DATA ANALYTICS PROJECT

INDIAN AGRICULTURE CROP PRODUCTION ANALYSIS

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Abstract:-Agriculture is an important sector in India. It is indispensible for the sustenance and growth of the Indian economy. On an average, about 70% of the households and 10% of the urban population is dependent on agriculture as their source of livelihood. Today, India is a major supplier of several agricultural commodities like tea, coffee, rice, spices, oil meals, fresh fruits, fresh vegetables, meat and its preparations and marine products to the international market. India is a large producer of several agricultural products. In terms of quantity of production, India is the top producer in the world in milk, and second largest in wheat and rice. Agricultural production is prone to several risks which affect both producers and consumers. In order to enhance investment and achieve a sustained increase in production, coherent and integrated long-term strategies and policies are required to reduce risk aversion and build flexibility among Indian rural producers. There is a need to provide remunerative prices for farmers in order to increase the incomes of farmers. In this research paper researcher's objective is to study the major agriculture crops production, export and import of agriculture crop wheat. A researcher also does there analytical study of this major agriculture crop Wheat.

Keywords: Agricultural production, wheat export, agriculture sector, agriculture crops.

1.INTRODUCTION

India is one of the largest producers of agriculture production in the world. It is the second largest producer in the wheat and rice. Wheat cultivation in India traditionally been dominated by the northern region of India. The northern states of Punjab and Haryana Plains in India have been prolific wheat producers. While this cereal grass has been studied carefully in the past, recent years of painstaking research by India's finest scientific talent has paid off with the development of distinctly superior varieties of Durum Wheat.

2.HYPOTHESIS OF THE STUDY

India is one of the largest producers of wheat in the world but compare to production of wheat India is not as much large exporter.

3.OBJECTIVE OF THE STUDY

The primary objective of this study is as given below

1.To study the Indian agricultural crop production i.e. wheat
2.To study the Indian export of agriculture crop wheat

4.RESEARCH METHODOLOGY

4.1 SECONDARY DATA

Secondary data, on the other hand, is basically primary data collected by someone else. Researchers reuse and repurpose information as secondary data because it is easier. Here researcher is taking the secondary data for his research purpose from APEDA Agri Exchange and MSAMB, DGCIS Annual Export, Database of National Horticulture Board, Ministry of Agriculture, Govt. of India, Food & Agricultural Organization (FAO), UN Comtrade, as reported by the Importing countries Etc.

4.2 TREND LINE

A trend line is a curved line that is most useful when data values rise or fall at increasingly higher rates. We cannot create trend line if the data contains zero or negative values. In this present research, a trend line is used to illustrate the increasing production of agriculture crop wheat. Note that the R-squared value is greater than or equal to 0.80 is better to interpreting our results, which means the line fits on the data perfectly. The trends are those where the data rises or falls not at a steady rate, but at an increasing rate.

4.3 STATISTICAL TOOLS AND TECHNIQUES

For measuring various phenomena and analyzing the collected data effectively and efficiently to draw sound conclusions, certain statistical techniques were used. Trend analysis, graphical analysis and ANOVA (Analysis of Variance), descriptive statistics like as Mean, Variance, and Standard deviation etc. has been use for the testing of hypothesis. Also researcher use the tools like as SPSS (Statistical Package for Social Science) 20.0 version and MS-Excel for analysis purpose.

5.CULTIVATION OF WHEAT

This hard wheat is cultivated in clayey soil and is highly sought after for its physical characteristics. Its high gluten strength and uniform golden colour makes it ideal for bread making and pasta preparation unlike the softer commercially high yielding wheat, which lacks the strength and consistency of durum. Today, India is exporting sufficient quantities of all types of wheat and extensive research efforts are underway for improving its cereals and grain output in the years to come. Wheat cultivation has traditionally been dominated by the northern region of India. The northern states of Punjab and Haryana Plains in India have been prolific wheat producers. While this cereal grass has been studied carefully in the past, recent years of painstaking research by India's finest scientific talent has paid off with the development of distinctly superior varieties of Durum Wheat. With a production reaching ten times in past five years, India is today the second largest wheat producer in the whole world. Various studies and researches show that wheat and wheat flour play an increasingly important role in the management of India's food economy.

5.1 VARIETIES OF WHEAT

The main varieties of wheat grown in India are as follows VL-832,VL-804, HS-365, HS-240 , HD2687,WH-147, WH-542, PBW-343, WH-896(d), PDW-233(d), UP-2338, PBW-502, Shresth (HD 2687), Aditya (HD 2781), HW-2044, HW-1085, NP-200(di), HW-741.

