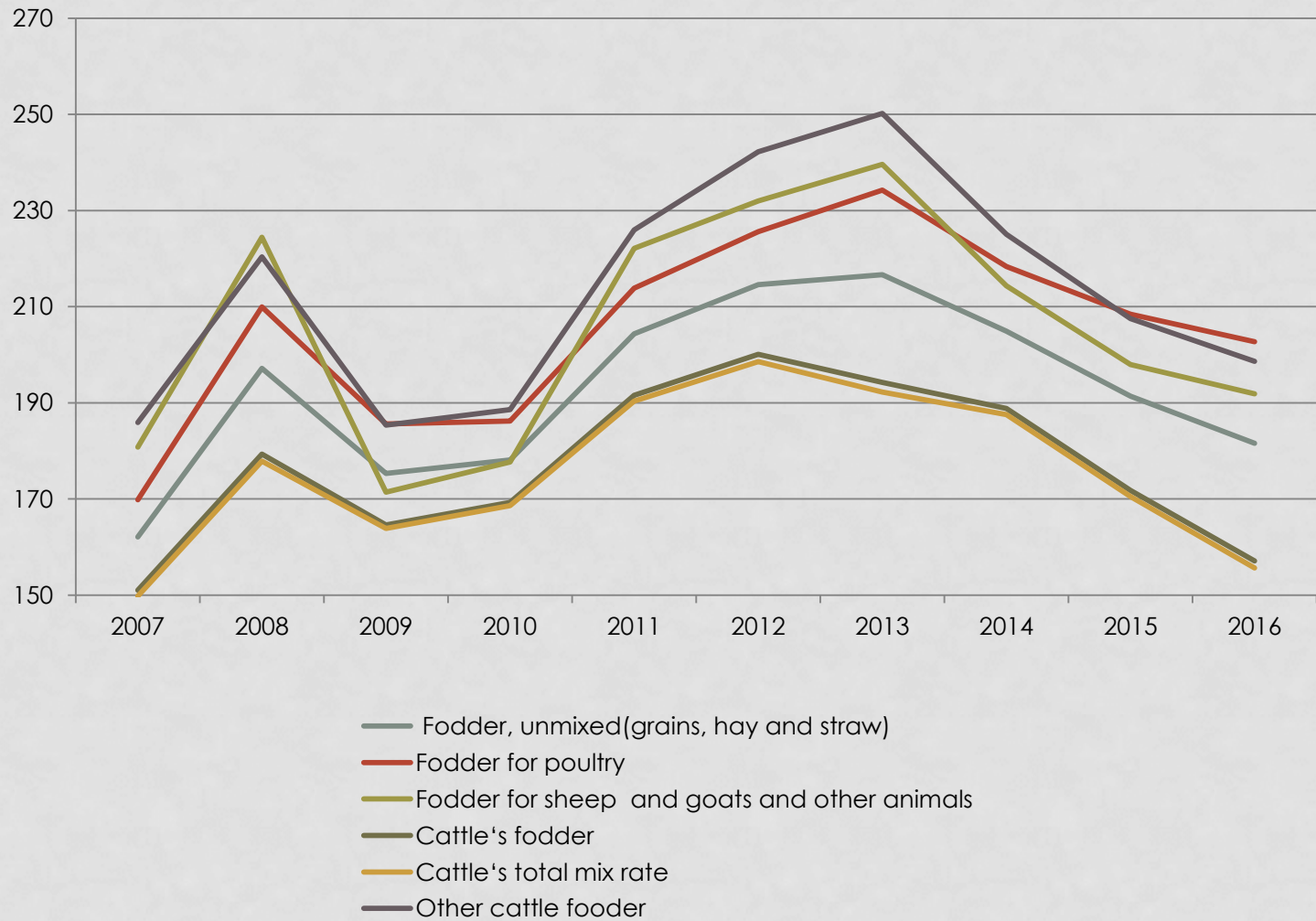
	השינוי במחיר Price change		
	*2015	R2014	R2013
TOTAL	-3.5	-1.2	0.6
Fodder	-7.0	-3.8	-2.5
Water	8.4	5.0	7.7
Packing materials	1.6	1.0	-0.8
Fertilizers and manures	-5.0	-8.8	-1.0
Hired transport	0.9	0.9	2.1
Spare parts and repairs	3.5	1.7	3.0
Fuel, lubricants and electricity	-18.9	-2.9	1.3
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Depreciation	0.5	0.1	-0.1

