

TREND AND GROWTH OF AGRICULTURE PRODUCTION IN INDIA: AN EMPIRICAL ANALYSIS

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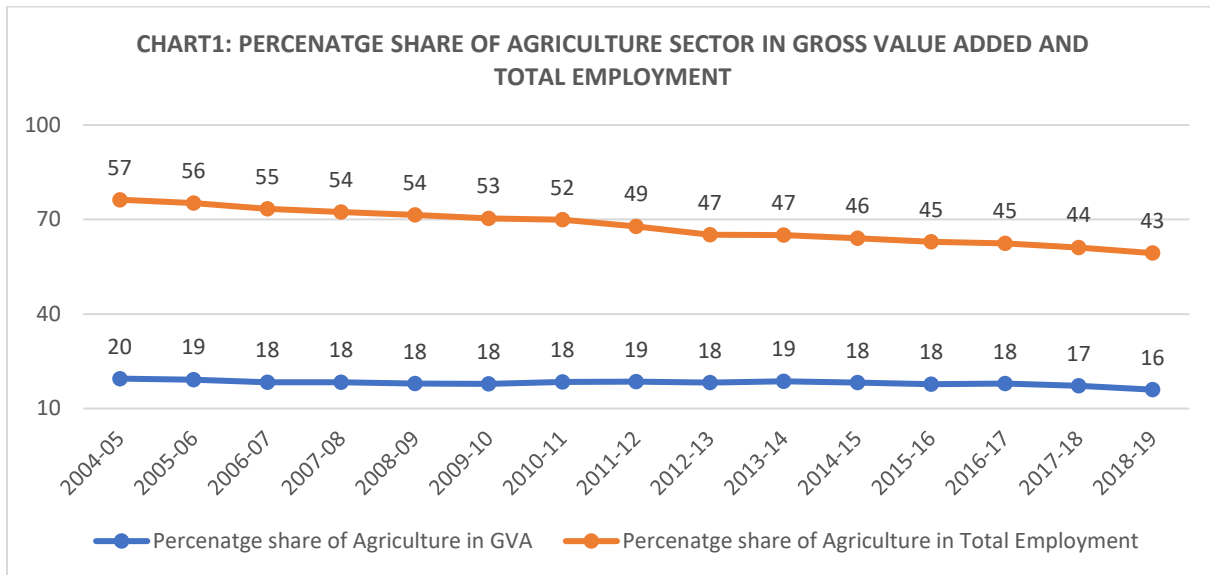
**Keywords: Agriculture Production, Multiple Regression Analysis, Agriculture
Credit.**

Abstract:

One of the major objectives of economic growth and development is to achieve self-sufficiency in term of agriculture production due to growing demand of foodgrains and non-foodgrains crops. The study examines the trend and growth in major foodgrains production and impact of agricultural inputs on total foodgrains production using multiple regression model. The results reveal the sluggish and stagnant growth in foodgrains production and diminishing trend in area under cultivation and yield per hectare and concluded that Gross Sown Area, consumption of Fertilizers and consumption of electricity has a significant impact on total foodgrains production whereas area under irrigation and agriculture credit does not have a significant impact on total foodgrains production. Government should take new and improved policy initiative to revive the agriculture productivity and production and shifting agriculture labor to other sectors in the coming time period.

Introduction:

Agriculture sector plays a fundamental role in India’s economic growth and development as 43 percent of total employment is in agriculture sector in 2018-19 whereas contribution to Gross Value Added (at current prices) is just 19 percent in the same year. Since agriculture sector is an important sector of the economy, government has taken various policy initiative to improve the agricultural production and productivity like Kisan Credit Card to improve agriculture credit access to farmers, Soil Health Card Scheme to improve soil fertility, Pradhan Mantri Krishi Sinchai Yojana (PMKSY) to enhance water efficiency and access to irrigation, Paramparagat Krishi Vikas Yojana (PKVY) to encourage organic farming, Unified National Agriculture market to improve farmers income and many more.



Source: Agriculture Statistics at a Glance, Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare and International Labor Organization, World Bank

Note: GVA at current prices (2011-12 series)

Agricultural production in India can be broadly classified into foodgrains crops and non-foodgrains crops. In India, the major food crops include rice, wheat, pulses and coarse cereals. whereas the commercial crops or non-food crops include raw cotton, tea, coffee, raw jute, sugarcane and oil seeds. Rainfall in one of the critical inputs for agriculture production. Besides Weather-induced fluctuations (rainfall), agriculture production depends on the availability of inputs like certified seeds, fertilizers, agriculture credit, cropped area, area under irrigation, minimum support price and machinery. Fluctuation in agriculture production i.e. deviation from the agriculture target set every year, monsoon along with the critical inputs play a significant role.

This research paper will analyze the trend and growth pattern of major foodgrains production specially with respect to Wheat and Rice and the impact of agricultural inputs on foodgrains production.