5.2 AREAS OF CULTIVATION UNDER WHEAT

Major wheat growing states in India are Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Rajasthan, Bihar and Gujarat.

6. INDIA FACTS AND FIGURES OF WHEAT

World trade in wheat is greater than for all other crops combined. Demand of India's wheat in the world shows a rising trend. The country has exported 55, 62,374.75 MT of wheat to the world for the worth of Rs. 9,261.60 Crores during the year of 2013-14.

Major Export Destinations of wheat in the year 2013-14 are Bangladesh, Korea Republic, United Arab Emirates, Indonesia, Djibouti, Yemen Republic and Oman.

Table no. 1 International production of Wheat in MT

Country	2008	2009	2010	2011	2012
China P Rp	112464292	115115364	115181303	117410300	120580000
India	78570200	80680000	80800000	86874000	94880000
United States	0	0	0	54413300	61755240
France	39006400	38332200	40787000	38037000	40300800
Russia	63765100	61739800	41507600	56240000	37719640
Australia	21420200	21656000	22138000	27410100	29905009
Canada	28611100	26847600	23166800	25261400	27012900
Pakistan	20958800	24033000	23310800	25213800	23473000
Germany	25988600	25192400	24106700	22800000	22432000
Turkey	0	0	0	21800000	20100000

Source: Food & Agricultural Organization (FAO)

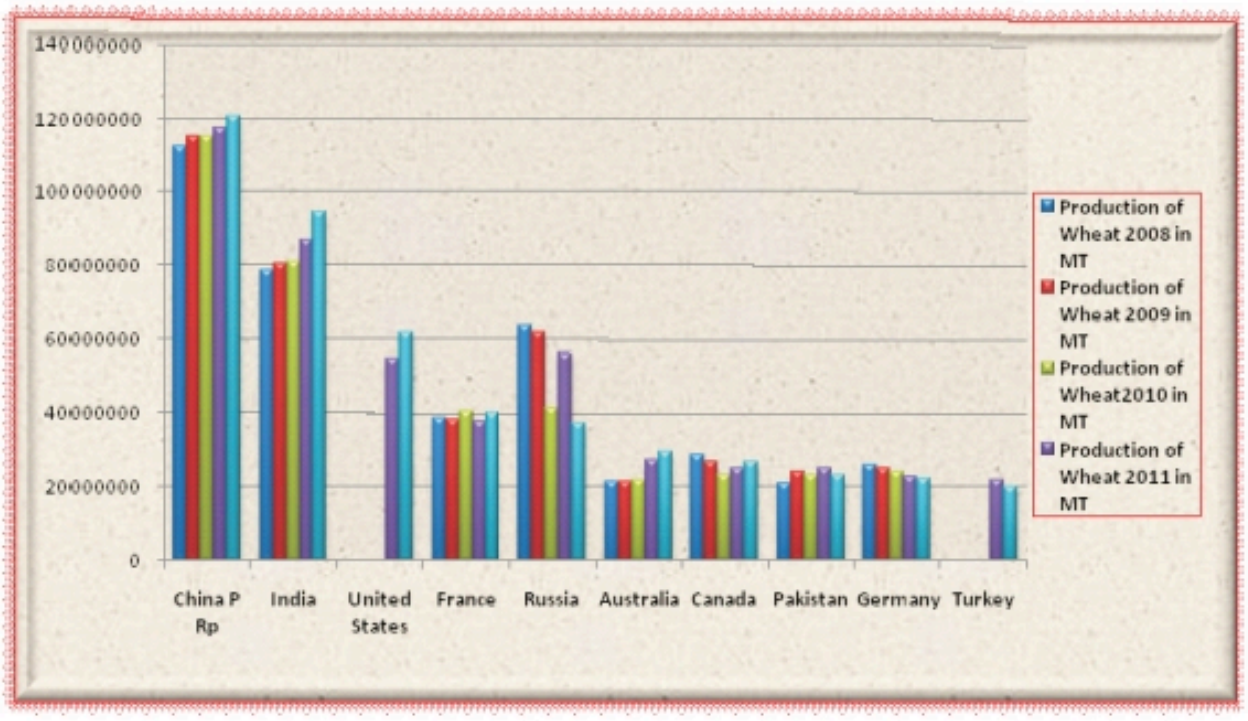


Figure no. 1 International production of Wheat in MT

OBSERVATIONS

In the above figure researcher undoubtedly observe that the India is the second largest producer of Wheat production in the world. China is number one producer of wheat in the world. United States is in third position of wheat production in the world. India shows the increasing trend of wheat production.