Code	Main Group	Percent Change Compared to December 2014
260010	<u>Price index of input in agriculture - general</u>	-2.9
260030	Fodder	-10.5
260100	Chicks	-3.2
260110	Seed, bulbs and saplings	-2.2
260150	Fertilizers and manures	-4.6
260230	Pesticides	-0.1
260280	Water	8.0
	Fuel, lubricants and electricity	-19.3
260290	Packing materials	-0.6
260330	Building materials for agricultural structures and plastic covers	-1.5
260340	Machines, vehicles, equipment, spare parts and tools	-0.4
260350	Labour cost of employees	7.6
260450	Hired transportation	-1.3
260500	Veterinary services and medicines	-0.7
260510	Insurance	1.2
260520	Taxes and fees	-0.2
260530	Rentals	0.0
260540	Miscellaneous (accountancy, computer services, stationery)	-1.0
260550		

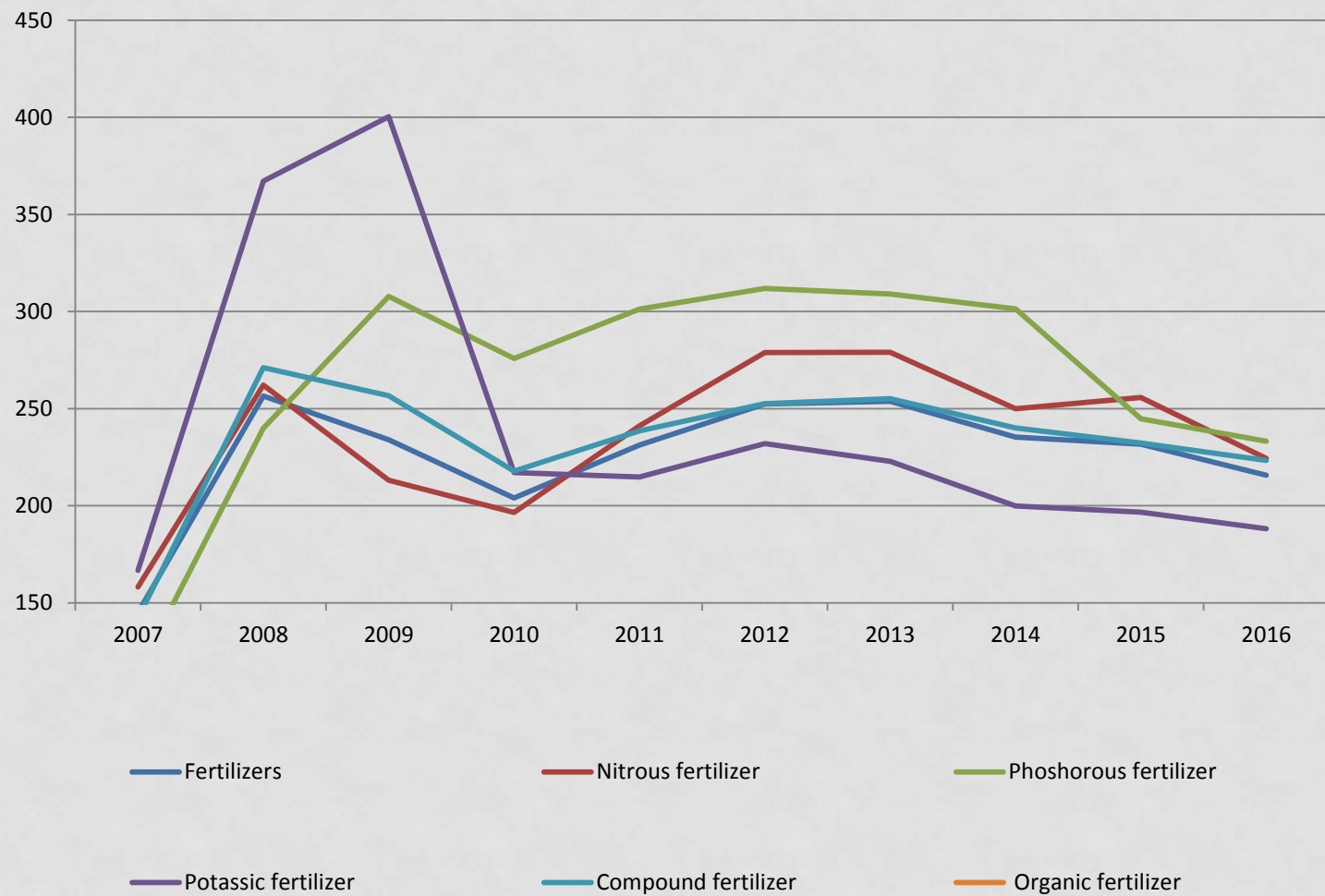
Price Changes



Fodder indices



Fertilizers indices



Agriculture Output

- Agricultural produce that was manufactured during the year.
- **Output includes:** marketed produce, home consumption on the farm, changes in livestock inventory, intermediate produce and investment in new plantations and afforestation.