Literature Review:

Elumalai Kannan (2015) revealed that cropping pattern has changed significantly in India over a period of time, with a shift from foodgrains crop to non-foodgrains crops. Since late 1960s, increment in crop yield played an important role in accelerating foodgrains production specially for Wheat and Rice due to modern variety of seeds, technological advancement, usage of fertilizers and pesticides. The researcher has used crop output growth model which signifies that foodgrains production can be accelerated with the usage of better irrigation facilities, better and improved quality of seeds and fertilizers and access to agriculture credit.

Sudha Narayanan(2015) studies the relationship between institutional agriculture credit and agriculture growth rate from the period 1995-96 to 2011-12 and concluded that inputs i.e. fertilizers, pesticides, tractors are sensitive to agriculture credit flow whereas agriculture GDP is not. Agriculture credit is a critical input whose efficacy is diluted by technical inefficiency and low productivity.

Ramesh Chand, P A Lakshmi Prasanna and Aruna Singh (2011) compares the impact of agriculture production and productivity on economic development on India and China. Technological advancement and returns to scales to factor has no major negative impact on the productivity of small farmers but at the same time low income level fails to achieve self-sufficiency and increase inequality and poverty level. They suggested to improve the employment opportunities for small farmers outside agriculture sector to improve their livelihood and income level.

Alejandro Nin-Pratt, Bingxin Yu and Shenggen Fan (2010) analyzed the agricultural total factor productivity growth and its component in India and China. He concluded that in India, agricultural total factor productivity growth accelerates after 1974 whereas in China, from 1979. Despite this China outperforms India due to better policy and institutional reforms and transformation of manufacturing sector which absorbed excess agriculture labour.

Abhiman Das, Manjusha Senapati, Joice John (2009) examined role played by direct and indirect agriculture credit in agriculture production and concluded that direct and indirect agriculture credit has a positive significant impact on agriculture production. Despite the inadequate credit delivery system to marginal and small farmers, inadequate deposit mobilization, lack of financial knowledge, agriculture credit still plays a significant role in agriculture production.

Binswanger and Khandker (1992) found that the employment and output effect of extended rural credit has been much lesser than in the non-agriculture sector. The effect on crop output is significant, notwithstanding the fact that agriculture credit has significantly augmented fertilizer usage and investment in capital intensive inputs like machines. Excessive impact on inputs and meek impact on production indicates that the extensive capital investment has been required in switching agricultural labor to other sectors to enhance agriculture production.

Objectives of the Study:

1. To analyze the trend and growth in agriculture production of food grain crops with special reference to Wheat and Rice.

2. To study the relationship between agriculture production (output) and inputs like agriculture credit, electricity, fertilizers, cropped area and irrigated area.

Data and Research Methodology:

The time period used in the study is from 1991-21 till 2015-16 though in few cases time period changes, depending on the data availability. The study is based exclusively on secondary data which is collected from Agricultural Statistical at a Glance, Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture, Co-operation and Farmers Welfare, Ministry of Agriculture, Government of India, Handbook of Statistics on Indian Economy (RBI), Handbook of Statistics on Indian States (RBI), Annual Reports, NABARD.

Tools for Analysis:

Following statistical tools has been used in the study:

- **Compounded Annual Growth Rate:** Following formula has been used in the study to calculate CAGR:

$$\text{CAGR}(t_0, t_n) = \{V(t_n)/V(t_0)\}^{1/(t_n - t_0)}$$

Where:

$V(t_0)$ = start value

$V(t_n)$ = finish value

$t_n - t_0$ = number of years

- **Co-efficient of Variation:** To analyze the disparity, Co-efficient of Variation has been used

$$\text{CV} = \frac{\text{SD}}{\text{Mean}} \times 100$$

- **Multiple regression analysis:** It has been used to analyze the impact of inputs X_i on total foodgrains production Y_i .

$$Y_i = b_1 + b_2 X_{i1} + b_3 X_{i2} + b_4 X_{i3} + b_5 X_{i4} + b_6 X_{i5}$$

Y_i = Total Food Grains Production from 1983-94 till 2015-16.

X_{i1} = Consumption of Fertilizers (Nitrogen, Phosphorus and Potassium)

X_{i2} = Gross Sown Area

X_{i3} = Institutional Agriculture Credit

X_{i4} = Area Under Irrigation

X_{i5} = Consumption of electricity for Agricultural Purposes

ASSESSING THE TREND AND GROWTH IN FOOD GRAINS PRODUCTION IN AGRICULTURE SECTOR:

Agriculture sector is a primary sector, which produces food grains to achieve food security and self-sufficiency. Industrial sector depends on agriculture sector for the supply of raw materials. India has a wide and distinctive geographical area which help in producing majority of crops

both food crops like Wheat, Rice, Nutri Cereals, Pulses etc. and Non-food crops (cash crops) like Oil Seeds, Cotton, coffee and tea, jute etc. In India, there are three different cropping seasons: Kharif, Rabi and Zaid. Kharif crops such as Rice, jowar, bajra, maize, cotton, jute, groundnut etc. are sown in winters and harvested in summers whereas Rabi crops like Wheat, barley, peas, gram, mustard etc. are sown in summers and harvested in winters. On the other hand, Zaid crops are those crops which are sown and harvested between Kharif and Rabi crops.

