ECONOMIC ANALYSIS OF THE REAL SITUATION OF THE PALM TREES AND THE FUTURE ESTIMATION OF DATES PRODUCTION IN IRAQ

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ABSTRACT: *Research results have shown reality dates production of Iraq of the period (1990 – 2011), The highest figures of production in the year 2000 and it reached the amount of (931540) ton whilst the year 2005 was the year with lowest figures for production which was estimated to be (404030) tons.It was clarified through the research, the AL-zahdi kind was the highest kind produced, amounting to about 71.5% of the whole amount produced, during the period mentioned previously.The AL-khadrawi and Hilawi each made 2.9 % of the final amount. The dairy came last among the kinds produced, making 0.9 % of the amount of the quantities produced. The other colored kind made 9.7 %.The governorate of Babylon equipped the first place in the rate of importance in production, among the other producing governorate, generally speaking. Babylon production reached to (97800) in the year 2011 whilst Maysan came last its production amounted to 8280 tons for the same year.The results of the statistical analysis showed, in general there was a setback in the quantities produced. Especially in the Zahdi, Kistawi, khadrawi kinds. The results of the regression equation production forecast up to 2024 year, which reflects the extent of the decline in the production of all varieties of dates.*

KEYWORDS: Palm productivity, production dates, economic value, environmental benefits

INTRODUCTION

God have endowed Iraq with the best fruit ever known by nations of the world , in ancient and modern history. It is the fruit of the dessert with the sweet and delicious test , it's the product of the mistress of the trees (the palm), it salutes the hunger of the poor and the rich. It was mentioned almost in all the holy books. (1) The research studies and the scientific references had pointed out that Mesopotamia is the wood of palm trees, this was mentioned through time. Mesobot was the country of origin for all trees that are found in the world.

Iraq was famous of having many varieties of Dates which amounts to (650) kind (2), it used export Dates to almost to all countries of the world they used to have (32) million palm tree, Statistics also indicate in the fifties of the last century. Iraq used to occupy the first place among the Date exporting country this fact was true until few years ago.(3)

In spite of the fact the quantities of Dates were produced using simple methods, then production used owing to the use of modern agricultural technology(4), but the successive statistics take proved otherwise(5). Palm grove have suffered accumulated negligence, Since the mid-seventies of the last century , owing to the change of performance of most of the working hands , which were specialized in taking care of the palm trees to other types of works . In addition the lowering of the prices of Dates in the local prices and the raise in the prices of the Dates in the local markets. All of this and the raise in the salt content in the soil and the raise in the underground water level.

Accompanying this factors and the lack of the proper drainage systems. All of these factors have negative affection the palms and their productivity. In the southern governorate especially in Basra.

The wars that Iraq had indulged in , caused clear damages were among the key causes that had negatives results and the Iraqi groves, this had led to the decline in the number of palm tree from 32 million tree in 1952 to 16 million 1994 to reach the rounded figure of 13 million in 2011(6). The palm tree is considered the most important tree in the desert era, added to all of this, is the fact that Dates can be stored for long period   , this had made the tree and Dates as the most important source of food same described at as the a food mine(7) . Dates are important source of energy owing to its large sugar content, they also contain other nutrition elements like , Iron ,Calcium , they are considered as an important source of calories for each of Dates contains more than 3000 Kg per Kg(8). Dates can be the source of important products like, molasses and vinegar. It can be used in the confectionary industry .they play an important enhancing the concept of the food security owing to its high nutritional value (9). The average rate of consumption of Dates per one person in many desert countries a high average estimated to be 150-185 per one person annually. (10)

There are environmental benefits that be gained from the increase of growing palm tree, it play a role in the decrease of environmental pollution, with a positive influence of the weather, also it participate in lessening of the global warming phenomena caused by Carbon dioxide entrap that was emitted from fossil fuel burning .

