

## AN ANALYSIS ON THE PRODUCTION OF AGRICULTURAL CROPS IN KARNATAKA

Shekar P\* Lokesha. A\* Dr. Norbert Lobo\*\*

\*Research Scholar, Department of Economics, Tumkur University, Tumkur.

\*\*Associate Professor and HOD, Department of Economics, St Aloysius Advanced Research Centre, Mangalore.

### Abstract

Karnataka is one of the high economic growth states in India with the expected GSDP (Gross State Domestic Product) growth of 8.2 percent in the fiscal year 2010–2011 (economic survey of Karnataka 2012-13). The total expected GSDP of Karnataka in 2010–2011 is about Rs.2719.56 billion. Per capita GSDP during 2008–2009 was US\$1034.9. Karnataka recorded the highest growth rates in terms of GDP and per capita GDP in the last decade compared to other states. In 2008–09, the tertiary sector contributed the most to the GSDP amounting to US\$31.6 billion (55 percent), followed by the secondary sector, contributing US\$17 billion (29 percent), and the primary sector's contribution amounting to US\$9.5 billion (16 percent). With an overall GDP growth of 56.2 percent and a per capita GDP growth of 43.9 percent in the last decade, Karnataka surpassed all other states in India, pushing Karnataka's per capita income in Indian Rupee terms to sixth place (economic survey of Karnataka 2012-13). Karnataka received US\$2,026.4 million worth of Foreign Direct Investment for fiscal year 2008–09 placing it at third spot among states in India. At the end of 2004, the unemployment rate of Karnataka was 4.57 percent compared to a national rate of 5.99 percent. For the fiscal year 2006–07 the inflation rate of Karnataka was 4.4 percent which was less than the national average. The present study is an attempt to assess the growth and trends in agricultural crops in Karnataka.

### Introduction

Agriculture in Karnataka is heavily dependent on the southwest monsoon. Only 26.5 percent of sown area (30,900 km<sup>2</sup>) is subjected to irrigation. The state has three agricultural seasons – Kharif (April to September), Rabi (October to December) and Summer (January to March). The main crops grown here are rice, ragi, jowar, maize, and pulses (Tur and gram) besides oilseeds and number of cash crops. Karnataka is the largest producer of coarse cereals, coffee, raw silk and tomatoes among the states in India. Horticultural crops are grown in an area of 16,300 km<sup>2</sup> and the annual production is about 9.58 million tons. The income generated from horticulture constitutes over 40 percent of income generated from agriculture and it is about 17 percent of the state's GDP.

### Objectives of the Study

- To analyze the growth and trends in production of cereals in Karnataka
- To study the growth and trends in Production of Pulses in Karnataka
- To assess the growth and trends in Production of Food Grains and Oil Seeds in Karnataka

### Methodology

The study on growth in area, production and productivity of major crops was purposively taken up in Karnataka state of India. The secondary data on area under different crops, production and productivity of crops were used to analyze the trends. The time series data on area, production, productivity of crops was available from 2000-01 onwards. Hence the analysis was covered for the period from 2000-01 to 2011-12. Data used for the study was collected from various published sources from the Directorate of Economics and Statistics (DES), Bangalore, Karnataka. Time series data pertaining to area, production, productivity of crops was collected for the same period from Centre for Monitoring Indian Economy (CMIE) report.

**Table 1: Production of Cereals in Karnataka**

S. No	Crops	Year											
		2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
	<b>Paddy</b>	<b>57.32</b>	<b>48.19</b>	<b>35.61</b>	<b>38</b>	<b>55.22</b>	<b>59.59</b>	<b>54.33</b>	<b>57.65</b>	<b>60.07</b>	<b>57.75</b>	<b>64.03</b>	<b>58.93</b>
1	Rice	38.47	32.34	23.9	25.5	37.06	39.99	36.46	38.69	40.31	38.76	42.97	39.55
2	Jowar	15.47	13.72	12.25	7.81	13.59	14.79	11.3	16.7	14.84	12.96	14.67	11.66
3	Ragi	18.35	15.39	7.14	11.25	16.14	16.56	6.65	13.68	12.33	11.96	15.88	12.72
4	Maize	21.36	14.52	13.43	12.1	25.09	28.07	26.42	32.76	29.56	29.25	44.44	40.85
5	Bajra	3.42	1.12	1.2	1.91	2.66	3.91	1.63	3.35	1.81	1.31	3.34	2.78
6	Wheat	2.5	1.99	1.48	0.96	2.06	2.26	2.24	2.8	2.57	2.64	2.79	1.93
7	M.Millets	0.47	0.37	0.31	0.39	0.31	0.27	0.21	0.18	0.15	0.13	0.12	0.12
	<b>Total Cereals:</b>	<b>100.04</b>	<b>79.45</b>	<b>59.71</b>	<b>59.93</b>	<b>96.91</b>	<b>105.85</b>	<b>84.9</b>	<b>108.15</b>	<b>101.58</b>	<b>97.01</b>	<b>124.21</b>	<b>109.61</b>