Table 1 reflects the target and achievement of major food grain and non-food grain crops during Tenth, Eleventh and Twelfth Five year plans. During 10th five year plan (2002-03 to 2006-07), none of the crops mentioned in the table were able to achieve the target except cotton whereas during 11th FYP (2007-08 to 2012-13), Wheat and Cotton achieved their targets. The trend has reversed in 12th FYP (2012-13 to 2016-17) where almost all the crops achieved their targets except Nutri Cereals and Pulses despite the fact that Agriculture sector has passed through poor monsoon and drought conditions in most of the part of country in 2014-15 and 2015-16 thus, negative growth in yield of Wheat, Rice, Pulses and Sugarcane in 2014-15.

TABLE1: TARGET AND ACHIEVEMENT OF PRODUCTION OF MAJOR CROPS DURING TENTH, ELEVENTH AND TWELFTH FYP						
(Figures: In Million Tonnes)						
CROPS	X FYP		XI FYP		XII FYP	
	TARGE TS	ACHIEVEM ENTS	TARGE TS	ACHIEVEM ENTS	TARGE TS	ACHIEVEM ENTS
Rice	460.1	428.62	494.5	486.24	529.6	531.48
Wheat	386.56	351.71	399	421.8	465.75	466.69
Nutri Cereals	176.84	165.11	208.6	200.03	215.55	207.88
Pulses	76.6	66.76	81	79.32	97.54	94.19
Oilseeds	133.88	116.65	160.15	144.85	132	147.73
Sugarcane	1417.5	1395.02	1655	1628.94	1395	1710.19
Cotton #	80	79.91	134	140.38	141.15	167.52
Jute & Mesta@	58.36	54.83	57	55.42	46.6	55.23

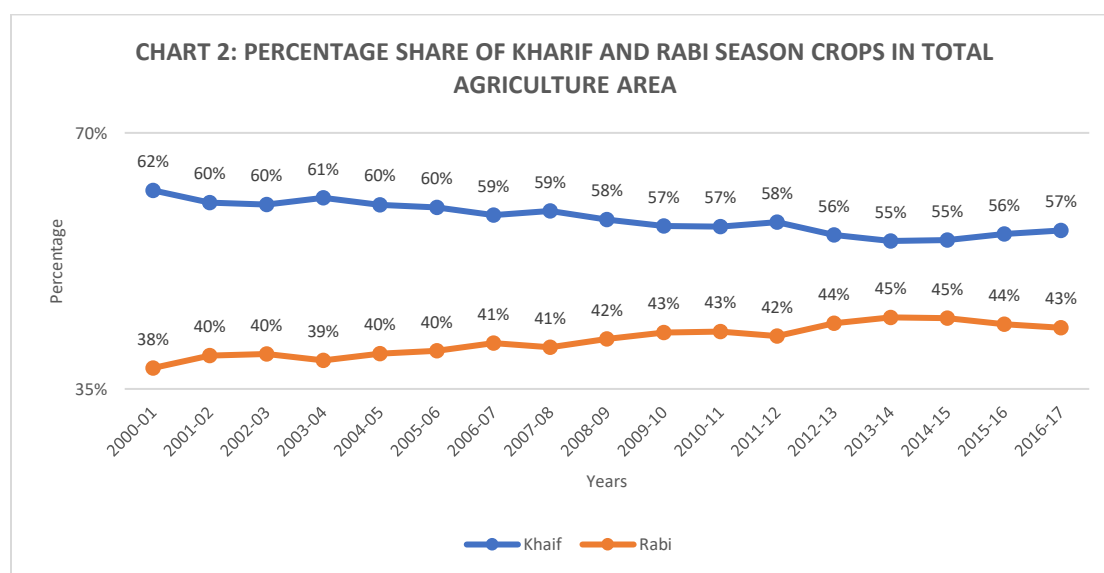
Source: Agriculture Statistics at a Glance, Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare
 # Million Bales of 170 kg. each. and @ Million Bales of 180 kg. each.

Table 2 depicts the season-wise area, production and yield of food grains from 2000-01 till 2016-17. The percentage share of Kharif crops in agriculture area is more than the Rabi crops despite the falling share of Kharif crops in total area whereas in terms of yield, Rabi crops yield is more than Kharif Crops. On the other hand, percentage share of Kharif and Rabi crops in total agriculture production has shown a fluctuating trend. In 2003-04, the percentage share of Kharif crops was 55 percent and Rabi crops were 45 percent which has changed to 50 percent each in 2016-17.