Table no. 2 International Production of Indian crop Wheat

Year	Production in MT	Share in %
2005	72000000	11.48
2006	69354500	14.49
2007	75806700	15.6
2008	78570200	14.82
2009	80680000	14.83
2010	80800000	15.63
2011	86874000	12.34
2012	94880000	14.14

Source: Food & Agricultural Organization (FAO)

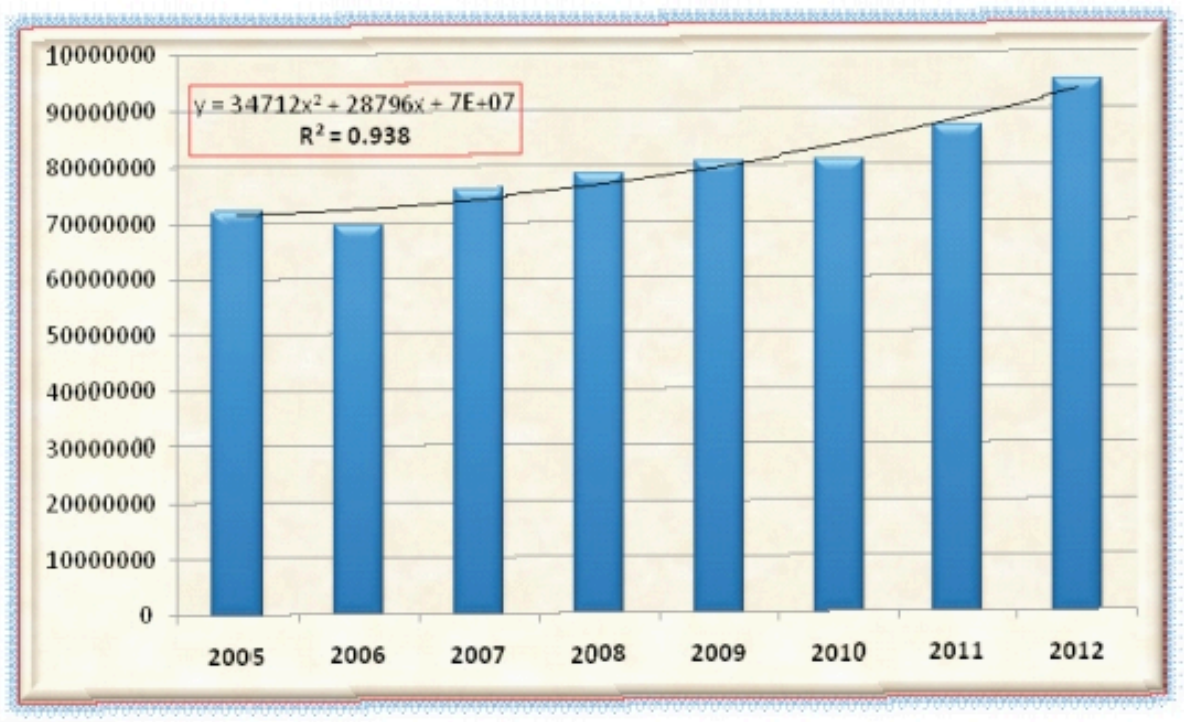


Figure no. 2 International Production of Indian crop Wheat

Observations

In the above figure researcher observe that the International Production of Indian agriculture crop Wheat. Any Graphs with curved trend lines are generally used to show a polynomial trend. This production of wheat shows the second order polynomial trend in the given dataset. This trend is an increasing in order and production of wheat is growing continually from the year 2006 to the year 2012. R-squared is a statistical measure of how close the data are to the fitted regression line. It is also known as the coefficient of determination, or the coefficient of multiple determinations for multiple regressions. The value R-square is a fraction between 0.0 and 1.0, and has no units. If R-square value is 0 means that knowing X does not help you predict Y. There is no linear relationship between X and Y, and the best-fit line is a horizontal line going through the mean of all Y values. When R-square equals 1, all points lie exactly on a straight line with no scatter. Knowing X lets you predict Y perfectly. Also R-square value is greater than 0.80 is said to the beat fit of the data. Here the R-square value 0.938 is greater than desired level so this trend line is best fitted to the given dataset.

