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Study on export of Dehydrated Onion in Global market

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Abstract

Most of the countries in the world depend on agriculture either directly or indirectly. Along with agriculture, industrial development happens automatically. Raw materials for many industries are sourced from agriculture. The onion dehydration industry is based entirely on agriculture. Demand for Indian onions is especially high in the global market. Demand for various products of dehydrated onion is also high in the global markets. The development of dehydration industry is accelerating in India especially in the state of Gujarat and also in the Mahuva taluka of Saurashtra region due to the abundant production of onions. India's role in supplying dehydrated onions in the global markets has been significant. A study of the last few years reveals that the dehydrated onion firm is being exported by India on a large scale to global markets which is very useful for the Indian economy.

Key words: Onion, Dehydrated Onion Product, Export of Dehydrated Onion

Introduction

In the case of India, onion dehydration was first started in Ghaziabad, Uttar Pradesh in the year 1960-61 and the first plant was set up in Nasik, Maharashtra. While in Gujarat, the first plant was set up in Jamnagar, then this industry started developing rapidly in Saurashtra and especially in Mahuva taluka of Bhavnagar district. As Onion produced in large amount in Mahuva and Talaja Taluka of Bhavnagar district, this industry developed speedily. Various products of dehydrated onion are made, which mainly include onion kibbled, onion flacks, onion powder, onion chips, granule and minced. It can be said that this industry works like a earning son and earns foreign exchange.

Review of literature:

(1) **Dehydration of Onions with Different Drying Methods (Goudra Pramod Gouda, Ramachandra C T and Udaykumar Nidoni, Apr-May-2014):** In this paper they had studied the drying behavior of different onion varieties namely, Arka kalyan, Bijapur white and Arka pragati. Those were dried under open yard sun drying, solar tunnel drying and dehumidified air drying methods. Thin layer drying models namely, Page, Midilli-Kucuk and Logarithmic models were applied to the experimental moisture loss data with respect time to predict the drying pattern of onions. The higher coefficient of determination (0.9991) with the lowest root mean square error (0.010) and sum of square error (1.001×10^{-3}), indicated Logarithmic model a better fit to the experimental data compared to other models.

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(2) **Dehydration of onions: some theoretical and practical considerations. (Mazza G. LeMaguer M(1980a)):** The research paper discussed about yellow globe type onion slices were dehydrated with air at different temperatures and flow rates. Drying rate curves were constructed and used for the calculation of critical moisture content, drying constant, effective diffusivity of moisture through the slices and energy of activation for diffusion. An attempt to relate the process of moisture removal to the process of rehydration was made and a possible diffusion mechanism based on the concept of internal and external resistances is discussed.

Research Gap

The research reviewed a past study as literature identify research gap itself. After reviewing all the above papers, it is found that all those papers contain information about the dehydrate/dried onion and process of dehydrating onion. There is less paper studied in era of economic study. We discussed about the economic benefit by exporting dehydrate onion products to the other country of the world.

Every year exports starts from January and continuous till end of June month. During this period around 85 to 90% product is to be exported. At the beginning of the season in 2017, the producers had a stock of about 20to 23 thousand tons of dehydrated onions even after export and domestic consumption, which shows the productivity estimate for that year. There are about 100+ dehydration units are activated in India and more than 90 plants are in situated in Mahuva taluka of Bhavnagar district of Gujarat state. The main reason behind this is that raw onion is produced in large quantities in Mahuva and Talaja which has resulted in huge development of this industry. The reason behind the huge demand for Indian onions in the global markets is the taste and quality. There is also a special demand for Mahuva onion, especially in the European market. The demand for Mahuva dehydrated onion product in the global markets is increasing every year as it is superior to other producing nations in terms of taste and quality.

The present study surveys the production of onion in India, export of manufactured onion and export of various products of dehydrated onion which are as follows.

Objectives:

- Obtaining information regarding export of fresh onions by India
- Getting information about dehydrated onion product
- Getting information on export of dehydrated onions (in the global market)
- Statistical Analysis of exported dehydrated onions

The following table is shows quantity and US$ values of Exported Fresh Onion of last five years from 2015 to 2020. Collected data are secondary data, as we obtained from DGCIS Annual Report. The figure of quantity shown in the below table is in metric ton and values of money is in US$.