TABLE 2: SEASON-WISE AREA, PRODUCTION AND YIELD OF FOOD GRAINS

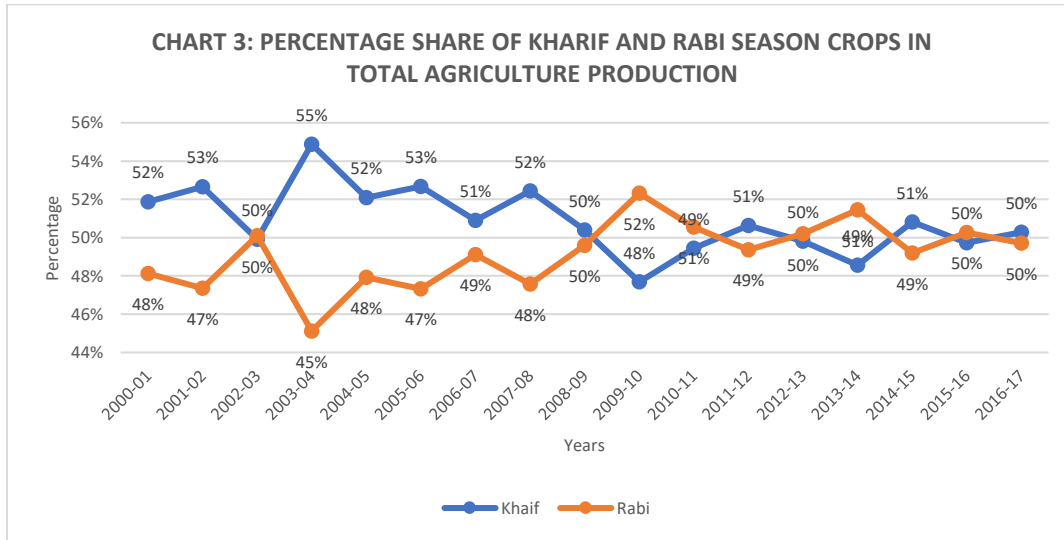
Year	Kharif			Rabi		
	Area	Production	Yield	Area	Production	Yield
2000-01	75.22	102.09	1357	45.83	94.73	2067
2001-02	74.23	112.07	1510	48.55	100.78	2076
2002-03	68.56	87.22	1272	45.3	87.55	1933
2003-04	75.44	117	1551	48.01	96.19	2004
2004-05	72.26	103.31	1430	47.82	95.05	2004
2005-06	72.72	109.87	1511	48.88	98.73	2020
2006-07	72.67	110.58	1522	51.04	106.71	2091
2007-08	73.58	121	1644	50.49	109.77	2174
2008-09	71.45	118.18	1654	51.39	116.28	2263
2009-10	69.51	104	1496	51.83	114.11	2202
2010-11	72.42	120.9	1669	54.25	123.6	2278
2011-12	72.08	131.27	1821	52.67	128.01	2430
2012-13	67.69	128.07	1892	53.09	129.06	2431
2013-14	69.05	128.69	1864	55.99	136.35	2435
2014-15	68.77	128.06	1862	55.53	123.96	2232
2015-16	69.2	125.09	1808	54.01	126.45	2341
2016-17	73.2	138.33	1890	56.03	136.78	2441

Source: Agriculture Statistics at a Glance 2018, Directorate of Economics & Statistics, Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare



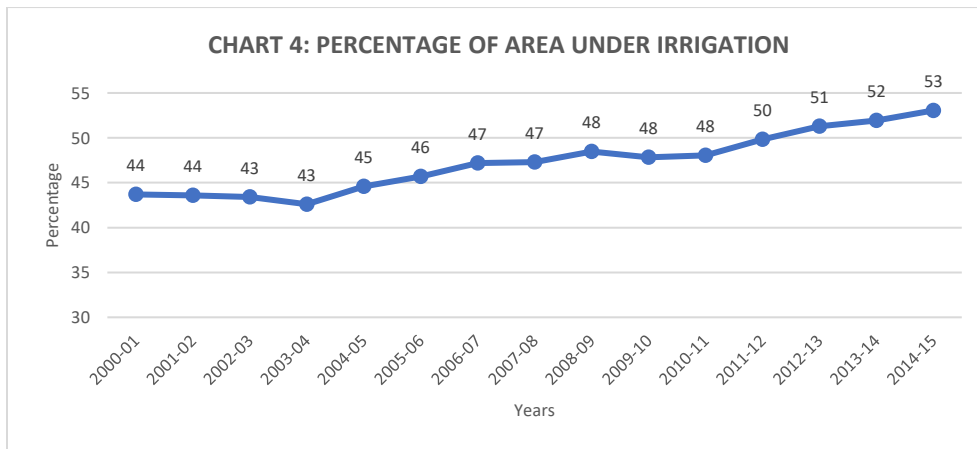
Source: Constructed based on table 2

Percentage share of kharif crops was 57 percent in total agriculture area but the percentage share in total foodgrains production was 50 percent whereas the percentage share of Rabi crop in total agriculture area was 43 percent but contribution to total foodgrains production was 50 percent in 2016-17. Thus, with less share in area, Rabi crops are contributing more in foodgrains production as compared to Kharif crops.