PRICE INDEX

	Price index (index sector)	Price and quantity index (agriculture sector)
Formula	laspeyres	paasche
Base year	2000	Current year
Content	All products	Only the products in two consecutive years

OUTPUT PRICE INDEX - PURPOSE

- Measure the percent of change over time in revenue obtained for a fixed basket of goods

OUTPUT PRICE INDEX – WEIGHTS

LASPEYRES

- Reflect the relative importance of the various kinds of output within the overall output during the base year.
- The weight is based on the value of output in the base year (2000)

WEIGHTING SCHEME

LASPEYRES

	משקלי 2000 weights	
GRAND TOTAL	1,000.0	סך כולל
CROPS – TOTAL	557.9	גידולים – סך הכל
FIELD CROPS	72.8	גידולי שדה
Cereals and legumes	13.9	דגנים וקטניות
Wheat	3.1	חיטה
Barley, sorghum, etc.	0.8	שעורה, סורגום וכל
Corn on cob	6.3	תירס, קלחים
Peas for canning	1.3	אפונה לשימורים

OUTPUT PRICE INDEX - CALCULATION

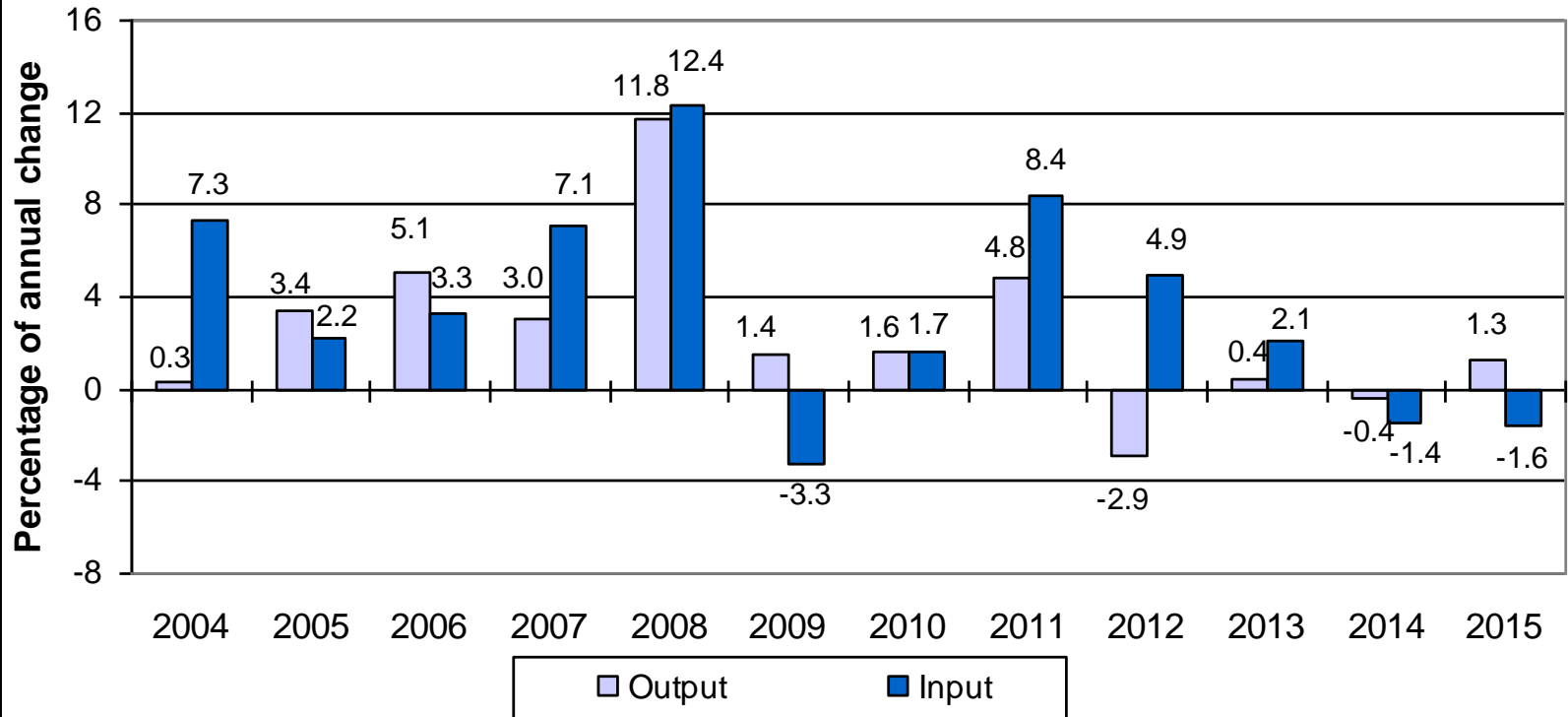
- Laspeyres formula
- According to the weighted mean of the quantity of every product marketed at 2000.
- The indices calculated for products and aggregative means.