The Palm tree participates in recreating the balance and settlement in the environment of system which will stability in the social and environmental system in dry areas. This is occurs especially in the oases that will had to the biological , economic, social   linearity

for the desert population ,it adds aesthetic value in importing the life style of the people who travel there locking for relaxing and sightseeing.(15)

Studies had depicted the ability of one palm in the absorbing about 6 Kg of Carbon dioxide and it releases Oxygen instead, that is enough to sustain the life of tow people. A one acre of land planted with trees will absorb 2,5 Ton of carbon dioxide per annum equal to the amount produced by driving a car for a distance of about 26000Km.(11)

Therefore we are able to say that the palm trees play an important role economically and socially in the countries that plant them. They proved a life support system for living, it also plays asocial role through providing the enhanced based of living. this will involve along spectrum of population by helping to reside in countryside instead of migrating to areas . The palm tree will enhance the agricultural share in the gross national product. It will increase the returns through exporting Dates as an element participate of the growth of national income.(14)

The problem of research

Owing to the importance of the Dates product among the agricultural product , which has a high nutritional value, also it is importance as a major conception product (fresh , dried)

Also its importance as an industrial product of importance. Yet its production rate was fluctuating and in the resent years in spite of the fact that Iraq, has a large of No. palm Dates. These if used properly will provide food security recently the important source started to dwindle and diminishing continuously in spite of its economic importance.

The aim of the research

The aim of the research is to identify its actual gross production in Iraq. Distributed according the main kinds during research time which lasted for (22) years from (1990-2011), each governorate participation in production of it. It also contains the recognition of the annual growth rate for the production of each kind, with the outlining the reasons that caused the production fluctuations through the all period, shedding light on some future predication for the production of various kinds of Dates in Iraq benefiting the planning policies draw for the production consumption and expectation.

Tools and methods

The statistical analysis system (SAS) was used in analyzing the slop, through the multiple liner slop, in accordance with the estimated slop.

Results and dissociations

Date products are considered among the most important agricultural products in Iraq. Whether it's considered as a consumes product used individual and directly as raw material for the production of vinegar, molasses, or pressed to be preserved, production sugar as alcohol also in the production the bread yeast and last in the production micro protein. Its waste product can be used as food for animals. Table (1) depict the production of Date according to its six major kinds for the period (1990-2011) rated against the gross product.

Dates production researched it highest value amounting to (690890) tons in the year 2002. The lowest production was (265490) ton in the 2007. The important of production gradually decline.

The relative importance for the kinds of dates produced throw the period (1990-2011) with respect to the gross production, the Zahdi type comes in the first place among other types of Dates produced in Iraq, during the same period the research had lasted it production rate was 7/0.5 % of the gross production amounting to (690890) tons in the year 2002 in comparison with the lowest amount of production which amounted to (265490) in the year 2007. Whilst the relative importance of other type decrease gradually of the Kistawi type was 8.3 of the gross product the highest value of its products was AlSayer type had 3.4 % of the gross product it highest production value was (61270) ton on the year 2003 and the lowest value was (6260) in the year 1993, the Khadrawi had amounts to (44490) tons in the 2003 lowest value was in (4310) tons in the year 1992.

The last type in the amounts produced was the dairy type amounting to (0.9%) of the gross product of Dates. Highest production value was (15650) tons in the year 2011 and the lowest production value was (3220) in the year 1992 the other type it consisted 9.7 % of the gross production of Dates the highest value for these other type was (74676) tons in the year 2010. The lowest figure was in 2005 making (404030) tons? Below is same of the reasons that participated in the fluctuation which appeared in the production values during the years of research period:

1. Most of the palm dates of Iraq have passed the production age, and become old in addition to the fact that aged palm had not been
2. Urban expansion was on the expense of the palm areas and a considerable No. of areas was lost the built up areas.
3. Corruption played an important role in smuggling rises types of small date palm trees abroad
4. The shortage that is occurring lately in skilled working hand who are specialized in servicing the palms.

