

PRODUCTION AND CONSUMPTION OF VEGETABLES IN REPUBLIC OF YEMEN

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Abstract

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The main aim of the article is to understand the trend in production and consumption vegetables in Republic of Yemen within the period 1995–2009, and understand distribution of vegetables production in the country by governorate. The authors analyze and interpret the data of the Ministry of agriculture and irrigation in the Republic of Yemen about the production and Available for consumption of vegetables in the form of secondary analysis during the mentioned period. Based on the result obtained, it was concluded that production of vegetables concentrated in six governorates (Hodeidah, Sana'a, Dhamar, Ibb, Taiz and Marib), represented 73.09 percent of the total vegetables production. On the other hand there was a statistical significance positive trend in the vegetable production which increased by 26.697 thousand tons per year with Compounded Annual Growth Rate amounted to 3.55 percent, and consumption of vegetables increased by 29.785 thousand tons per year with CAGR amounted 2.54 percent., but the increase in the production caused by the increase in the cultivated area which increased by 2.264 thousand ha per year, while productivity trend was negative which Decreased by 0.015 ton / ha per annum.

vegetables, general trend, production, cultivated area, productivity, main vegetables, available for consumption

Vegetable production in the republic of Yemen has expanded over the past 27 years due to the resolution issued by the Yemeni government in 1984 to prevent the import of vegetables and fruits crops, which led to raise farmer's profits for cultivating them. Thus Yemen has been achieved high levels of self-sufficiency in these crops, and export the surplus to neighboring countries.

MATERIALS AND METHODS

From the accessible data of the ministry of agriculture and irrigation within the period 1995–2009, vegetable were chosen with focus on main vegetables crops which include potatoes, tomatoes, and onion. The obtained results were analyzed with the use of the statistical software SPSS with objective to estimate production function, trend in cultivated area, productivity, production, and available for consumption of the selected groups by using Simple and multiple regression.

$$y_i = \hat{\beta}_0 + \hat{\beta}_1 x_i + e_i,$$

$$\hat{\beta} = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sum_{i=1}^n (X_i - \bar{X})^2},$$

$$\hat{\beta}_0 = \bar{y} - \hat{\beta}_1 \bar{x},$$

where:

x is independent variable, Y is dependent variable, and the slope β_1 and the intercept β_0 , of the line $E(Y) = \beta_0 + \beta_1 x$ are called regression coefficients. The slope β_1 can be interpreted as the change in the mean value of y for a unit change in x .

$$\text{CAGR}(t_0, t_n) = \left(\frac{V(t_n)}{V(t_0)} \right)^{\frac{1}{t_n - t_0}} - 1.$$

RESULTS AND DISCUSSION

1 Production of vegetables in Republic of Yemen

Vegetables in Yemen are characterized by being dependent on irrigation permanent form springs, wells, and dams, thus the production of vegetables has been characterized by continued growth and stability compared to grain crops which characterized by fluctuations. The potato and tomato are the most important vegetable crops, and more developed in terms of production and areas planted (National information center, www.yemen-nic.info/contents).

1.1 Cultivated area of Vegetables in republic of Yemen

1.1.1 Cultivated area of Vegetables in Yemen (1995–2009)

Table I reveals the trends in cultivated area of vegetables in Republic of Yemen. It can be seen from the table that cultivated area increased from 53.522 thousand ha in 1995 represented 4.63 percent of total agricultural cultivated area which amounted to 1156.607 thousand tons to 88.990 thousand ha in 2009 represented 6.81 percent of the total cultivated area, Increased by 66 percent. However the Compounded Annual Growth Rate (CAGR) of cultivated area over the mentioned period was 3.7 percent. The average planted area of vegetables was 69.661 thousand ha represented about 5.7 percent of average agriculture planted area during the same period which amounted to 1222.309 thousand tons. The proportion of vegetables area of the total cultivated area was increasing when the planted area

of other crops decreased especially grain (sorghum, maize, millet, wheat, and barley), therefore in 2003 cultivated area of vegetables represented 6.61 percent of total cultivated area, because the planted area of gain was at the minimum within the study period by 532.293 thousand ha (ministry of agriculture, 2004) which depend on rainwater for irrigation, Thus their area and production change according to the rainfall.