	Indices								משקלי 2000
	*2015	R2014	R2013	2012	2011	R2010	2009	2008	weights
GRAND TOTAL	152.7	150.8	151.4	150.7	155.3	148.2	145.7	143.7	1,000.0
CROPS – TOTAL	158.8	157.6	155.8	156.5	165.1	157.3	153.1	148.2	557.9
FIELD CROPS	145.4	160.9	146.4	160.7	161.8	141.1	145.3	144.6	72.8
Cereals and legumes	138.6	165.8	168.5	165.8	163.2	143.7	150.7	137.8	13.9
Wheat	150.9	238.5	242.7	231.5	259.9	177.4	220.9	182.6	3.1
Barley, sorghum, etc.	166.7	237.0	240.7	231.5	96.3	122.0	139.7	130.5	0.8
Corn on cob	150.9	149.6	152.3	150.2	136.3	145.0	144.0	130.4	6.3
Peas for canning	96.6	102.6	100.6	95.0	104.1	98.1	85.9	90.7	1.3
Miscellaneous legumes for grains	107.6	139.5	156.5	164.5	149.7	127.9	116.7	128.5	2.4
Industrial and oil crops	152.6	157.4	142.0	169.3	169.2	146.2	139.5	140.9	34.7
Cotton	143.5	161.6	158.4	155.0	170.6	137.7	110.8	116.1	9.0
Groundnuts (peanuts)	138.9	138.9	83.2	176.1	172.4	127.0	121.0	109.5	7.4
Sunflowers	154.4	154.8	142.9	142.9	142.9	138.3	131.0	131.0	5.5
Spices, medicinal herbs, etc.	166.2	166.3	164.1	186.7	177.7	166.7	174.0	180.5	12.8
Rough fodder	138.9	163.0	139.9	145.3	150.2	132.4	150.4	153.8	24.2