Source: Constructed based on table 2

Irrigation is one of the major inputs to improve the production and productivity of agriculture sector. Government schemes has been introduced to improve the availability of irrigation facilities like Micro irrigation programs, Pradhan Mantri Krishi Sinchayee Yojana, Accelerated Irrigation Benefit Programs. Percentage share of area under irrigation has improved from 44 percent in 2000-01 to 53 percent in 2014-15 as given in chart 4.



Source: Agriculture Statistics at a Glance 2018, Directorate of Economics & Statistics, Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

Note: Figures in percentage

Table 3 and table 4 reflect the compounded annual growth rate of production, area and yield of major food grains crops in India. In the decade of 1990s, all foodgrains and non-foodgrains crops growth rate has suffered hinderance with respect to production, area and yield-all output outcomes. From 1990s till 2004-05, percentage share of agriculture laborers has increased as compared to agriculture cultivators especially in case of marginal and small farmers. Due to the agriculture crisis, there was a relative stagnant growth in the foodgrains output index whereas the index of non-foodgrains output showed a decline of 2.56 percent during the time period 1999-2000 to 2004-05.

TABLE 3: GROWTH OF AREA, PRODUCTION AND YIELD OF MAJOR FOOD GRAINS CROPS IN INDIA												
(Figures: In Percentage)												
Time Period	Rice			Wheat			Coarse Cereals			Pulse		
	A	P	Y	A	P	Y	A	P	Y	A	P	Y
1990-91 to 1994-95	0.1	2.4	2.4	1.5	4.5	2.9	-3.0	-2.2	0.8	-1.8	-0.4	1.4
1995-96 to 1999-00	1.4	3.9	2.5	2.4	5.3	2.8	-1.3	1.1	2.4	-1.4	2.2	3.6
2000-01 to 2004-05	-1.6	-0.5	1.1	0.7	-0.4	-1.0	-1.1	1.9	2.9	2.8	4.4	1.5
2005-06 to 2009-10	-1.0	-0.7	0.3	1.8	3.9	2.0	-1.2	-0.4	0.8	1.0	2.3	1.3
2010-11 to 2014-15	0.6	2.4	1.6	1.6	-0.1	-1.0	-3.8	-0.3	3.1	-3.3	-1.5	1.9

Note:Growth is measured as Compounded Annual Growth Rates in percentages.

A: - Area, P: - Production and Y: - Yield

Source: RBI's Handbook of Statistics on the Indian Economy 2016-17.

From 2001-02 to 2009-10, CAGR of production and yield of all the major foodgrains and non-foodgrains crops declined due to low agriculture growth in 2008-09 and severe drought in 2009-10 except for Wheat, Coffee, Raw Jute and Mesta whose production and yield has improved in the given time period. On the other hand, from 2010-11 to 2014-15, CAGR of production and yield improved for Rice, Coffee and Tea whereas declined in case of Wheat, Oilseeds and Cotton. Coarse Cereals, Pulses and Raw Jute & Mesta are the crops where growth of production declined and yield improved. As the aforesaid plan document (Planning Commission 2011, p.63) writes, "since monsoon rainfall in 2009-10 was much more unfavorable than in 2004-05, this suggests that near doubling of overall output growth between these two periods cannot be attributed to weather alone".

TABLE 4: GROWTH OF AREA, PRODUCTION AND YIELD OF MAJOR NON-FOOD GRAINS CROPS IN INDIA					
(Figures: In Percentage)					
Time Period	Oilseeds	Coffee	Cotton (Lint)	Raw Jute & Mesta	Tea

	A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y
1990-91 to 1994-95	1.2	3.5	2.3	1.1	1.5	0.9	1.4	4.8	3.4	-	-	1.9	0.6	1.1	0.6
1995-96 to 1999-00	-	-	0.1	6.6	7.0	0.7	0.9	-2.7	-1.8	2.8	4.6	1.8	3.3	2.6	-
2000-01 to 2004-05	4.9	7.2	2.2	1.6	2.2	3.7	0.8	14.6	13.7	-	-	2.0	1.0	1.7	0.8
2005-06 to 2009-10	-	-	-	1.3	1.4	0.4	3.9	6.7	2.7	0.3	2.2	2.0	0.9	1.1	0.0
2010-11 to 2014-15	-	-	-	1.2	2.0	0.3	3.9	1.3	-2.0	-	1.2	3.9	0.4	5.5	5.2