1.1.2 Trend in the cultivated area of vegetables

By using the data in table I. general trend function in cultivated area of vegetables in the Republic of Yemen during the period (1995–2009) was estimated as follows:

$$y = 51.545 + 2.264x \dots\dots\dots (1)$$

(20.8)**

$R^2 = 0.97$,

where:

y: the value of cultivated area of vegetables,

x: represents time (takes numbers 1, 2, 3,, 15),

R^2 : determination coefficient,

the figures in brackets represent the value of t,

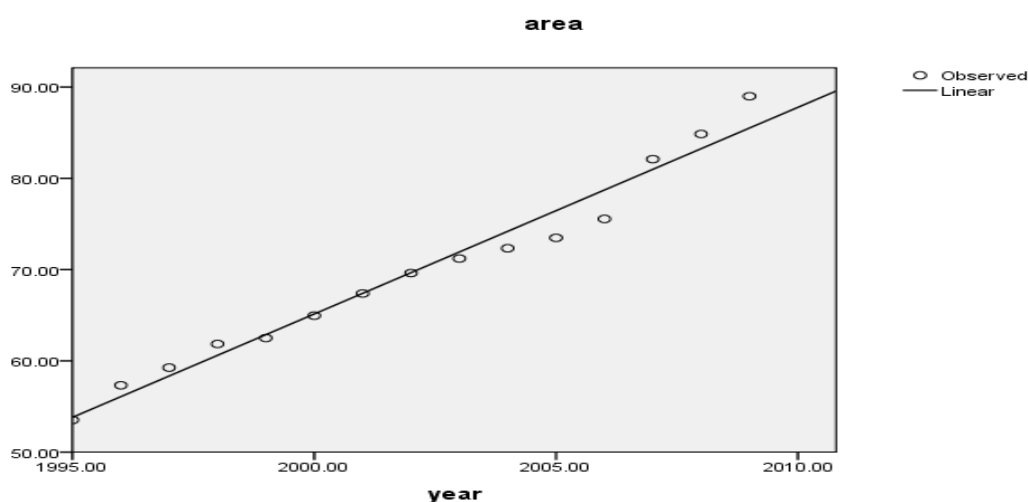
** mean statistical significance with significance level 0.01.

Function 1 and figure 1 indicate that there was a statistical significance positive trend in the cultivated area of vegetables in Republic of Yemen during the period (1995–2009). Which increased by 2.264 thousand ha per year represented 3.25 percent of the average vegetables cultivated area within the mentioned period which amounted to 69.661 thousand ha. However the value of determination coefficient (R^2) revealed that 97 percent of the change in the cultivated area of vegetables caused by

I: Cultivated area of vegetables (thousand ha) and their contribution of the total agricultural production in Yemen republic (1995–2009)

Series	Year	Area of vegetables	Index 1995 = 100%	Total cultivated area	Vegetables % of total cultivated area
1	1995	53.522	100	1 156.607	4.63
2	1996	57.322	1.07	1 154.958	4.96
3	1997	59.254	1.11	1 200.098	4.94
4	1998	61.851	1.16	1 279.704	4.83
5	1999	62.498	1.17	1 132.910	5.52
6	2000	64.953	1.21	1 143.441	5.98
7	2001	67.376	1.26	1 199.104	5.62
8	2002	69.621	1.30	1 133.480	6.14
9	2003	71.210	1.33	1 076.771	6.61
10	2004	72.332	1.35	1 188.035	6.09
11	2005	73.480	1.37	1 201.731	6.11
12	2006	75.549	1.41	1 307.004	5.78
13	2007	82.103	1.53	1 482.442	5.54
14	2008	84.854	1.59	1 371.575	6.19
15	2009	88.990	1.66	1 306.776	6.81

Source: Ministry of agriculture and irrigation Republic of Yemen, Department of statics and agricultural information, agricultural statistics year books (1999, 2003, 2008, and 2009).



1: Cultivated area (1 000 ha) of vegetables in Republic of Yemen (1995–2009)
Source: table I

time as an independent variable which was mainly caused by increased in consumption demand.