Table no. 3 Indian production of Wheat

Year	Production (In 000 T)
2005-06	69,150.00
2006-07	75,620.00
2007-08	78,360.00
2008-09	80,471.00
2009-10	80,557.10
2010-11	86,870.00
2011-12	97,880.00
2012-13	97,113.60

Source: Ministry of Agriculture

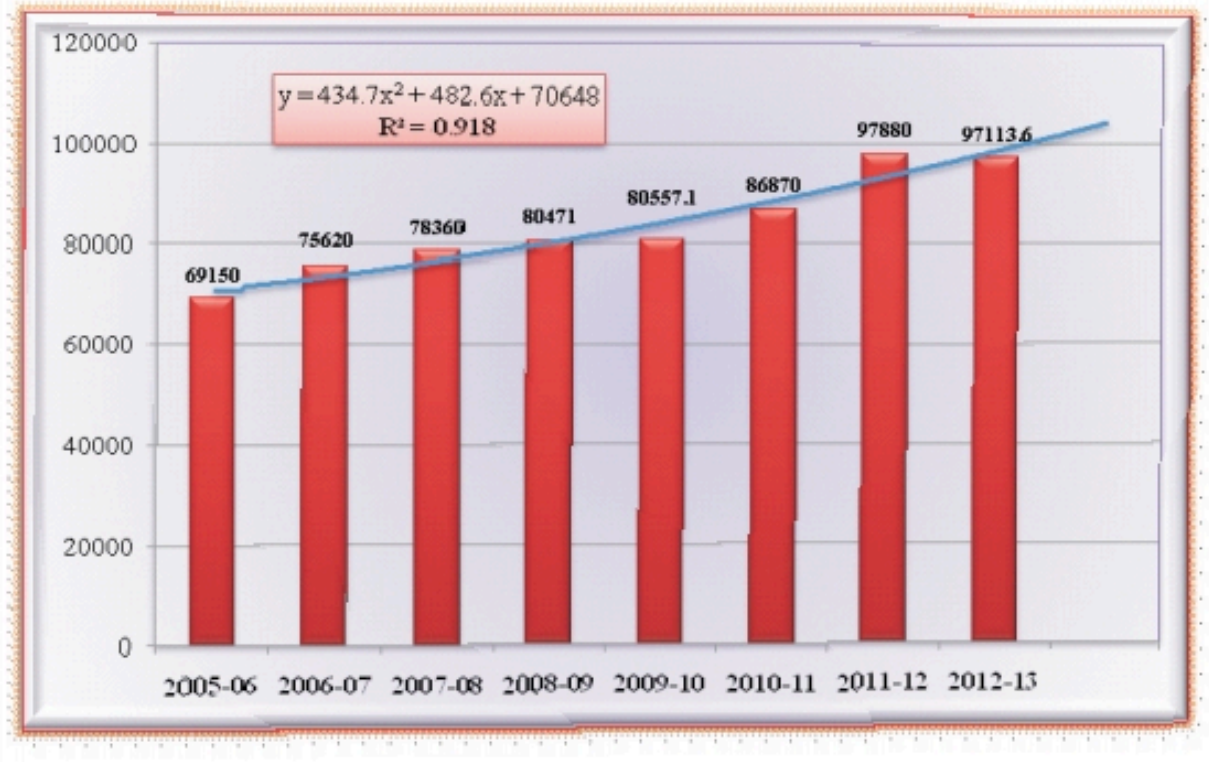


Figure no. 3 Indian production of Wheat

Observations

In the above figure researcher observe that the Indian production of agriculture crop Wheat. Above figure researcher see that the curved trend lines which is show a polynomial trend line in Indian production of agriculture crop wheat. This production of wheat shows the second order polynomial trend in the given dataset. This polynomial trend is showing the some fluctuations in production of wheat. The year 2011-12 shows the highest production of wheat i.e. 97880 MT. after the year 2011-12 the production of wheat goes decreases by 766.4 MT. From the year 2009-10 to the year 2011-12 the Indian production of wheat is steadily increasing.