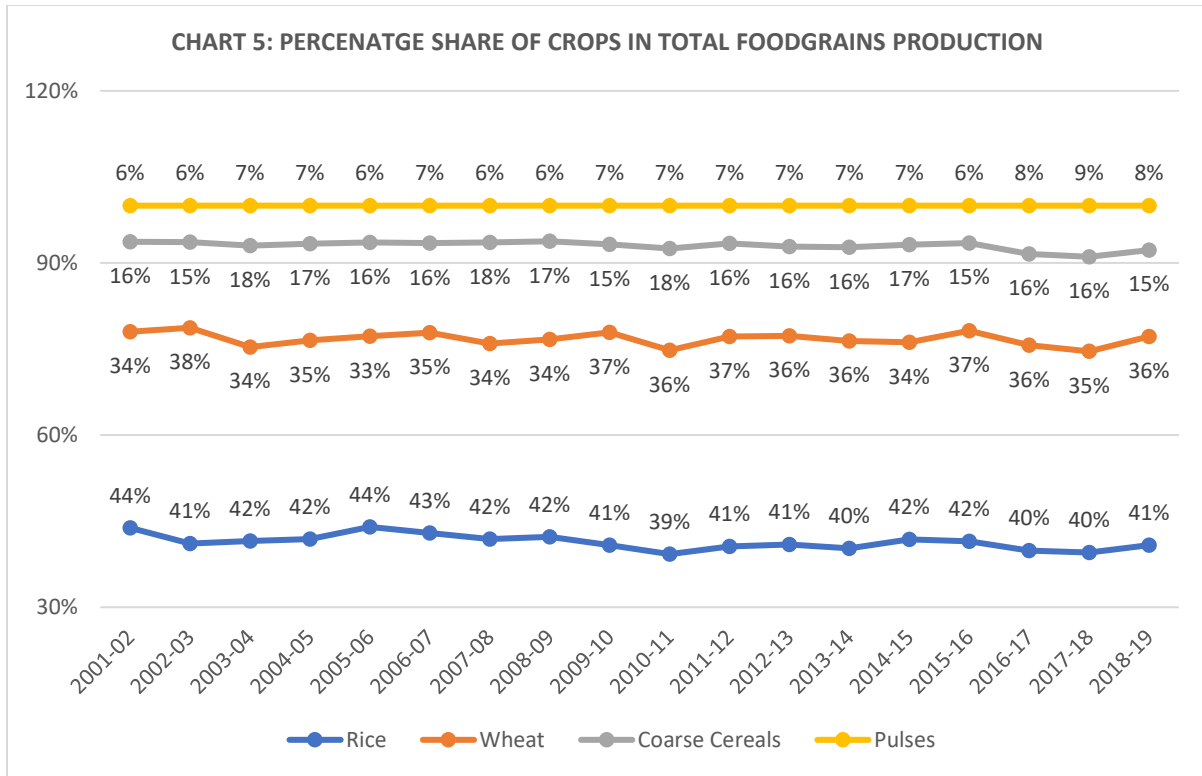
Note: Growth is measured as Compounded Annual Growth Rates in percentages.

A: - Area, P: - Production and Y: - Yield

Source: RBI's Handbook of Statistics on the Indian Economy 2016-17.

To improve the agriculture GDP in total GDP and agricultural productivity, it is important to analyze the impact of inputs (Fertilizers, Net Sown Area, Electricity, Area Under Irrigation, Institutional Agriculture credit) on output (Total Food grains production). Inputs i.e. land, labour, capital and enterprise play a significant role in increasing agriculture production and productivity.

Chart 5 reflects the percentage share of Rice, Wheat, Coarse Cereals and Pulses in total foodgrains production. The percentage share of Rice in total foodgrains production declined from 44 percent in 2001-02 to 40 percent in 2018-19 whereas the percentage share of Wheat and Pulses has increased from 34 percent and 6 percent in 2001-02 to 36 percent and 8 percent in 2018-19 respectively. The share of Coarse Cereals and Pulses is almost stagnant.



Source: RBI's Handbook of Statistics on the Indian Economy 2016-17.

Table 5 analyzes the mean and growth share of food grains crops in total agriculture production and disparity among the crops. The mean share of rice is highest followed by Wheat, Coarse cereals and Pulses whereas CV and CAGR is highest for pulses followed by Wheat and Coarse Cereals. It can be concluded that pulses which has only 8 percent share in total foodgrains production has the highest variation and CAGR.