5. The decline in the dates prices causing the lowering profits which discouraged the date's industry.
6. The increase in the soil contents rates of salt, increase in water level, the high effect on the quantities of dates produced and the quality.
7. Seeing the demand balance upped in favor of groceries farmers turned to grossing the green crops and gave up serving the palms.
8. Infections of the palms and lack of using insecticide the climatically changes and scarcity of irrigation water all these factors had a great influence on the decline in production of the dates.
9. The migration of the Iraqi scientists and experts in the field of growing dates had participated in the deterioration in the industry. Bearing in mind that the Iraq dates expert are the best in the world, they had played a great role in the field of research, they had their print on the other countries that were interested in the date's industry.

Table (1) dates produced in Iraq according varieties (production 10 tons)

Second: - productivity Palm
Notes of the table (2) fluctuation in the productivity rates palm tree in the past (2002-2012) .
Tab (2) Fluctuation in productivity rates palm tree

years	Production Kg \ palm
2002	65
2003	61.3
2004	61.7
2005	56
2006	54.9
2007	53.1
2008	57.4
2009	59.5
2010	64.5
2011	67.6
2012	65.6

Source: - The Central of Statistics and Information Technology for the years (2002-2012)

Year	Zuhdi	Alkhstawi	Khadrawi	Sayer	Hillawi	Dairi	Other Items	Total
1990	42654	4948	1180	949	563	458	3750	3750
1991	44568	4813	1184	921	777	559	3800	3800
1992	36172	3634	626	532	431	322	3057	3057
1993	46997	4437	1226	1530	1472	621	4765	4765
1994	50280	5702	1317	2176	2255	664	5188	5188
1995	67437	6944	1946	1813	1734	---	8220	88103
1996	60509	5262	1920	2922	2260	---	6872	79745
1997	57518	5148	177	2794	1908	---	5874	75014
1998	68179	5790	2637	3333	2912	433	8018	91302
1999	55734	6076	2055	3514	2183	375	6435	76372
2000	68234	6540	3058	3122	2512	447	9241	93154
2001	65424	6331	2480	3178	2230	580	10456	90679
2002	69089	7033	1915	3629	2642	514	7125	91947
2003	55456	4734	4449	6127	3222	786	12065	86839
2004	31375	5133	1737	1230	1373	504	3465	44837
2005	27191	4450	1487	1314	1758	771	3432	40403
2006	27302	4610	1674	1474	1765	947	5465	43237
2007	26549	5157	1969	1557	1854	950	5050	43086
2008	30239	5196	2126	1599	1867	1017	5588	47632
2009	31543	5649	2278	1731	2024	1134	6341	50700
2010	35389.6	6013.8	2486.3	1899.3	2139.2	1287.1	7467.6	56682.9
2011	37205.1	6818.9	2731.9	2154.6	2360.7	1565	9082	61918.2
Total	1035045	120419.7	42659.2	49498.9	42241.9	13934.1	140756.6	1446449
Average	47047	5474	1939	2250	1920	633	6398	65748
Relative importance Production %	71.5	8.3	2.9	3.4	2.9	0.9	9.7	100

Third- dates production as per governorate.

Dates are considered as one of the important agricultural commodities. It has various marketing source therefore it is important mention the geographical distribution of dates production as per types of dates and it usages table (7) and table (4) depicts the geographical distribution of the production per governorate, and significant other whole production in Iraq.

This well shed light on dates production as per each governorate and will direct the way toward the developing and the increase of production in the governorate. Also it will draw the special policy concerned with the development of dates and the establishment of canning factories, the building of refrigerated stores and the construction of specialized factories for the production of dates products.