Table no. 4 Analysis of variance table for Indian production of Wheat

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	658711550.701	1	658711550.701	69.899	.000[b]
	Residual	56542646.808	6	9423774.468	-	-
	Total	715254197.509	7	-	-	-
a. Dependent Variable: Production (In 000 T)						
b. Predictors: (Constant), Year						

Interpretation

In the table no. 4 shows the output of the ANOVA analysis and whether researcher have a statistically significant difference between the year wise Indian agriculture crop production of wheat. The F-statistic is the Mean Square (Regression) divided by the Mean Square (Residual): 658711550.701/9423774.468 = 69.899. The p-value is compared to some alpha level in testing the null hypothesis. Researcher can see that the significance level is 0.000, which is below 0.01. So the model does fit the data. A straight line, depicting a linear relationship, described the relationship between these two variables i.e. year and Indian production of wheat. And, therefore, there is a statistically significant difference in the Indian agriculture crop production of wheat.

Table no. 5 Major Exporting Countries

Sr. no	Exporting Country	2010	2011	2012
1	USA	24532446.64	26957932.96	16525029.47
2	Australia	12912954.53	15716016.19	18007037.11
3	Canada	18490226.63	14502268.97	12349415.79
4	France	22111233.63	19567143.17	13504486.51
5	Russian Federation	10121397.08	10243262.49	11118076.13
6	Argentina	4031725.56	7257188.47	9253581.48
7	Ukraine	5226076.4	3146631.58	5208842
8	Germany	8326728.29	5502586.17	5204350.97
9	Kazakhstan	3622782.5	1627111.74	4176735.64
10	Bulgaria	1745116.39	1957695.71	2267968.59
11	India	16595.56	100710.59	1500823.05
12	Romania	1860235.04	892183.55	1385913.39
13	United Kingdom	3251059.41	2150312.42	1591453.68