1.2 Quantity of vegetables produced in Republic of Yemen

1.2.1 Vegetables production in Republic of Yemen (1995–2009)

The expansion of cultivated area of vegetables in Republic of Yemen within the period (1995–2009) led to increase their production.

The production of vegetable increased from 668.8 thousand tons in 1995 represented 22.6 percent of total agricultural production which amounted to 2 957.752 thousand tons to 837.678 thousand tons in 2009 represented 20.89 percent of total production. With The CAGR amounted to 3.55 percent. However the total average production of vegetables was 837.6784 thousand tons and the average contribution of vegetables was 21.03 percent of total production (see table II).

1.2.2 Trend in the production of vegetables

Data in Table II are used to estimate the general trend function for production of vegetables in the Republic of Yemen during the period (1995–2009) in function 2.

$$y = 624.104 + 26.697x \dots\dots\dots (2)$$

(12.76)**

$R^2 = 0.93$,

where:

y : vegetables production,

x : Represents time,

R^2 : determination coefficient,

the figures in brackets represent the value of t

** means statistical significance with significance level 0.01.

Function 2 and figure 2 indicate that the general trend in vegetables production in republic of Yemen during the period 1995–2009 was positive, increased by 26.697 thousand tons per year with statistical significance according to t-test with significance level 0.01. However vegetables production increased by 3.19 percent per annum of the average vegetables production at the same period which amounted to 837.6784 thousand tons. The value of the determination coefficient (R^2) revealed that the indicated variable (time) is responsible for 93 percent of the changes in the dependent variable (vegetables production) which was mainly caused by increased in cultivated area.

1.3 Productivity of vegetables in Republic of Yemen

Productivity is explicitly defined by the yield of useful product per unit and area. Expression per unit land area is multidimensional because various natural and human inputs, such as radiation, water, nutrients, or labor, also occur per unit land (Loomis and Connor, 1992).

1.3.1 Productivity of vegetables in Republic of Yemen (1995–2009)

There is no high change in the productivity of vegetables during the period 1995–2009. The average was 12.03 ton per ha (table II).

1.3.2 Trend in the productivity of vegetables in Yemen (1995–2009)

Data in Table II are used to estimate the General trend function in productivity of vegetables in the Republic of Yemen during the period (1995–2009) as follows:

$$y = 12.147 - 0.015x \dots\dots\dots (3)$$

(1.75)

$R^2 = 0.69$,

where:

Y: productivity of vegetables.

X: Represents time.

R^2 : determination coefficient,

the figures in brackets represent the value of t.

Function 3 and figure 3 indicate that the general trend in vegetables productivity in the Republic of Yemen during the period (1995–2009) was negative, Decreased by 0.015 ton / ha per annum.

1.4 Product function of vegetables in Republic of Yemen.

Production of vegetables mainly influence by productivity and cultivated area. By using the data in Tables I and II product function of vegetables in Republic of Yemen within the period (1995–2009) was estimated as follows:

$$y = -842.223 + 12.247x_1 + 68.724x_2 \dots\dots\dots (4)$$

(275.3) ** (37.5) **

$R^2 = 1.00$,

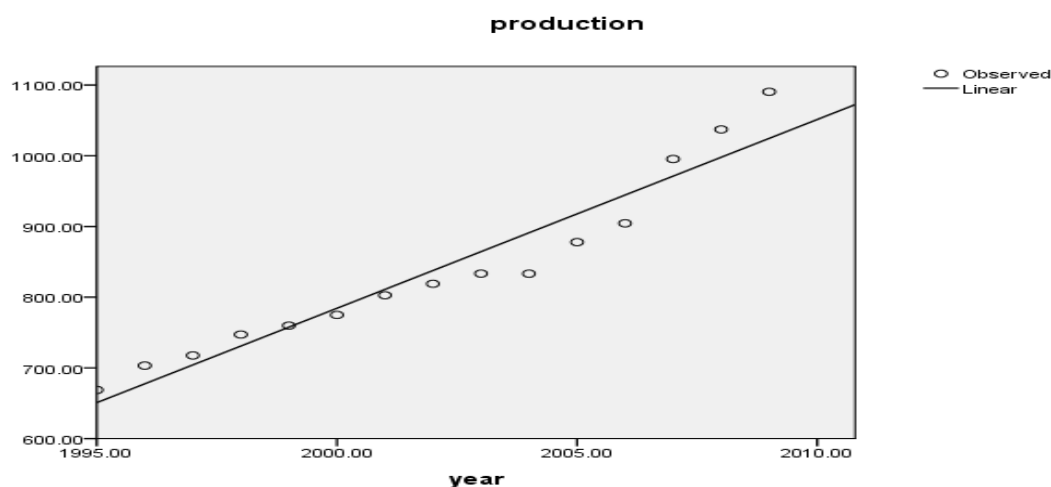
where:

y: vegetables production (thousand tones),

II: Production (thousand tons), and productivity (ton per ha) of vegetables and its share of the total agricultural production in Yemen Republic (1995–2009)

Series	Year	Vegetable Production	Index 1995 = 100%	Total agricultural production	Vegetables % of total production	Productivity of vegetables
1	1995	668.800	100	2 957.752	22.6	12.50
2	1996	703.244	1.05	2 970.222	23.68	12.27
3	1997	717.631	1.07	3 135.516	22.89	12.11
4	1998	747.131	1.12	3 756.279	19.89	12.08
5	1999	759.820	1.14	3 661.368	20.75	12.16
6	2000	774.908	1.16	3 728.696	20.78	11.93
7	2001	802.733	1.20	3 835.289	20.93	11.91
8	2002	818.951	1.22	3 763.066	21.76	11.76
9	2003	833.349	1.25	3 654.193	22.81	11.70
10	2004	833.217	1.25	3 815.131	21.84	11.52
11	2005	877.820	1.31	3 928.464	22.34	11.95
12	2006	904.461	1.35	4 432.963	20.40	11.97
13	2007	995.386	1.49	5 067.210	19.64	12.12
14	2008	1 037.246	1.55	5 055.121	20.52	12.22
15	2009	1 090.479	163.1	5 219.913	20.89	12.25
Average		12 565.176	3.38%	3 840.091	4.12%	12.03

Source: Ministry of agriculture and irrigation Republic of Yemen, Department of statics and agricultural information, agricultural statistics year books (1999, 2003, 2008, and 2009).



2: Vegetables production in Yemen Republic (1995–2009)

Source: table II

X_1 : cultivated area with vegetables (thousand ha),
 X_2 : productivity (tone per ha),
 R^2 : adjusted R square,
 ** mean statistical significance of t with significance level 0.01,
 the figures in brackets represent the value of t.

Function 4 shows the positive relationship between production and both of the cultivated area and productivity of vegetables in Yemen republic during the period (1995–2009). It reveals that increase of cultivated area by one thousand ha leads to increase of the production by 12.247 thousand tones. And increase of productivity by one tone per ha leads to the increase of production by 68.724 thousand tones. The effect of cultivated area and productivity was statistical significance according to t test collection 23.39 for area and 151.57 for productivity which is bigger than another in the same table with significance level 0.01. Value of adjusted R square (R^2) revealed that all change in the production of vegetables (100 percent) caused by change in planted area and productivity (independent factors).