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Table 1: India's Export of fresh onion to Top 10 Countries

Country	Year									
	2015-16		2016-17		2017-18		2018-19		2019-20	
	ty.	S$	ty.	S$	ty.	S$	ty.	S$	ty.	S$
MALAYSIA	44272.7	9516187	71972.16	3637931	76162.25	1355554	32450.83	4164310	6793 9.37	0450038
U ARAB EMTS	69684.48	9983123	02359.8	9655930	26248.44	4456267	58373.93	3457334	3234 9.08	5361789
SRI LANKA DSR	99136.44	8603286	07480.57	9470549	27965.35	6989860	29711.81	1554333	6995.52	0919616
SAUDI ARAB	7668.58	702789	8651.24	1173325	4824.9	766790	7045.21	6325535	0759.53	1880688
NEPAL	1146.86	0037563	33530.16	4381846	00150.95	2290915	39494.86	1016183	5353.16	1002658
QATAR	3573.87	0561147	7894.52	3643111	3942.27	6042203	5293.05	5418068	8023.95	0164534
KUWAIT	6402.36	0152708	5245.95	3309376	2082.12	1534117	4715.2	5746503	6181.35	123417
OMAN	0657.59	519854	8934.78	150052	3338.83	864589	4739.22	5212210	6283.73	623815
VIETNAM SOCREP	1723	955080	2881.01	554862	4056	1546252	7811.5	0957527	9923.67	510751
INDONESIA	1046	760402	1871.82	704627	5478.27	7226314	2272.61	3626309	3412.65	702760
Total	35311.88	79792139	38082.01	69023259	134249.38	40072861	381908.22	87478312	87222.01	82740066

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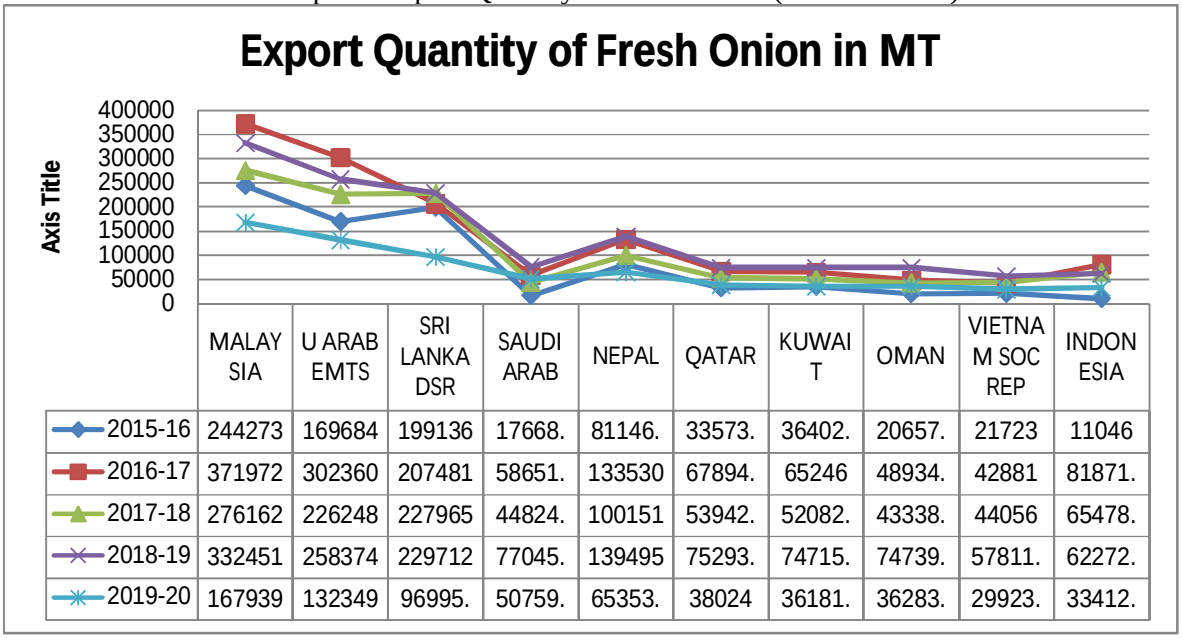
Qty. In MT ; Value in US$

Source: DGCIS Annual Export

Further we construct a chart of Quantity exported in various top 10 countries which is as below. From the graph we found that Malaysia is importing highest 25.70% quantity from India. Also we can derive that in the year 2016 -17 highest amount of fresh onion 371972.16 MT importing from India. While as Indonesia is importing lowest quantity 11046 MT of fresh onion from India. All this thing is easily understood by studying the following graph.

Graph 1: Export Quantity of Fresh Onion (in Metric Ton)



	MALAYSIA	U ARAB EMTS	SRI LANKA DSR	SAUDI ARAB	NEPAL	QATAR	KUWAIT	OMAN	VIETNAM SOC REP	INDONESIA
2015-16	244273	169684	199136	17668.	81146.	33573.	36402.	20657.	21723	11046
2016-17	371972	302360	207481	58651.	133530	67894.	65246	48934.	42881	81871.
2017-18	276162	226248	227965	44824.	100151	53942.	52082.	43338.	44056	65478.
2018-19	332451	258374	229712	77045.	139495	75293.	74715.	74739.	57811.	62272.
2019-20	167939	132349	96995.	50759.	65353.	38024	36181.	36283.	29923.	33412.