Source: Fully Revised Estimates of Area, Production and Productivity of Principal Agriculture Crops, published by DE&S, 2010-11 & 2011-12. Final Advance Estimates by DE&S.

**Table 2: Annual Growth Rates of Production of Cereals in Karnataka**

Years	Total cereals	Annual groth rates
2000-01	100.04	----
2001-02	79.45	-0.25916
2002-03	59.71	-0.3306
2003-04	59.93	0.003671
2004-05	96.91	0.381591
2005-06	105.85	0.084459
2006-07	84.9	-0.24676
2007-08	108.15	0.214979
2008-09	101.58	-0.06468
2009-10	97.01	-0.04711
2010-11	124.21	0.218984
2011-12	109.61	-0.1332
Annual Average Growth Rate		-0.01617
Compounded Annual Growth Rate		0.007642

Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author

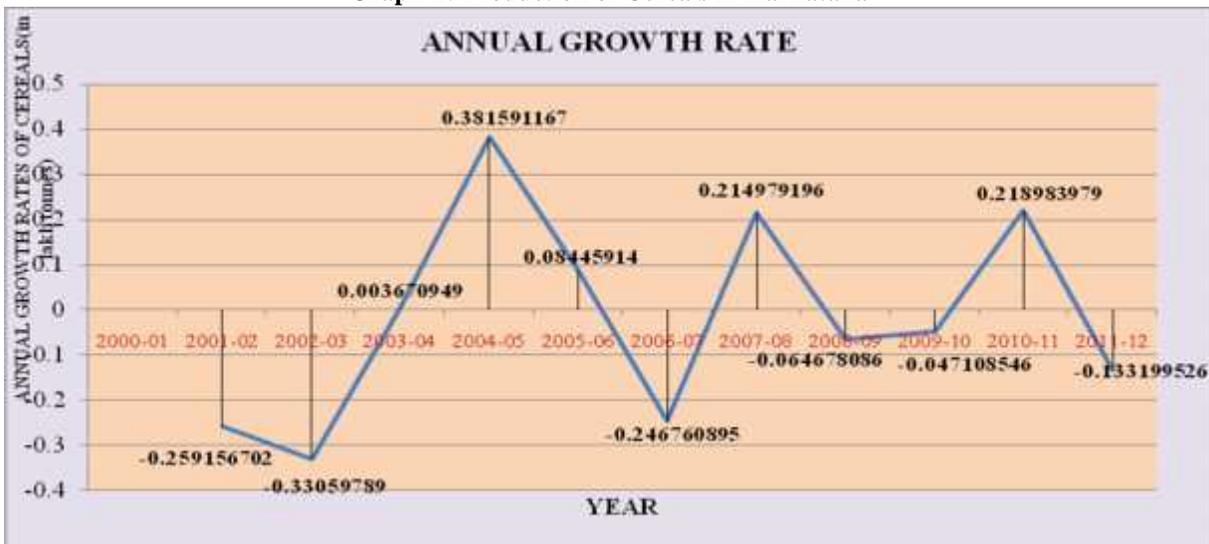
The total production of cereals has been increased from 100.04 lakh tones to 124.21 lakh tonnes during the period of 2000-01 and 2010-11 in the state of Karnataka(table:1). The annual growth rates of cereals has been registered a negative trends in several years from 2001-02 to 2009-10. 2001-02 registered a very low annual growth rate of -0.25916 and in the year 2004-05 registered a very high growth rate of 0.381591 of cereals production respectively and the average growth rate of cereals production from 2000-01 to 2011-12 registered -0.061617 and CAGR was registered of 0.007642 in Karnataka(table:2). The production of cereals during the period 2000-01 to 2011-12 has been varying is cleared by the graph-1. The year 2002-03 registered a very low rate of production (59.71 lakh tones) and in the year 2010-11 registered a very high rate of production (124.21 lakh tonnes) of cereals. Which also was reflecting that there is some positive and negative trends in the annual growth rates of cereals production in Karnataka. In the year 2002-03 registered a very low rate of -0.33059789 and in the year 2004-05 registered a very high annual growth rate of 0.381591 (graph-2) and the average growth rate registered at 0.007642 (table-2).