Source: UN Comtrade, as reported by the Importing countries

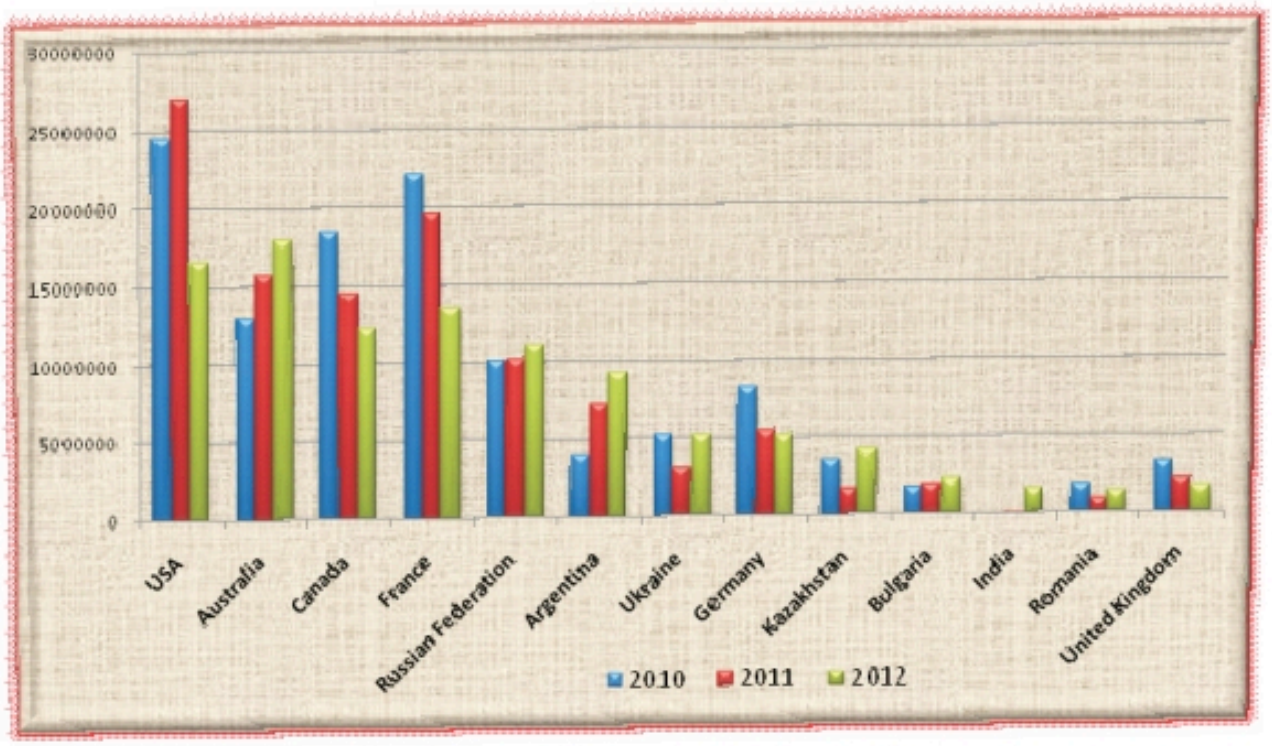


Figure no. 4 Major Exporting Countries of wheat

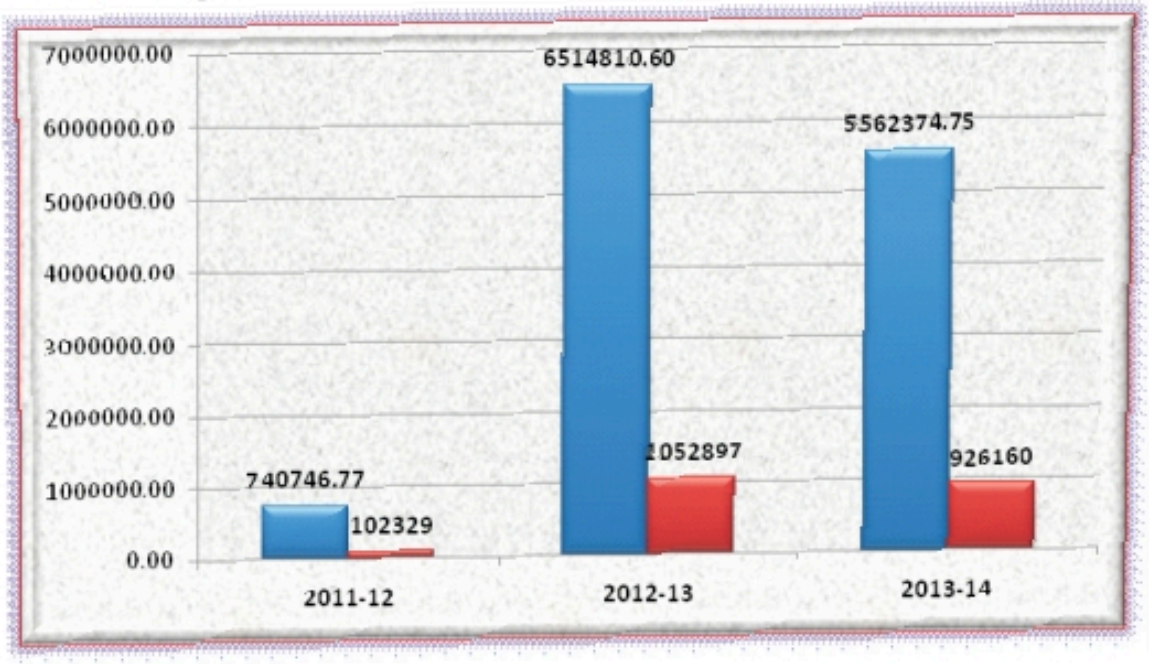
Observations

In the above figure researcher observe that the Major Exporting Countries of agriculture crop wheat. The USA is the first rank to the list of Major Exporting Countries of agriculture crop wheat. In the international production of wheat India is second largest producer and USA, Australia, France, Russia, Germany are not much large producer in compare to Indian international production of wheat but they are good exporter as compare to the Indian export of agriculture crop wheat. The India's rank of export is as much reverse as compare to the production of agriculture crop wheat.

Table no. 6 India Export of Agro Food Products Wheat

Year	Qty (In MT)	Value(In Lakh)
2011-12	740746.77	102329
2012-13	6514810.60	1052897
2013-14	5562374.75	926160

Source: DGCIS Annual Export



OBSERVATIONS

In the above figure researcher observe that the Indian Export of Agro Food Products Wheat. In the year 2011-12 India export the 740746.77 MT wheat in international market which value is 102329 lakh. Also in the in the year 2012-13 India export the 6514810.60 MT wheat in international market which value is 1052897 lakh. But in the year 2013-14 the India export less quantity of wheat compare to the previous year. In the year 2013-14 India export the 5562374.75 MT wheat in international market which value is 926160 lakh. Also researcher observes that as compare to export quantity the export value are relatively low.

7.CONCLUSION

In the above data analysis researcher demonstrate that his assumption of India is one of the largest producers of wheat in the world but compare to production of wheat India is not as much large exporter. In the figure no. 1 researcher see that the India is the largest producer of wheat and Indian production of wheat shows linear relationship but in the figure no. 4 researcher observe that India is not much large exporter of agriculture crop wheat. India needs to improve the export strategies and increase the export of agriculture crop wheat.