Next we construct another graph of US$ earn by exporting Fresh Onion from India to Top 10 importer countries. By looking at the graph we earn maximum in the year 2017-18, 91355554 US$ from Malaysia and minimum in the year 2015-16, 2760402 US$ from Indonesia. To understand we refer the following graph.

Graph 2: US$ earn by Exporting Fresh Onion

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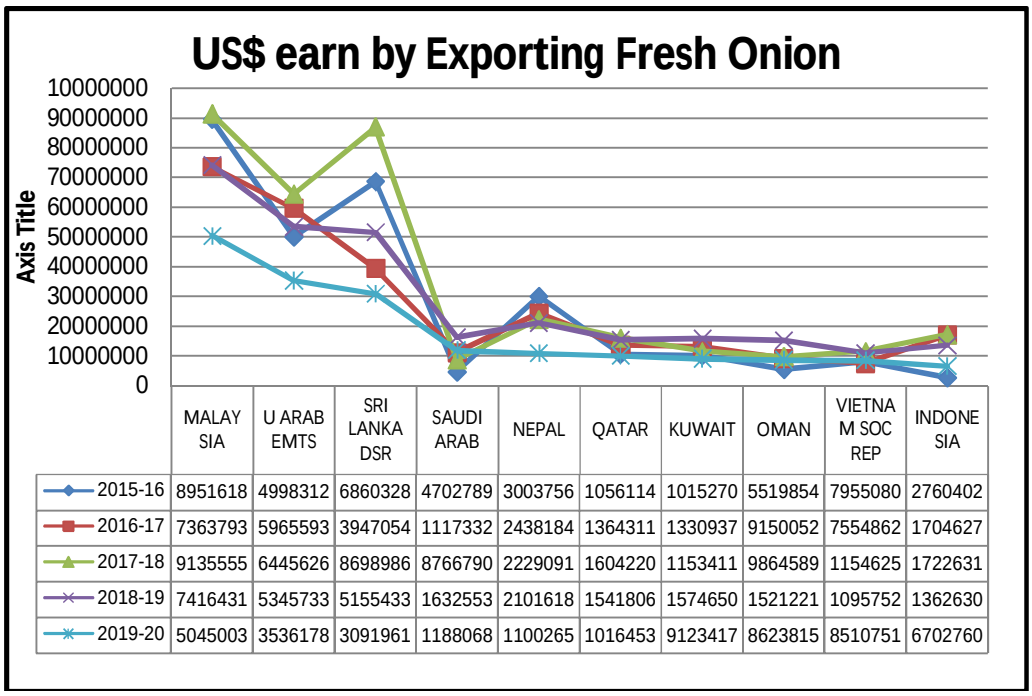

Table 02: Exports from India – Onions, Dried Onion (Whole/cut/sliced/broken/in powder) but not further prepared

r. No.	ount ry	Year									
		2014-15		2015-16		2016-17		2017-18		2018-19	
		ty.	alue	ty.	alue	ty.	alue	ty.	alue	ty.	alue
	erma ny	5079 59	01840 8880	3714 64	00625 4341	1564 613	23861 6692	2226 50	33486 832	1837 73	51050 170
	SA	4921 36	68405 629	7064 81	50565 543	6610 57	89986 173	9373 65	97449 173	5042 70	42803 991
	razil	3564 76	13502 730	8384 24	85181 283	7589 18	84322 616	3835 91	58272 057	2301 91	32103 568
	ussia	8822 38	85082 204	8834 69	23536 542	2947 02	15376 994	1844 75	94103 455	0807 64	10349 002
	K	0359 29	00752 744	5102 08	29880 401	9654 88	19015 968	2682 30	27550 382	0577 98	43487 354

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	elgium	678935	53878290	469866	73749568	467735	79493028	780343	67562801	609170	81569626
	anada	79399	07718452	177079	75995059	536025	01048792	636889	91112443	885023	35932524
	lovenia	59632	7497313	61085	5582716	88975	11247721	09423	6208167	288520	19028490
	outh Africa	898575	57314364	520515	22703953	536949	77150157	364594	11265770	189358	01688288
0	pain	442905	73874651	971622	49087825	066796	02808740	059172	63786947	211463	97486258
	otal	3634184	246435257	3710213	652537231	1841258	619066881	8546732	510798027	5240330	415499271

Source: DGCIS Annual Export

From the above table it can be seen that during 2014 to 2019, maximum 91,83,773,00 ton dehydrated onion product exported from India and compare to Indian, Spain is on 10th place by exporting 4,52,40,330 ton dehydrated onion product. From that we can say that most of the global market is covered by India as demand of dehydrated onion in global market is very high. Although India export dehydrate onion in most of the country of the world. So we can say that dehydrate onion play most important role in the global market.