**Graph-1: Production of Cereals in Karnataka**



Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

**Graph-2: Production of Cereals in Karnataka**



Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

**Table 2: Production of total pulses in Karnataka**

S. No	Crops	Year											
		2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
1	Tur	2.64	1.47	2.41	2	2.91	4.08	2.63	4.51	3.14	2.8	5.29	3.54
2	Bengalgram	2.39	2.82	2.52	1.71	2.31	2.38	2.98	3.64	3.97	5.57	6.31	3.95
3	Horsegram	1.57	1.49	1.09	0.77	1.22	1.29	1.03	1.11	0.88	1.13	1.34	0.92
4	Blackgram	0.56	0.6	0.23	0.39	0.16	0.25	0.24	0.7	0.32	0.13	0.45	0.35
5	Greengram	1.85	0.67	0.28	0.42	0.83	0.99	0.54	1.2	0.39	0.48	1.11	0.73
6	Cowpea & others	0.35	0.27	0.26	0.24	0.38	0.32	0.42	0.49	0.38	0.4	0.48	0.46
7	Avare	0.2	0.19	0.15	0.16	0.19	0.21	0.55	0.68	0.68	0.52	0.67	0.66
	<b>Total Pulses:</b>	<b>9.56</b>	<b>7.52</b>	<b>6.94</b>	<b>5.69</b>	<b>8</b>	<b>9.51</b>	<b>8.39</b>	<b>12.33</b>	<b>9.76</b>	<b>11.02</b>	<b>15.65</b>	<b>10.61</b>

Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

**Table 3: Annual growth rates of total pulses production in Karnataka**

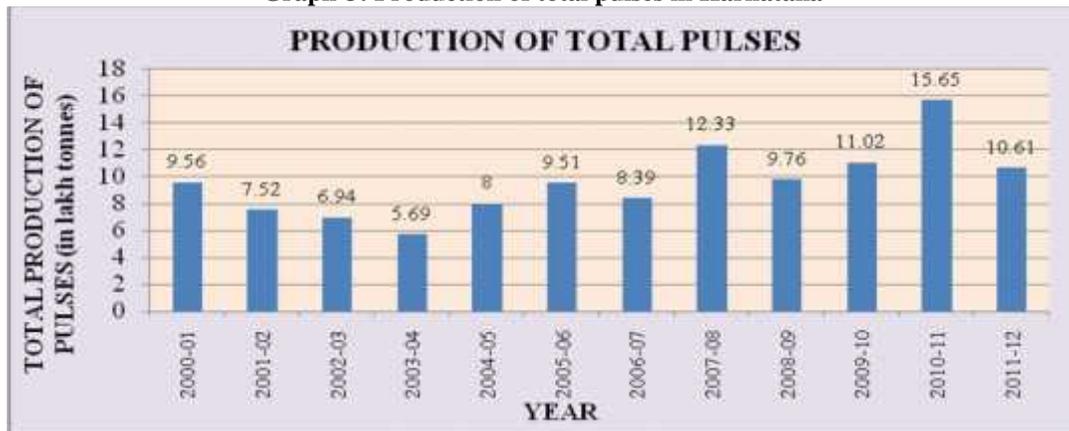
Year	Total pulses	Annual growth rates
2000-01	9.56	-----
2001-02	7.52	-0.27128
2002-03	6.94	-0.08357
2003-04	5.69	-0.21968
2004-05	8	0.28875
2005-06	9.51	0.15878
2006-07	8.39	-0.13349
2007-08	12.33	0.319546
2008-09	9.76	-0.26332
2009-10	11.02	0.114338
2010-11	15.65	0.295847
2011-12	10.61	-0.47502
<b>Average Annual Growth Rate</b>		<b>-0.02446</b>
<b>Compounded Annual Growth Rate</b>		<b>0.008722</b>

Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

The total production of pulses has been increased from 9.56 lakh tonnes to 15.65 lakh tonnes during the period of 2000-01 and 2010-11 in the state of Karnataka(table:2). The annual growth rates of pulses has been registered a negative trends in several years from 2001-02 to 2006-07. In the year 2002-03 registered a very low annual growth rate of -0.8357 whereas in the year 2007-08 registered a very high growth rate of 0.319546 of pulses production respectively. The average growth rate of pulses production from 2000-01 to 2011-12 registered at -0.02446 and CAGR was registered at 0.008722 in Karnataka (table-3).