CROPS	Mean	Standard Deviation	Coefficient of Variation	CAGR
Rice	982.739	112.120	11.409	1.311
Wheat	842.472	119.937	14.236	2.100
Coarse Cereals	387.083	53.123	13.724	1.511
Pulses	167.311	38.052	22.743	2.995

Source: RBI's Handbook of Statistics on the Indian Economy 2016-17.

METHODOLOGY FOR ESTIMATING THE IMPACT OF AGRICULTURAL INPUTS ON TOTAL FOODGRAINS PRODUCTION IN INDIA:

Table 6 reflects the regression statistics of the model where dependent variable is taken as total food grains production and independent variables are taken as Fertilizers, Net Sown Area,

Electricity, Area Under Irrigation, Institutional Agriculture credit. The data of dependent and independent variables is given in appendix.

H₀: Null Hypothesis: There is no significant impact of Fertilizers, Net Sown Area, Electricity, Area Under Irrigation, Institutional Agriculture credit on total food grains production.

H₁: Alternative Hypothesis: There is a significant impact of Fertilizers, Net Sown Area, Electricity, Area Under Irrigation, Institutional Agriculture credit on total food grains production.

The result indicates that value of R Square is quite high i.e. 0.96671 which means that 96.671 percent of the change in total food grains production is explained by all the inputs taken into consideration. Table 7 reflects model showing the impact of inputs as a whole on total foodgrains production. Since P value is 0.0000 (<0.05), H₀ is rejected. This means that there is a significant impact of Fertilizers, Net Sown Area, Electricity, Area Under Irrigation, Institutional Agriculture credit all together on total food grains production.

TABLE 6: REGRESSION STATISTICS	
Multiple R	0.98321885
R Square	0.96671931
Adjusted R Square	0.96055622
Standard Error	71.2709407
Observations	33

TABLE 7: ANOVA TO CHECK THE IMPACT ON TOTAL FOODGRAINS PRODUCTION					
	df	SS	MS	F	Significance F
Regression	5	3983793.87	796758.775	156.856266	0.0000000
Residual	27	137147.769	5079.54699		
Total	32	4120941.64			

Table 8 reflects the impact of each inputs individually on total foodgrains production. Gross Sown Area, consumption of Fertilizers and consumption of electricity for agricultural purposes has a significant impact on the total foodgrains productionsince P value is less than 0.05 whereas area under irrigation and agriculture credit has no significant impact on the total foodgrains production since P value is more than 0.05.

Agriculture credit does not have a significant impact on the total foodgrains product since P value is 0.2738 (>0.05). Agriculture credit is a critical input to improve the agriculture production and productivity. Over a period of time, the percentage share of institutional agriculture credit has increased especially by Scheduled Commercial Banks to all the farmers.

According to the All India Report on Input Survey 2015, 86 percent of the farmers are marginal and small farmers sowing only 46 percent of agriculture land due to fragmentation of landholdings and lack of resources and knowledge to improve production and productivity. Access and availability of institutional agriculture credit by marginal and small farmers is inappropriate for these farmers due to lack of collateral, lack of financial knowledge, dependence on non-institutional sources like money lenders, relatives and landlords for immediate credit requirements, usage of old and traditional agriculture techniques, social and economic constraints, preference to medium and large farmers by banks as low production and productivity put a question mark on the repayment of the loan by marginal and small farmers.

According to the RBI reports submitted to Parliamentary Standing Committee, out of total agriculture credit, 42.2 percent has been disbursed to marginal and small farmers which is very low. Therefore. To achieve efficiency and equitable welfare distribution among the farmers, it is necessary to provide effective and affordable resources to marginal and small farmers to increase the agriculture production and achieve self-sufficiency for which government announced schemes like Kisan Credit Card, Farm credit Package, Interest Subvention Scheme and many more.

TABLE 8: SUMMARY OUTPUT

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-1832.2186	597.4180	-3.0669	0.0049	-3058.019	-606.418	-3058.019	-606.418
Area Under Irrigation	2.1158	1.4783	1.4312	0.1638	-0.917	5.149	-0.917	5.149
Agriculture Credit	0.0001	0.0001	1.1169	0.2739	-0.000	0.000	-0.000	0.000
Gross Sown Area	1.7090	0.3512	4.8658	0.0000	0.988	2.429	0.988	2.429
Consumption of Fertilizers	1.6353	0.6190	2.6418	0.0135	0.365	2.905	0.365	2.905
Consumption of electricity for Agricultural Purposes	0.0024	0.0011	2.2866	0.0303	0.0002	0.0046	0.0002	0.0046

Source: RBI's Handbook of Statistics on the Indian Economy 2016-17.