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We wish to test the null hypothesis that India Export equal amount of quantity to the top 10 countries selected in this study. For that we use single factor ANOVA test.

ANOVA: Single Factor

Summary Table

Groups	*Count*	*Sum*	*Average*
Germany	5	4485045	897009
USA	5	2930130	586026
Brazil	5	1956760	391352
Russia	5	2325648	465129.6
UK	5	2683765	536753
Belgium	5	1700604	340120.8
Canada	5	7014415	1402883
Slovenia	5	4807635	961527
South Africa	5	1050999	210019.8
Spain	5	9751958	1950391.6

Above table shows the summary like sum and average of export quantity in MT. From the summary table we can see that maximum amount of dehydrate onion is exported to Germany and minimum amount of dehydrate onion is exported to Slovenia in last five year.

ANOVA TABLE

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2.72212E+14		3.02356E+13	32.58355421	1.12167E-15	2.124029264
Within Groups	3.71176E+13	40	9.2794E+11			
Total	3.09238E+14	49				

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From the above ANOVA table, F value is more than F-Critical value. There for we reject the null hypothesis. Hence we conclude that India dose not Export equal amount of quantity to the top 10 countries selected in this study.

Further we wish to test the null hypothesis that India earn equal value by Exporting dehydrate onion from the top 10 countries selected in this study. For that we use single factor ANOVA test.

ANOVA: Single Factor			
Summary Table			
Groups	*Count*	*Sum*	*Average*
Germany	5	4847816915	969563383
USA	5	3449210509	689842101.8
Brazil	5	1973382254	394676450.8
Russia	5	2328448197	465689639.4
UK	5	3320686849	664137369.8
Belgium	5	1956253313	391250662.6
Canada	5	9118 07270	182361454
Slovenia	5	4995 64407	9991 2881.4
South Africa	5	1170122532	234024506.4
Spain	5	9870 44421	197408884.2

Above table shows the summary like sum and average of earned value in US$. From the summary table we can see that maximum value earn from Germany by exporting dehydrate onion products and minimum value earn from Slovenia by exporting dehydrate onion products in last five year.

ANOVA TABLE					
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*

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Between Groups	3.40132E+18		3.77925E+17	32.5667792	1.13165E-15	2.124029264
Within Groups	4.64185E+17	0	1.16046E+16			
Total	3.86551E+18	9				

From the above ANOVA table, F value is more than F-Critical value. There for we reject the null hypothesis. Hence we conclude that India dose not earn equal value by Exporting dehydrate onion from the top 10 countries selected in this study.

Importance of the study:

As the demand for onion dehydrated product is high in the global market, this industry can bring more export earnings and bring balance in debit of nation. In addition, we could not found the business cyclical factors of this industry, so it can be said that this industry is becoming a significant contribution to the economic development of the country. Therefore, the present study has proved useful in understanding the importance of this industry in the Indian economy.

Data Collection:

In the present study secondary data were collected mainly from News Paper, Magazines, Articles, Research Publication and other publications.

Results:

- The proportion of private companies is found to be high in this industry.
- This industry is totally based on agriculture.
- This industry help to earn foreign currency.
- This industry is based on season.
- Lack of public awareness is a big drawback of this industry.

Conclusion

Based on the above study, it can be seen that this industry is a very important industry from the economic point of view. This industry is contributing significantly to increase employment, infrastructure and foreign exchange as a result. There is no doubt that in the future this industry will prove to be a blessing for the country.

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References,

1) Akbari SH, Patel NC (2006) optimization of parameters for good quality dehydrated onion flakes. J Food sci techmol 43:603-606
2) Mazza G. LeMaguer M(1980a) Dehydration of onions: some theoreyical and practical considerations. J Food Technol 15:181-194
3) Jayeeta Mitra, Shanker Lal Shrivastva, Pavuluri Srinivasa Rao, IIT Kharagpur (2012) onion dehydration: a review; journal of food science and technology-mysore
4) Meeta Punjabi, Aleen Mukherjee; supply chain for exports of dehydrated onions (A case study of Jain irrigation systems limited in India); FAO, 2015
5) N. J. Ardeshna, S. B. Vekariya, R. L. Shiyani and V. L. Gondaliya (Dept. of Agricultural Economics, Junagadh, Gujarat) (2014, Economic Affairs); Economic assessment of onion dehydration in gujarat state: can it be a means for stabilizing onion prices?
6) Goudra Pramod Gouda, Ramachandra C T and Udaykumar Nidoni (Department of Processing and Food Engineering, College of Agricultural Engineeering Raichur) (Current Trends in Technology and Science ISSN: 2279-0535. Volume: 3, Issue: 3 (Apr-May. 2014)); Dehydration of Onions with Different Drying Methods