1.5 Cultivated area and production by governorate

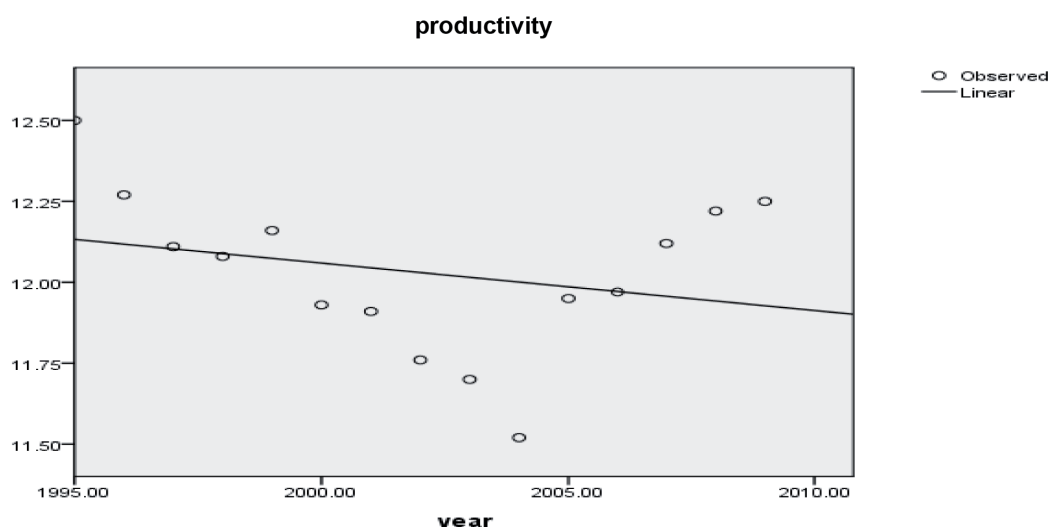
Vegetables production varies from one governorate to other in Yemen Republic according to an appropriate climate for the cultivation of vegetable crops, and availability of water for irrigation. Accordingly the production of vegetables in 2009 concentrated in six governorates (Hodeidah, Sana'a, Dhamar, Ibb, Taiz and Marib), represented 73.09 percent of the total vegetables production. The first governorate in production of vegetables was Dhamar with 167.588 thousand tons, represented about 15.37 percent of total vegetables production, due to increase its production of potatoes and tomatoes which amounted to 95.064 and 52.090

thousand tons, respectively. Second governorate was Hodeidah, produced 163.173 thousand tons represents about 14.96 percent of the production of vegetables, due to increase its production of tomatoes, it was the first provincial producer of tomatoes with 54.201 thousand tons represents about 21.6 percent of the total production of tomatoes in the Republic of Yemen in 2009. Third provincial producer of vegetables was Taiz, with 154.561 thousand tones represented about 14.17 percent, due to increase its production of onion which was the first producer with about 62.05 percent of total onion production. Fourth producer of vegetables was Sana'a with 11.78 percent due to increased its production of tomatoes, potatoes and onion. Fifth governorate was Ibb with about 10.78 percent, due to raise its production of potatoes with 101.025 thousand tons represented about 36.34 percent of total potatoes production (table III).

1.6 Production of main vegetable crops (tomatoes, potatoes and onion) in Yemen Republic

1.6.1 Production of potatoes in Yemen Republic (1995–2009)

Potatoes production during 1995–2009 increased from 184.542 to 287.022 thousand tons by about 55.53 percent, with Compounded annual growth rate by 3.32 percent. The main reason for this increasing was razed the area planted which increased in 2009 by 58.05 percent compared with 1995, with CAGR by 3.32 percent within the mentioned period. Productivity ranged between 11.74 and 13.35 ton per ha with average 12.6 (table IV).



3: Trend in vegetables productivity in Yemen Republic (1995–2009)
 Source: table II

III: Production of vegetables in Yemen republic in 2009 by means governorate (thousand tones)

Series	Governorate	Main vegetables				Other vegetables	Vegetables production	Main % of veg. prod.	Sort
		Potatoes	Tomatoes	Onion	Total				
1	Hodeidah	0.384	54.201	1.104	55.689	107.484	163.173	14.96	2
2	Sana'a	20.156	51.109	10.867	82.132	46.357	128.489	11.78	4
3	Dhamar	95.064	52.090	11.986	159.14	8.448	167.588	15.37	1
4	Ibb	101.025	1.124	6.405	108.554	8.969	117.523	10.78	5
5	Taiz	3.103	3.962	133.716	140.781	13.780	154.561	14.17	3
6	Marib	20.877	21.618	1.995	44.49	21.306	65.796	6.03	6
7	Hajjah	0.370	4.430	1.139	5.939	10.808	16.747	1.54	13
8	Al-beida	5.293	3.531	11.878	20.702	4.367	25.069	2.30	11
9	Sadah	0.882	6.908	0.667	8.457	2.397	10.854	1.00	15
10	Al-mahwit	0.114	2.414	0.055	2.583	0.928	3.511	0.32	18
11	Lahj	0.075	3.465	1.468	5.008	3.550	8.558	0.78	16
12	Abyan	2.048	7.410	2.091	11.549	31.669	43.218	3.96	9
13	Hadhramout	2.064	2.675	14.094	18.833	20.570	39.403	3.61	10
14	Al-jawf	0.518	16.668	1.946	19.132	34.467	53.599	4.92	7
15	Shabwa	0.376	4.574	9.950	14.9	9.143	24.043	2.20	12
16	Al-mahara	0.033	0.469	0.229	0.731	1.320	2.051	0.19	20
17	Aden	0.128	0.710	0.084	0.922	1.875	2.797	0.26	19
18	Amran	23.598	9.495	4.377	37.47	7.042	44.512	4.08	8
19	Al-daleh	0.137	1.998	0.096	2.231	2.335	4.566	0.42	17
20	Sana'a city	1.660	2.135	1.240	5.035	8.590	13.625	1.25	14
21	Raimeh	0.117	0.283	0.113	0.513	0.283	0.796	0.07	21