Table (3) the relative importance of the production of dates in Iraq, according to the provinces for selected years   (10 ton)

Conservatism	1990	relative importance %	2006	relative importance %	2011	relative importance %
Diyala	7635	14.0	5162	11.9	7735	11.8
Anbar	3667	6.7	3885	9.0	4360	6.6
Baghdad	2580	4.7	5310	12.2	8689	13.2
Babylon	14934	27.4	6588	15.2	9780	14.9
Karbala	10357	19.0	5373	12.4	5788	8.8
Wasit	1835	4.0	3218	4.7	4111	6.3
Salahuddin	2219	4.0	980	2.3	1387	2.1
Najaf	2489	4.6	2429	5.6	6653	10.1
Qadisiyah	3681	6.7	1554	3.6	2986	4.6
Muthanna	921	1.7	1323	3.0	2236	3.4
Dhi Qar	2124	3.9	2010	4.7	3783	5.8
Maysan	403	0.7	542	1.3	828	1.3
Basra	1647	3.0	4835	11.1	5859	8.9
Total	54492	100%	43209	100%	65582	100**%**

For the above table, that Babylon governorate occupied the first place in dates production compared with other governorates and during the year the research was conducted in. its production on the 1990 (14934) ton , this represent (27.4)% of the whole country's dates production. To produce (9780) ton at the rate of 15.2% of the whole Iraq production .

This may help the authors of agricultural policy to pay attention to the cultivation, production and manufacture dates in this province, while the province of Maysan is less provinces of the country production of Tamorahit was (4030) tons in 1990, representing (0.7% (down to production (828 tonnes) in 2011 represented by ((1.3% of the total production of dates in the country

Fourth: - statistical analysis

Regression analysis was used across multiple linear regression model according to the estimated regression equation to determine the production dates as varieties depending on the table (1), as follows: -

$\hat{y}i = b0 + b1\ xi1 + b2\ xi2 + b3\ xi3 + b4\ xi4 + b5\ xi5 + b6\ xi5 + b7\ xi7$

Regression equation includes the following: -

$\hat{y}i$ =Production value estimated Iraqi Dates

B1 b2 b3 b4 b5 b6 b7 = param of type of the AL-Zahdi – Khestawi – AL-Sayer AL-Khdrawi – Hilawi – AL – Dairi, and the rest in successively.

Xi1 ,xi2, xi3, xi4, xi5, xi6, xi7= independent variable of the number of palms for Zahdi, Khestawi, Suyer, KHedrawi, Hilawi, Dairi, and other successively and by using the statistical program SPSS, it was possible to acquire the estimated slope equation of the produced quantities for all types of dates in Iraq for the period from the year (1990-2011) had revealed a clear compatibility in measuring the precession of the model and had revealed the following results.

In order to interpret the results of the estimated slope equation , in reflects clearly the decrease in the quantities produced for the AL-Zahdi type , Kistawi, and Khadrawi, compared with palms number existing for each type in Iraq. This puts forward conduction that the produced quantities for each type are diminishing generally speaking. In the table below the analysis of the incompatibility of measuring the precise range through the measurement of the in corporeality of the slope model that was suggested for the study research , the value of (sig) is less than the level of the in corporeality which equals (0,005) , this means that the slope model that was suggest for the study in corporeality at in corporeal level (0.005) The value of coefficient of determination amounted to $R^2 = 0.82$ which is a good value which means that the slope equation suggested interpret 82% of the sum of the deviations. From this it is conclude that the produced quantities for each type is declining generally from one year to another for various reasons , such as the negligence in treating the epidemic which infect the dates , the random urban expansion on the account of the palm groves lacking of dates and the damage caused on groves that were in the areas of military operation. All of these factors had its toil on dates production in all governorates in Iraq.

The slope model and the future estimation for the quantities of dates produced for all type on formerly we made statistical analysis depicting the relationship between the production and with time variable and geographical variable , like governorates and between the type and the NO. of palms for each type , and we will find the slope model for each ear based

on the slope model that belong to the production of each type , then we will put down an expectation for the future production of each type of date.

First; expectation and slope model for AL-Zahdi type in according the following slope model

$Yi = \alpha + \beta1x1 + \beta2x2 + \beta3x3$
Yi stands for the quantities product of the AL-Zahdi, it can be changed to any other type , like Khstawi, Barhi, Sayer, Khdrawi or other type.

a: Hard limit parameter

$\beta1 \cdot \beta2 \cdot \beta3$: X fixed term parameters

B1,B2,B3 _____ The slope model parameters .

