



Trends in Fertilizer Consumption in Guntur District and Andhra Pradesh

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ABSTRACT

The nitrogen consumption in Andhra Pradesh in 1985-86 was 5,68,900 tones and it was increased to 15,22,090 tones 2005-06 where as in Guntur district, it increased from 78,120 in 1985-86 to 1,30,675 tones in 2005-06. In Andhra Pradesh, the Phosphorus consumption increased from 2,42,800 tones in 1985-86 to 6,90,100 tones in 2005-06 and it was increased from 44,055 tones in 1985-86 to 63,165 tones in 2005-06 in the district. The consumption of Potassium in Andhra Pradesh increased from 76,500 tones in 1985-86 to 3,40,360 tones in 2005-06, while it increased from 15,166 tones in 1985-86 to 27,988 tones in 2005-06 in the district. The compound growth rates for Nitrogen, Phosphorus, and potassium in Andhra Pradesh were 3.36 percent, 3.90 percent and 6.99 percent respectively and it was found to be 1.356 percent, 1.943 percent and 2.883 percent respectively in Guntur district.

Key words :

Agriculture is the largest private industry in this country and needs much more supports what it gets at present to enable sustainable operations oriented towards market economy in the process of globalization. Because of the predominant agricultural base of the economy, emphasis is placed on increasing production and productivity of agricultural sector in general and food grains particular in Andhra Pradesh. Inputs like fertilizers, HYV seeds, irrigation and pesticides are being increasingly applied in modern times to improve per hectare yield of farms. Among these, applications of fertilizers occupies an important place. In this context, an attempt was made to examine the growth in consumption of fertilizers in Andhra Pradesh and selected district for investigation viz., Guntur district.

MATERIAL AND METHODS

The data related to consumption of fertilizers in Andhra Pradesh and Guntur district from the years 1985-86 to 2005-06 have been collected from various issues of Indian Journal of fertilizers (Fertilizers Statistics) for Andhra Pradesh and various issues of crop Report of Andhra Pradesh, Agricultural plan-Andhra Pradesh for the district. Compound rates have been calculated individually for N,P,K fertilizers of the state and district. It can be expressed as follows

$$Y = Ab^t \quad \text{Log } Y = \log A + \log b$$

Where, Y = Fertilizer consumption in tones

A = constant

b = (1+r)

r = compound growth rate

t = Time variable in years (1,2,3,...n)

More specifically, compound growth rate have been taken in order to assess the trends of NPK fertilizer consumption. The student 't' test was used to find out the significance of gross returns.

$$t = \frac{|r|}{SE(r)}$$

Where,

$$SE(r) = \frac{100b}{\log_{10} e} \times$$

$$\sqrt{\frac{\sum(\log Y)^2 - (\sum \log Y)^2 / N - (\log b)^2 \sum T^2}{(N-2)\sum T^2}}$$

T = t - t

RESULTS AND DISCUSSION

The trends in NPK fertilizers consumption in Andhra Pradesh was depicted in table 1. It was evident from table 1 that nitrogen consumption in the state was increased from 5,68,900 tonnes in 1985-86 (100%) to 10,68,130 in 1990-91 (187.75%) mainly due to good rainfall received during the later part of South-West monsoon period in coastal districts and Telangana which improved water

Table 1. Indices of fertilizer consumption (NPK) in tones in Andhra Pradesh from 1985-86 to 2005-06.

Year	N	Index	P	Index	K	Index
1985-86	568900	100.00	242800	100.00	76500	100.00
1986-87	583100	102.50	241400	99.42	77000	100.65
1987-88	619800	108.95	270300	111.33	76600	100.13
1988-89	903610	158.83	345680	142.37	106040	138.61
1989-90	1018790	179.08	401680	165.44	111950	146.34
1990-91	1068130	187.75	424140	174.69	127480	166.64
1991-92	997890	175.41	454960	187.38	129470	169.24
1992-93	1021660	179.59	410700	169.15	81750	106.86
1993-94	1085740	190.85	369510	152.19	88090	115.15
1994-95	1138090	200.05	385820	158.90	120280	157.23
1995-96	1187390	208.72	420790	173.31	142980	186.90
1996-97	1199580	210.86	436390	179.73	132820	173.62
1997-98	1074700	188.91	490100	201.85	129790	169.66
1998-99	1284260	225.74	560470	230.84	163190	213.32
1999-2000	1314570	231.07	602960	248.34	201100	262.88
2000-01	1361790	239.37	603460	248.54	209320	273.62
2001-02	1182720	207.90	545370	224.62	226520	296.10
2002-03	1035710	182.05	433920	178.71	203050	265.42
2003-04	1138830	200.18	474090	195.26	240080	313.83
2004-05	1156530	203.29	538980	221.99	292360	382.17
2005-06	1522090	267.55	690100	284.23	340360	444.92