Source: Ministry of agriculture and irrigation Republic of Yemen, Department of statics and agricultural information, agricultural statistics year book 2009

1.6.2 Production of tomatoes in Yemen Republic (1995–2009)

Tomatoes production in 2009 increased by about 26.14 percent compared with 1995. However CAGR over the period 1995–2009 of 3.21 percent also due to increasing planted area which increased by about 39.8 percent compared with 1995, with CAGR by about 3.32 percent. Average production of tomatoes was 234.04 thousand tons, and average productivity was 14.46 ton per ha (table IV).

Source: Ministry of agriculture and irrigation Republic of Yemen, Department of statics and agricultural information, agricultural statistics year books (1999–2009).

1.6.3 Production of onion in Yemen Republic (1995–2009)

Onion production in 2009 increased by about 348 percent compared with 1995. It was the highest increase rate among vegetables with an annual compound growth rate during 1995–2009 of 9.33 percent, This significant production increase of onion due to the increase in planted area which increased by about 336 percent compared with 1995 with CAGR of 8.66 percent. Average production of onion was 117.71 thousand tons within the same period. Average productivity was 14.16 (table IV).

1.6.4 Trend in production of main vegetable crops

1.6.4.1 Trend in potatoes production

By using data in table IV general trend function of potatoes production in Yemen Republic during 1995–2009 was estimated in function 1 table V. It indicates that General trend in potatoes production was positive with statistically significant increased by 5.68 thousand tons per year represented about 2.62 percent of average potatoes production during the same period which amounted 217.051 thousand tons.

1.6.4.2 General trend in tomatoes production

Data in table IV are used to estimate the general trend function of tomatoes production in Yemen Republic during the period 1995–2009 in function 2 table V. It indicates that there was a positive trend which increased by 0.852 thousand tons per year represented about 0.36 percent of average tomatoes production during the study period which amounted to 234.038 thousand tons.

1.6.4.3 General trend in onion production

By using data in table IV general trend function of onion production in Yemen Republic within the period 1995–2009 was estimated in function 3

IV: Production of potatoes, tomatoes, and onion in Yemen (1995–2009)

Cerise	Year	Potatoes			Tomatoes			Onion		
		Productivity	Production	Area	Productivity	Production	Area	Productivity	Production	Area
1	1995	13.57	184.542	13.601	15.41	199.204	12.929	14.00	61.848	4.418
2	1996	12.84	182.815	14.233	15.21	221.384	14.558	14.14	66.910	4.731
3	1997	12.73	195.613	15.372	14.88	225.178	15.129	13.98	69.678	4.985
4	1998	12.58	196.469	15.615	14.96	231.465	15.473	14.00	72.364	5.170
5	1999	12.66	211.121	16.675	15.04	239.857	15.943	14.09	67.901	4.818
6	2000	12.38	210.424	17.000	15.13	251.138	16.601	14.62	74.606	5.103
7	2001	12.04	208.597	17.325	14.78	261.692	17.709	14.40	79.147	5.498
8	2002	11.96	210.769	17.627	14.45	267.267	18.493	14.37	80.432	5.598
9	2003	11.96	213.324	17.834	14.29	272.696	19.078	14.51	82.025	5.652
10	2004	11.74	197.958	16.870	13.47	200.438	14.909	12.94	154.140	11.909
11	2005	12.70	217.795	17.155	13.58	204.446	15.059	14.09	173.112	12.284
12	2006	12.70	226.366	17.831	13.56	211.734	15.610	14.09	173.893	12.354
13	2007	12.87	249.005	19.343	13.75	232.910	16.934	14.27	191.284	13.402
14	2008	13.00	263.945	20.310	13.89	239.897	17.273	14.41	202.761	14.072
15	2009	13.35	287.022	21.497	13.90	251.269	18.071	14.51	215.500	14.851