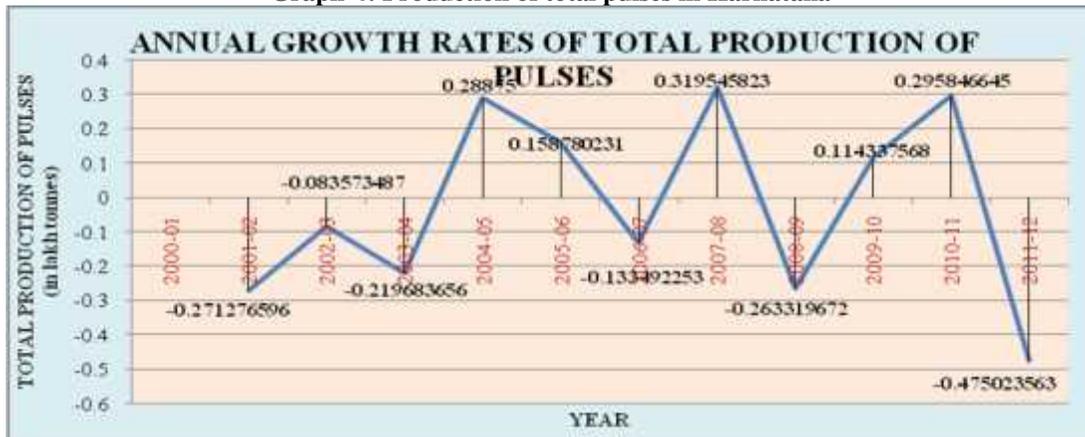
The production of pulses during the period 2000-01 to 2011-12 has been varying is cleared by the graph-2. The year 2003-04 registered a very low production (5.69) and in the year 2010-11 registered a very high (15.65) production of pulses. There are some positive and negative trends in the annual growth rates of pulses production in Karnataka. 2011-12 registered a very low annual growth rate at-0.475023563 and in the year 2007-08 registered a very high annual growth rate at 0.319546 (graph-3) and the average growth rate of pulses registered at 0.02446 and the CAGR registered at 0.008722 in Karnataka (table-3).

**Graph-3: Production of total pulses in Karnataka**



Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

**Graph-4: Production of total pulses in Karnataka**



Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

**Table 4: Production of total food grains in Karnataka**

S. No	Crops	Year											
		2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
1	Total Food grains:	109.6	86.97	66.6	65.62	104.9	115.35	93.29	120.49	111.3	108	139.9	120.22

Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

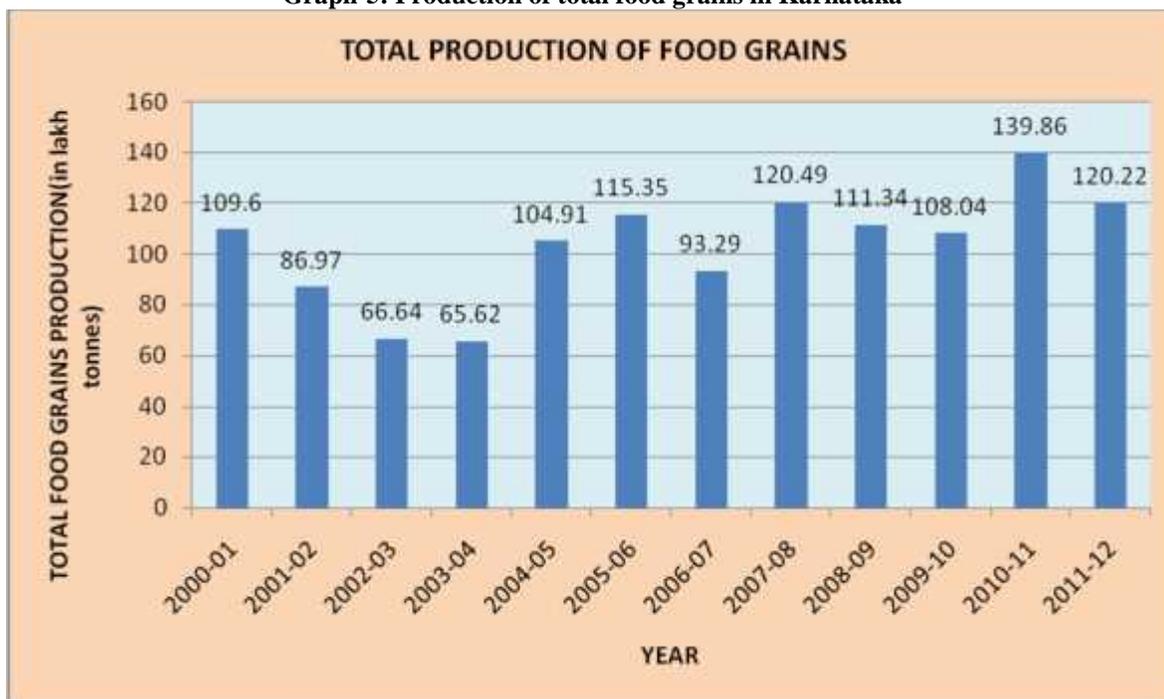
**Table 5: Annual growth rates of total food grains production in Karnataka**

Years	Total food grains	Annual growth rates
2000-01	109.6	-----
2001-02	86.97	-0.2602
2002-03	66.64	-0.30507
2003-04	65.62	-0.01554
2004-05	104.91	0.374511
2005-06	115.35	0.090507
2006-07	93.29	-0.23647
2007-08	120.49	0.225745
2008-09	111.34	-0.08218
2009-10	108.04	-0.03054
2010-11	139.86	0.227513
2011-12	120.22	-0.16337
<b>Annual Average Growth Rate</b>		-0.01592
<b>Compound Annual Growth Rates</b>		0.217616

Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

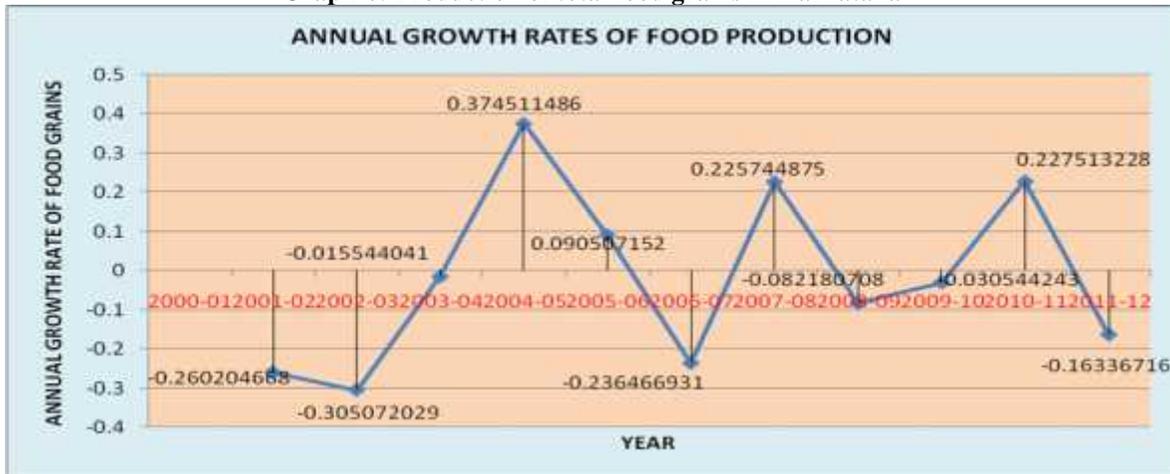
The food grains production has been increased from 109.6 lakh tonnes to 139.86 lakh tonnes during the period 2000-01 and 2010-11 and registering as an increase production of 30 lakh tones. It is worth mentioning that the cereals and pulses production increased nearly about 27 lakh tones and 6 lakh tones respectively during the period of 2000-01 to 2010-11. The annual growth rate of food grains registered at a low rate in the year 2002-03 at -0.30507 and in the year 2004-05 registered at a very high rate at 0.374511 respectively(table-5). There was a both positive and negative trend in growth rates of food production during the period of 2000-01 to 2011-12 and annual average growth rate was at -0.01592 and CAGR registered at 0.217616 in Karnataka (table-5 and graph-6).