X1 \ the producing governorate, X2 \ year of production ,X3 NO. of palms (for any types).

It is worth mentioning that the equation can be generalized for the other types as we shall see in the statistical analysis through the statistical program SPSS in table No. (5) which depicted that the slope model for product AL-Zahdi is Yi =35308 + (37.13)+(25.4)(X2)_(96.81)(X3)

From the model it is notified that the No. of palms factors has a negative sign , this reflects the retardation in No. of palms of AL-Zahdi type, the value determination factors R2=(0.83) and this means that the model had lost (83%) of the differences in the quantities produced of AL-Zahdi type . in order to predict the quantities produced in the coming years , we substitute for the value of (X1) by the No. (78)this is the sum of the No. of governorate in Iraq. And we substitute for (X2) by the No. (36) and this represent the guidance symbol for the year (2024) and we substitute (X3) by the No. (18000) if we had (18000) palm of the AL-Zahdi type then the Zahdi production in Iraq will be Y1 = 23757 ton this means that the production of Zahdi type in Iraq will decrease to (23757,76)ton.

Secondly :the model of decline and prediction of the production of khistawi type .

It appeared that the model for for the production of Kistawi is an incorporeal paradigm the amount of the determination factor R = 0.88 . this explains the (8890) of the quantities of Khistawi, the incorporeal for the model as depicted by the parameters of the No. of date also have a negative sign (-)and this is anatural result because of the large retardation in the No, of that types . as for the prediction of the number of produced quantity of Khistawi if we want to predict the amount of the quantity to be produce in the year 2024 , we should substitute for X1 = 78 for the values of the governorate and for X2 = 36 for the time

sequence for the year 2024 and for X3 = 25000 Yi = 18270 .5 tons. This NO. reflects the amount of retard in the quantities produced of AL-Khestawi type in all of Iraq for the year 2024 .

Third \ the decline and predict in production of AL- Sayer type .

Statistical analysis had shown that the paradigm of the produced quantities of al Sayer type was a corporeal type in spite of the fact that the number of palms parameters for the Sayer type is negative, owing to the decrease in it, where is the value of the determination factor was (0.79) it explains the interpretation of the (79)%of the quantities produced of the Syaier type. As for the production, that is if we want to product the quantities of palm of the AL- Sayer type for the year 2024 and for all the governorate and when we have (200000)palms of AL-Syre type then the quantities produced will be (5295,7)tons this reflects the extent of retardation in the production of the Sayer type for the whole of Iraq .

Fourth\ The quantities produced and future class Khadrawi type

The statistical analysis has shown slope paradigm of all AL-KHadrawi, and it incorporeal paradigm statistically with parameters showing a negative sign for the number of the palm of the type Khadrawi. (0.81) it means the slope equation interprets (81%) of the whole deviations in the production of dates quantities of the Khadrawi type. As for the future production of the quantities to be produced for the year 2024 and for all the regions in Iraq based on the assumption that there are (100000)palms of KHdrawi type then the quantity to be produced for the year 2024.

Fifth\ Sample quantities produced and appreciation for the future class Hillawi

The statistical program SPSS depicted that the paradigm of the quantities produced of AL-Hilawi is a corporeal paradigm statistically speaking if the factors are corporeal ang the parameter of the No. of palm appears with a negative sign too, whereas the value of determination factor (0.77) this mean 77% of the production deviation for AL-Hilawi, the estimation equation explains it . for the slope of predicting the quantities of Hilawi to be produced in the year 2024 for example and for all the regions of Iraq based on the assumption of the existence of(200000) palm

(145772.6) this No. is reached after substituting in the equation.

Sixth/ slop equation for the production of Al- Dairi

The statistical analysis had shown the corporeality of the slop equation for the production of Al- Dairi type also with a negative sign for the slop of Al- Dairi the value of the determination factor for this paradigm (0.87) this means (87%)of the whole deference in

the quantities produced is interpreted by the slop equation as for the predication and if we want to predict the produced quantities for the year 2024 for all of Iraq assuming that there will be (250000) palm this will be acquired through the substitution in the equation (42993.4)ton.