Source: Ministry of agriculture and irrigation Republic of Yemen, Department of statics and agricultural information, agricultural statistics year books (1999–2009)

V: General trend functions in production of potatoes, tomatoes, and onion in republic of Yemen (1995–2009)

Source: tables IV, V, VI

Number	Crop	Function	R ²	t
1	Potatoes	$y = 176.919 + 5.68x$	0.75	6.03
2	Tomatoes	$y = 227.220 + 0.852x$	0.025	0.583
3	Onion	$y = 21.067 + 12.080x$	0.85	8.44

table V. There was a positive trend with statistically significant increase by 12.080 thousand tons per year represented about 10.6 percent of average onion production within the mention period which amounted 117.707 thousand tons.

1.6.5 Production functions of main vegetables

Data in table IV are used to estimate production functions for potatoes, tomatoes, and onion in Republic of Yemen during the period (1995–2009) as follows:

$$y = -224.49 + 12.98 x_1 + 17.31 x_2 \dots\dots\dots (5)$$

$$(79.2)^{**}(25.7)^{**}$$

$$R^2 = 0.997$$

$$y = -225.89 + 14.57 x_1 + 15.47 x_2 \dots\dots\dots (6)$$

$$(100.4)^{**}(43.8)^*$$

$$R^2 = 0.999,$$

$$Y = -151.31 + 14.23 x_1 + 10.36 x_2 \dots\dots\dots (7)$$

$$(174.6)^{**}(12.5)^{**}$$

$$R^2 = 1.00,$$

where:

x_1 is cultivated area (thousand tons), x_2 is productivity (ton / ha), the figures in brackets represent the value of t , R^2 is adjusted coefficient of determination, and $(^{**})$ mean statistically significant with level significant of 0.01.

Functions 5, 6 and 7 revealed that increase in cultivated area by one thousand ha lade to increase with production of potatoes, tomatoes and onion by 12.98, 14.57, and 14.23 thousand tons, respectively, and increase by one ton per ha in productivity lade to increase in production of mentioned crops by 17.31, 15.47, and 10.36 thousand tons respectively. The value of t revealed that the effect of independent variables is statistical significance on dependent variable according to t -test. The value of adjusted R^2 revealed that the indicated variables are responsible for 99.7, 99.9 and 100 percent of the changes in the dependent Variables for potatoes, tomatoes and onion, respectively

2 Consumption of vegetables in Republic of Yemen

Due to lack of data on the quantity of vegetables consumed in Republic of Yemen that obtained from the statistics issued by the Yemeni government (Ministry of Agriculture and Irrigation,

and the Ministry of Planning and International Cooperation), the following equation is used to calculate the quantity available for consumption of vegetables.

$$\text{The quantity available for consumption} = \text{production} + \text{imports} - \text{exports}$$

Table VI shows that available for consumption of vegetable in Republic of Yemen in 1999 amounted to 729.151 thousand tons as a minimum within the period 1998–2009, decreased by 1.06 percent of the consumption in 1998 (base year), due to decreased exports and increased imports in this year. However in 2009 amounted to 1 047.41 as a maximum due to the increase in production.