**Graph-5: Production of total food grains in Karnataka**



Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

**Graph-6: Production of total food grains in Karnataka**



Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

**Table6: Production of total oilseeds in Karnataka**

S. No	Crops	Year											
		2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
1	Groundnut	10.81	5.86	5.39	4.33	6.84	5.96	3.27	6.92	3.98	4.57	7.42	4.85
2	Sesamum	0.4	0.27	0.29	0.26	0.57	0.89	0.5	0.48	0.29	0.31	0.51	0.31
3	Sunflower	2.31	2.62	3.74	3.65	5.28	6.68	3.84	4.93	4.14	2.51	2.54	1.95
4	Castor	0.39	0.16	0.16	0.15	0.17	0.26	0.16	0.16	0.19	0.12	0.16	0.14
5	Niger	0.08	0.07	0.06	0.05	0.06	0.06	0.05	0.12	0.09	0.09	0.08	0.07
6	Mustard	0.02	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.02	0.01	0.02	0.01
7	Soyabean	0.65	0.4	0.48	0.45	1	0.75	0.97	0.92	0.93	0.82	1.47	1.72
8	Safflower	0.72	0.73	0.55	0.42	0.49	0.62	0.6	0.59	0.6	0.52	0.46	0.35
9	Linseed	0.06	0.07	0.06	0.01	0.03	0.04	0.04	0.05	0.05	0.04	0.04	0.02
	<b>Total Oilseeds:</b>	<b>15.45</b>	<b>10.2</b>	<b>10.74</b>	<b>9.34</b>	<b>14.46</b>	<b>15.27</b>	<b>9.45</b>	<b>14.19</b>	<b>10.28</b>	<b>9</b>	<b>12.7</b>	<b>9.42</b>

Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

**Table7: Annual growth rates of total oilseeds production in Karnataka**

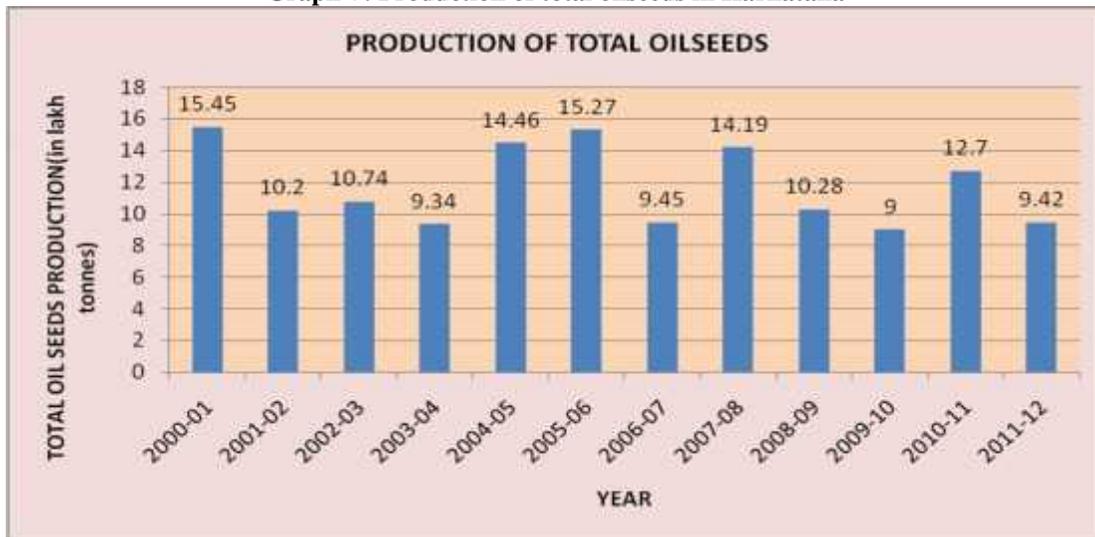
Year	Total oilseed	Annual growth rates
2000-01	15.45	----
2001-02	10.2	-0.51471
2002-03	10.74	0.050279
2003-04	9.34	-0.14989
2004-05	14.46	0.35408
2005-06	15.27	0.053045
2006-07	9.45	-0.61587
2007-08	14.19	0.334038
2008-09	10.28	-0.38035
2009-10	9	-0.14222
2010-11	12.7	0.291339
2011-12	9.42	-0.3482
<b>Average groth rate</b>		<b>-0.09713</b>
<b>Copound annual growth rates</b>		<b>-2.09633</b>

Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

The total production of oilseeds has been decreased from 15.45 lakh tones to 9.42 lakh tonnes during the period of 2000-01 and 2011-12 in the state of Karnataka (table:1). The annual growth rates of oilseeds has been registered a negative trends in almost all years except in the years 2004-05 and 2007-08 during the period 2001-02 to 2011-12. In the year 2006-07 registered at a very low annual growth rate of -0.61587 and in the year 2004-05 registered a very high growth rate of 0.35408 in the oilseeds production respectively. The average growth rate of oilseeds production during 2000-01 to 2011-12 registered at -0.09713 and CAGR was registered at -2.09633 in Karnataka (table-7).

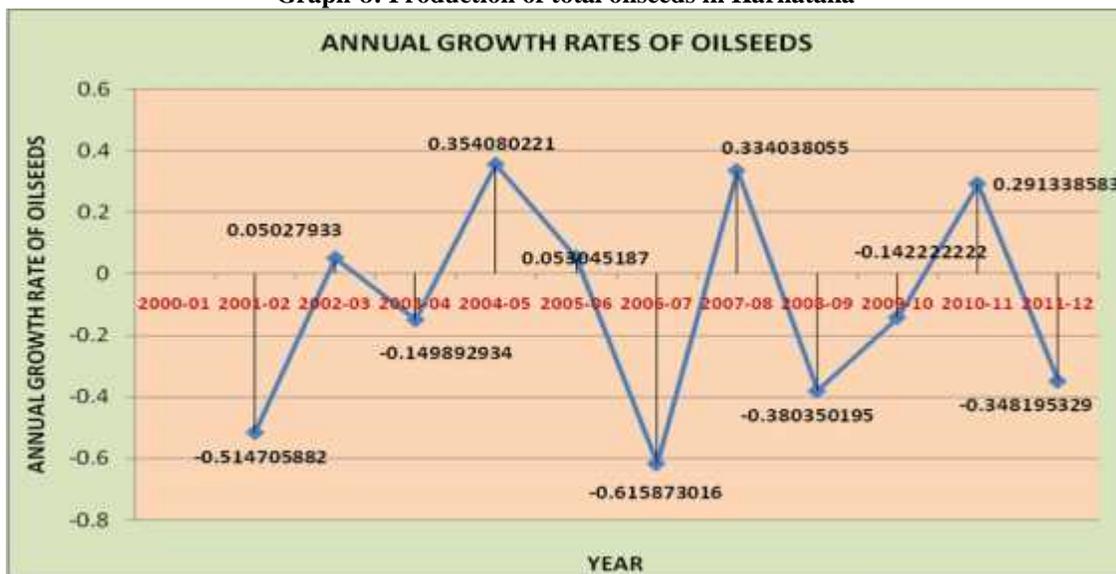
The production of oilseeds during the period 2000-01 to 2011-12 has been decreasing in the total crop production is cleared by the graph-2. The year 2009-10 registered at a very low production of 9 lakh tonnes and in the year 2005-06 registered at a very high production of 15.27 lakh tones in the oilseeds production. There are some positive and negative trends in the annual growth rates of oilseeds production in Karnataka during the period 2000-01 to 2011-12. The year 2006-07 registered at a very low rate of -0.61587 and in the year 2004-05 registered at a very high rate of annual growth of 0.35408 (graph-8) and the average growth rate of oilseeds production registered at a 0.09713 and the CAGR registered at the rate of -2.09633 in Karnataka during the period of 2000-01 to 2010-11 (table-7).

**Graph-7: Production of total oilseeds in Karnataka**



Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.

**Graph-8: Production of total oilseeds in Karnataka**



Source: Department of Economics and Statistics, Government of Karnataka, and compiled by Author.



### **Conclusion**

The Indian agriculture has transformed significantly during the last six decades. These are reflected in the changing share of agriculture in economy. The performance of the agriculture has shown a promising trend in recent decade and the view of the declaration in agriculture growth has been put aside. The present studies deliberate the performance of Karnataka agriculture and examine the growth trends of agricultural crops production in Karnataka.

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