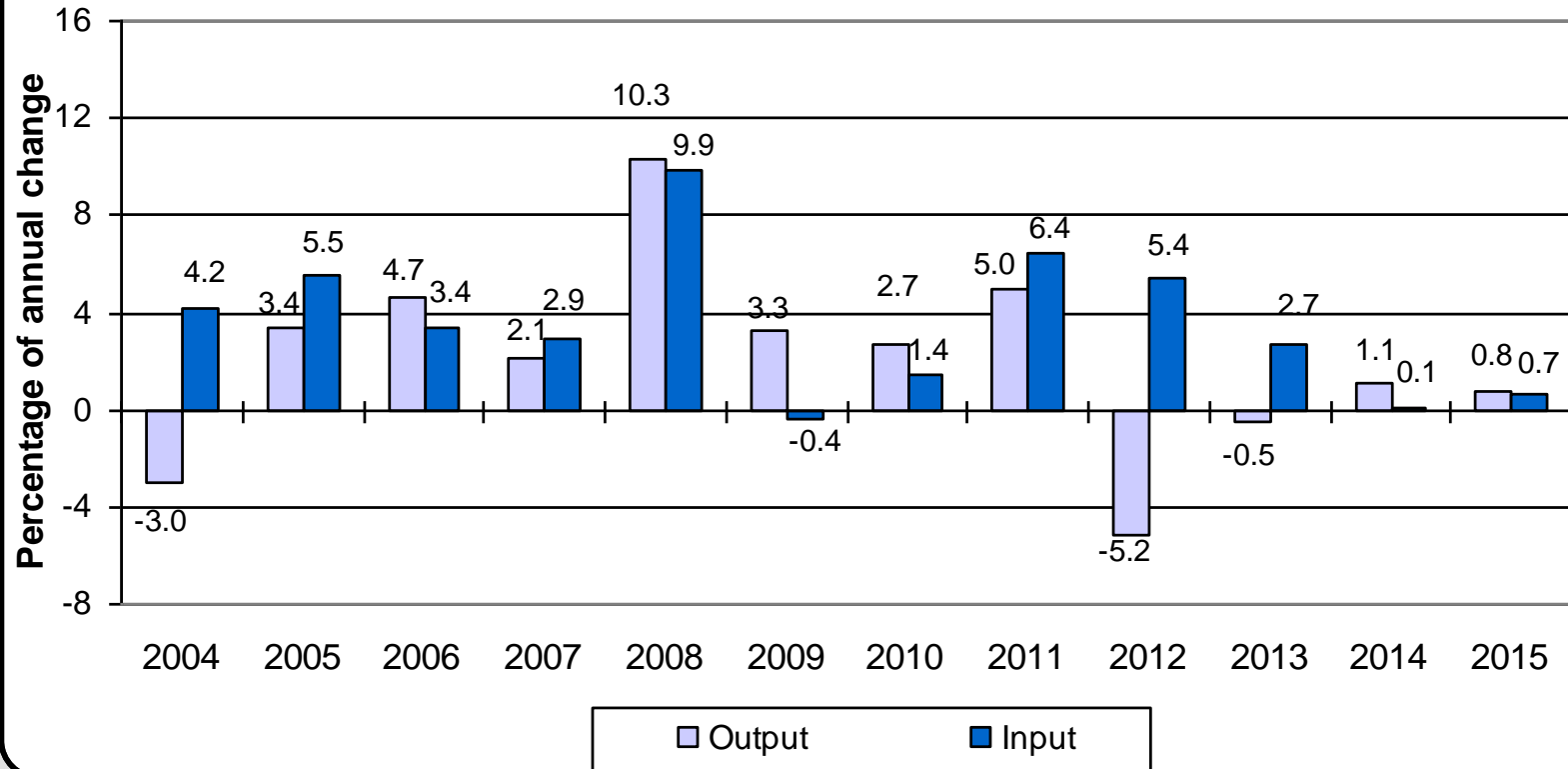
	אחוזי שינוי במחיר Percentages of price change						משקלי 2000 weights
	*2015	R2014	R2013	R2012	R2011	R2010	
GRAND TOTAL	1.3	-0.4	0.4	-3.0	4.8	1.7	1,000.0
CROPS – TOTAL	0.8	1.1	-0.5	-5.2	5.0	2.7	557.9
FIELD CROPS	-9.6	9.9	-8.9	-0.7	14.6	-2.8	72.8
Cereals and legumes	-16.4	-1.6	1.6	1.6	13.6	-4.6	13.9
Wheat	-36.7	-1.8	4.9	-10.9	46.5	-19.7	3.1
Barley, sorghum, etc.	-29.7	-1.5	4.0	140.4	-21.0	-12.7	0.8
Corn on cob	0.8	-1.8	1.4	10.2	-6.0	0.7	6.3
Peas for canning	-5.9	2.1	5.9	-8.8	6.2	14.2	1.3
Miscellaneous legumes for grains	-22.9	-10.8	-4.9	9.9	17.1	9.5	2.4
Industrial and oil crops	-3.0	10.8	-16.1	0.0	15.7	4.8	34.7
Cotton	-11.2	2.0	2.2	-9.1	23.9	24.3	9.0
Groundnuts (peanuts)	0.0	66.9	-52.7	2.2	35.7	5.0	7.4
Sunflowers	-0.2	8.3	0.0	0.0	3.3	5.6	5.5
Spices, medicinal herbs, etc.	-0.1	1.3	-12.1	5.1	6.6	-4.2	12.8