Note: At 5% significance level

Similarly, area under irrigation does not have a significant impact on the total foodgrains production since P value is 0.1638 (>0.05). Irrigation plays a significant role in improving the production of agriculture products. Since agriculture sector depends majorly on local climate condition, droughts and floods have negative impact on the agriculture economy. Between the time period 1950 and 1980, India faced 10 drought years and 5 droughts since 2000. Lack of favorable monsoons lead to low productivity and water scarcity in drought prone area such as Northern Karnataka, Eastern and Southern Maharashtra, Orissa, Telangana, Rajasthan and Andhra Pradesh.

Groundwater irrigation covers more than half of the irrigated area. Also, due to low income and lack of knowledge, farmers specifically small and marginal farmers use groundwater as a source of irrigation which results in overutilization of water and deterioration in quality and quantity of water affecting agriculture production as a whole. Government should take policy initiative to increase the area under irrigation by using technology to improve efficiency, revised water pricing, watershed development programs, improved fiscal federalism, generate awareness among farmers and provide subsidies to improve irrigation infrastructure.

Conclusion:

Despite the declining share of agriculture sector in GDP over a period of time, agriculture sector is still an important sector for the economy from self-sufficiency and employment point of view. This paper analyzed the trend and growth of major foodgrains crops in terms of production, area and yield and concluded that foodgrains production has shown a sluggish growth whereas area under cultivation and yield per hectare has declined due to more focus on non-foodgrains production like horticulture and Fishery because of high revenue and stable income. Also, multiple regression has been used to estimate the impact of agricultural inputs on total foodgrains production and concluded that Gross Sown Area, consumption of Fertilizers and consumption of electricity has a significant impact on total foodgrains production whereas area under irrigation and agriculture credit does not have a significant impact on total foodgrains production due to the presence of 86 percent of marginal and small farmers who do not have sufficient resources like irrigation facilities, appropriate size of land, machinery and capital requirement to improve the agriculture production and productivity. This calls for a change and improvement in government policies and initiatives like awareness campaign related to efficient usage of seeds and fertilizers, subsidies, access to agriculture credit and irrigation facilities, crop diversification.

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Appendix:

DATA ON AGRICULTURE INPUTS AND FOODGRAINS PRODUCTION						
Year	Total Foodgrains Production	Consumption of Fertilizers (N+P+K)	Gross Sown Area	Agriculture Credit	Consumption of electricity for Agricultural Purposes	Area Under Irrigation
1983-84	1523.7	77.1	1795.6	5244	18234	42.7
1984-85	1455.4	82.1	1763.3	6167	20960	43.72
1985-86	1504.4	84.7	1784.6	7159	23422	42.86
1986-87	1434.2	86.5	1764.1	7720	29444	44.09

1987-88	1403.5	87.8	1707.4	9198	35267	43.61
1988-89	1699.2	110.4	1822.8	9381	38878	45.79
1989-90	1710.4	115.7	1822.7	10628	44056	46.09
1990-91	1763.9	125.5	1857.4	10188	50321	45.55
1991-92	1683.8	127.3	1822.4	11538	58557	47.3
1992-93	1794.8	121.6	1857	12530	63328	48.02
1993-94	1842.6	123.7	1865.8	15013	70699	48.6
1994-95	1915.0	135.6	1880.5	18773	79301	49.87
1995-96	1804.2	138.8	1874.7	23692	85732	49.91
1996-97	1994.3	143.1	1895	26345	84019	53.46
1997-98	1931.2	161.9	1899.9	28656	91242	53.22
1998-99	2036.1	168	1916.5	36860	97195	55.08
1999-00	2098.0	180.7	1884	46268	90934	55.09
2000-01	1968.1	167	1853.4	52827	84729	54.37
2001-02	2128.5	173.6	1880.1	62045	81673	54.56
2002-03	1747.8	160.9	1738.9	69560	84486	51.32
2003-04	2131.9	168	1896.6	86981	87089	52.89
2004-05	1983.6	184	1911	125309	88555	55.23
2005-06	2086.0	203.4	1927.4	180486	90292	56.83
2006-07	2172.8	216.5	1923.8	229400	99023	58.02
2007-08	2307.8	225.7	1952.2	254658	104182	57.73
2008-09	2344.7	249.1	1953.3	301908	107776	58.8
2009-10	2181.1	264.9	1891.9	384514	119492	56.88

2010-11	2444.9	281.2	1976.8	446779	126377	58.83
2011-12	2592.9	277.9	1958	511029	140960	58.57
2012-13	2571.3	255.4	1942.5	607375	147462	58.48
2013-14	2650.4	244.8	2009.5	711621	152744	59.65
2014-15	2520.2	255.8	1983.6	845328	168913	60.09
2015-16	2515.7	267.5	1970.5	915509	173185	0

Source: RBI's Handbook of Statistics on the Indian Economy 2016-17 and Agriculture Statistics at a Glance, Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare

Note: Foodgrains production in Million Tonnes, Fertilizers in Thousand Tonnes, Gross sown Area in Million Hectares, Electricity in Gigawatt hours and area under irrigation in percentage.