Trend in vegetable consumption

Data in Table VI are used to estimate the General trend **function** in the available for consumption of vegetables in Yemen during the period 1998–2009 in function 8.

$$Y = 658.407 + 29.785X \dots\dots\dots(8)$$

(9.810)**

$R^2 = 0.90$,

where:

Y is the available for consumption of vegetables

X Represents time

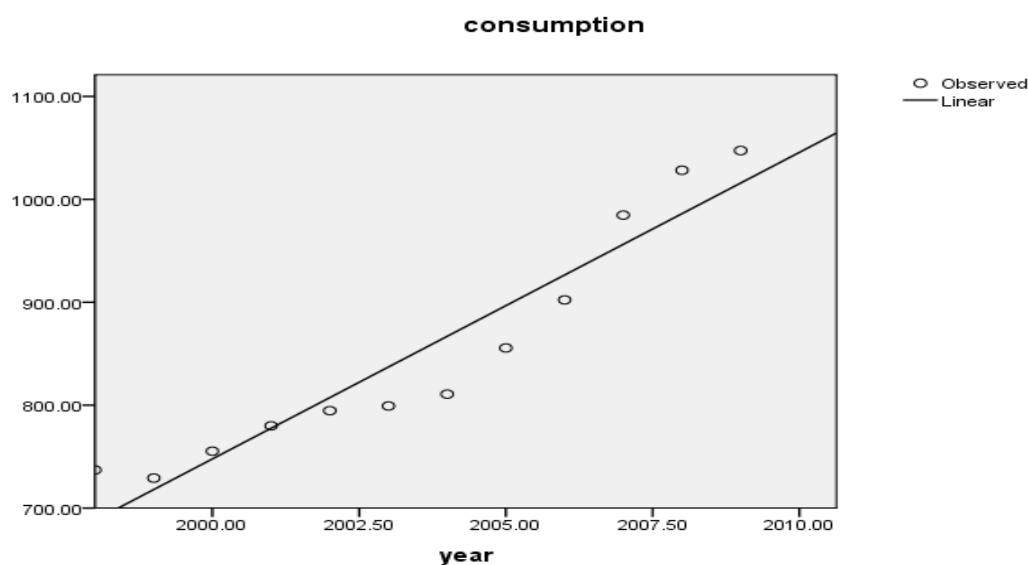
R^2 determination coefficient

** Mean statistical significance with significance level 0.01.

VI: Available for consumption of vegetables in Republic of Yemen (1998–2009)

Year	Production	Imports	Exports	Available for consumption
1998	747.131	3.649	13.794	736.986
1999	759.820	2.359	33.028	729.151
2000	774.908	7.267	26.875	755.3
2001	802.733	8.045	30.881	779.897
2002	818.951	8.181	32.497	794.635
2003	833.349	10.458	44.593	799.214
2004	833.217	14.409	36.876	810.75
2005	877.820	37.317	59.587	855.55
2006	904.461	52.960	55.121	902.3
2007	995.386	40.245	50.967	984.664
2008	1 037.246	14.793	23.774	1 028.265
2009	1 090.479	27.046	70.115	1 047.41

Source: Ministry of agriculture and irrigation, department of statics and agricultural information, agricultural statistics year books (1999, 2003, 2008 and 2009)



4: Available for consumption of vegetables in Yemen (1998–2009)

Source: table VI

Function 8 and figure 4 indicate that there was a positive trend in the available for consumption of vegetables in Republic of Yemen during the period 1998–2009, which increased by 29.785 thousand tons per year, represented 3.5 percent compared to the average consumption during the mention period which amounted to 852.01 thousand tons, with statistical significance according to t test

collection (9.810) which is bigger than another in the same table with significance level 0.01.

The value of determination coefficient (R^2) revealed that, 90 percent of the change in the consumption of vegetables caused by time as an independent variable, which was mainly caused by the increase in production of vegetables. The Compounded Annual Growth Rate of available for consumption of vegetables is 2.54 percent.

SUMMARY

The main purpose of search is to understand the development of Production and consumption of vegetables in Yemen. The results showed that vegetables production concentrated in governorates (Hodeidah, Sana'a, Dhamar, Ibb, Taiz and Marib) which produce about three-quarters of total production in the country, and according to the given analyses, it is obvious that in the chosen statistical data about the development in production and consumption of vegetables in Republic of Yemen, the trend was positive in cultivated area, production, and consumption, and negative for productivity. Production of main vegetables crops which include potatoes, tomatoes, and onion increased, but the annual increase rate of onion production was the highest amongst the mentioned crops due to the increasing in its cultivated area. The production functions of the groups under study indicated that productivity was more important for increasing the production of vegetables, potatoes, and tomatoes, however cultivated area was more influential in increasing the production of onion.

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