1: PERCENTAGES OF CHANGE IN PRICE INDICES OF OUTPUT AND INPUT IN AGRICULTURE

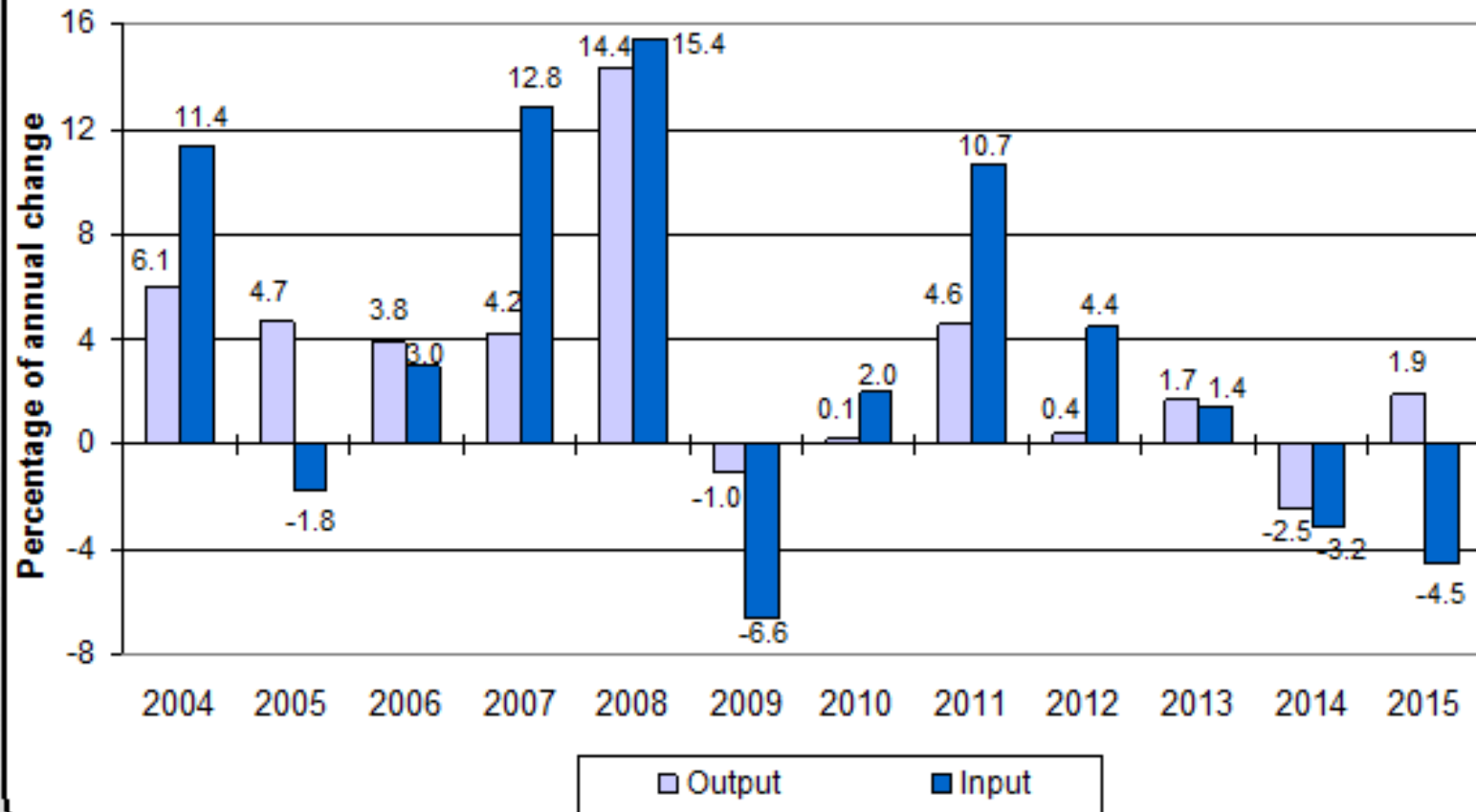
Annual Average – Each Year Compared with Previous Year
2004–2015



**2: PERCENTAGES OF CHANGE IN PRICE INDICES
OF OUTPUT AND INPUT – CROPS**
Annual Average – Each Year Compared with Previous Year
2004–2015



**3: PERCENTAGES OF CHANGE IN PRICE INDICES
OF OUTPUT AND INPUT – LIVESTOCK AND LIVESTOCK PRODUCTS**
Annual Average – Each Year Compared with Previous Year
2004–2015



EXPECTED CHALLENGES

- Updating the base year
- Different destination (local, export)
- Changes in the varieties of agricultural products



THANKS FOR
YOUR ATTENTION