Seventh / the paradigm for the production of other types

The statistical analysis has revealed that the slop paradigm for the production of other types and the parameters of No. of palms has negative sign (-) which indicate the relation in the No. as the time passes, the value of the determination facts (0.71) that is 71% of the deference of the productions of quantities of the other types is interpreted by the slop equation as for the prediction of the quantities to be produced for the year 2024 and for the whole regions of Iraq and the No. of palms (500000) palm of the other types of Dates then the quantity predicated will be through the substitution in the slop equation (147295.4) tons. This results reflects a relative stability of the quantities produced of the other types of Dates compare to the other former six types which is estimated will face a decline in the future owing to the large retardation of the No. of palms for these type as we have notes from the paradigm slop.

Tab(4) Forecasts the quantities produced from varieties of dates in Iraq by 2024

Dates Class	Yi (Tons)	The equation used Yi = α+ β1x1 + β2x2 + β3x3
AL-Zahdi	23757.8	Yi = 35308+ (37.13) (x1) + (25.4) (x2) − (96.81) (x3) Yi = 35308+ (37.13) (78) + (25.4) (36) − (96.81) (18000)
Alkhstawi	18270.5	Yi = 42881 + (40.41) (x1) + (29.93) (x2) − (0.90) (x3) Yi = 42881 + (40.41) (78) + (29.93) (36) − (0.90) (25000)
Sayer	5295.7	Yi = 19816 + (51.8) (x1) + (39.98) (x2) − (0.1) (x3) Yi = 19816 + (51.8) (78) + (39.98) (36) − (0.1) (200000)
Khadrawi	19433.4	Yi = 19508 + (212.9) (x1) + (92.2) (x2) − (0.2) (x3) Yi = 19508 + (212.9) (78) + (92.2) (36) − (0.2) (100000)
Hillawi	14572.6	Yi = 17642 + (383.1) (x1) + (195.8) (x2) − (0.2) (x3) Yi = 17642 + (383.1) (78) + (195.8) (36) − (0.2) (200000)
Dairi	42993.4	Yi = 22813 + (509) (x1) + (499.4) (x2) − (0.15) (x3) Yi = 22813 + (509) (78) + (499.4) (36) − (0.15) (250000)
Other types	147295.4	Yi = 9656 +(891.8) (x1) + 1143.5 (x2) − (0.12) x3 Yi = 9656 +(891.8) (78) + 1143.5 (36) − (0.12) (500000)

CONCLUSION

1. There is a decrease in the No. of palms during the period of research, caused by the negligence of the palms by the farmers for the various reasons, which made Iraq among the lowest countries that export of Dates instead of formally was the first produces in the world.

2. The most productive varieties of dates in Iraq is Al- Zahdi type, this indicate that the normal types had surpassed the special types with fluctuation in the productivity of palm trees to reach (65.6) Kg/palm during the year 2012.
3. The highest production was in the year 2000 which amounted (931540) tons and the lowest production was in the year 2005 amounted to (404030) tons.
4. Babylon was the first in production of Dates for the year 2011 and it was (97800) tons while Mysan was the last producing (8280) tons.
5. The results of the estimation slop equation, a large retardation in the quantities produced for all types which shows serious deterioration in the production of Dates in general.

RECOMMENDATIONS

1- Encourage the growing of new palm tree using modern methods like textile plant.
2- Encourage the researchers to conduct their research in order to design specialized tools, to be used for rendering services to palm trees and should simple to use and not expensive.
3- rendering support for dates produces with all possible means by the responsible government bodies in order to prevent them suffering financial losing, an individual bases, this usually happened will have negative implication on the local production .
4- Showing concerns applying the support to the needs of production including like ant disease and insects compounds.
5- constructing a data base concerned with date market (production marketing, types , prices, ….etc.) also must consider the needs of international markets.
6- The preservation of the genetically inherited type by using compound for the inherited and rare types .

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