Source: 'Indian Journal of Fertilizers' various issues, Fertilizer Association of India, New Delhi.

storage minor irrigation tanks and river valley projects. In addition the incentives were also provided for state government in the form subsidy for fresh sowings in dry belts and cultivation in flood affected areas . [Fertilizer news , 1987 .vol.32 (10 p.86) . There was a decline in nitrogen consumption in 1991-92 (175.41 %) i.e ., 9,97,890 tonnes due to (1) unfavourable seasonal conditions in the Rayalaseema during South – West monsoon and in the Telangana region during North – East monsoon periods (2) . Significant drop in the area under paddy (0.3 M.ha) due to repair work under taken to canals with World Bank assistance (3) . Hike in fertilizer consumer price during July / August , 1991 caused considerable resentment among the farming community leading to sharp decline in off take . There was a sharp rise in fertilizer consumption from 9,97,890 tonnes in 1991-92 (175.41%) to 11,99,580 tonnes in 1996-97 (210.85 %) was mainly due to reduction of fertilizer subsidy after 90's , made the farmers to purchase fertilizer nearer to market price . There was a decline in the use of fertilizers during 1997-98 (188.91 %) i.e 10,74,700 due to unfavourable weather conditions like untimely and erratic rainfall in some areas and less rainfall in

some areas. Consumption of nitrogenous fertilizers by and large started increasing again from 10,74,700 tonnes in 1997-98 (188.91 %) to 13,61,790 tonnes in 2000-01 (239.37 %) and from 10,35,710 tonnes in 2002-03 (182.05 %) to 14,79,590 tonnes in 2005-06 (260.08 %) due to increase in area of food grains in the country and also due to favourable weather conditions like timely arrival of South – West monsoon in this area .

From table 1 it was evident that the consumption of phosphoric fertilizers of the state decreased from 2,42,800 tonnes (100%) in 1985-86 to 2,41,400 tonnes (99.42%) in 1986-87 . Consumption of phosphoric fertilizers of the state increased from 2,41,400 tonnes (99.42%) in 1986-87 to 6,90,100 tonnes (283.23 %) in 2005-06 with some fluctuations .

Consumption of potash increased from 76,500 tonnes (100%) in 1985-86 to 3,40,360 tonnes (444.92%) in 2005-06 with same fluctuations .

The growth trends of fertilizers consumption in Guntur district from 1985-86 to 2005-06 was shown in Table 2 . It can be observed from the table 2, that the nitrogen consumption in Guntur district declined from 78,120 tonnes (100%) in 1985-86 to 61,949 tonnes

Table 2. Indices of fertilizer consumption (NPK) in tones in Guntur District from 1985-86 to 2005-06.

Year	N	Index	P	Index	K	Index
1985-86	78120	100.00	44055	100.00	15166	100.00
1986-87	62710	80.27	28365	64.39	9877	65.13
1987-88	61949	79.30	25016	56.78	8152	53.75
1988-89	104781	134.13	44420	100.83	17091	112.69
1989-90	133890	171.39	57687	130.94	17465	115.16
1990-91	115558	147.92	46184	104.83	19117	126.05
1991-92	96174	123.11	50470	114.56	14500	95.61
1992-93	97938	125.37	38933	88.37	6631	43.72
1993-94	103105	131.98	41372	93.91	7123	46.97
1994-95	111163	142.30	39420	89.48	11121	73.33
1995-96	105924	135.59	34764	78.91	9062	59.75
1996-97	100356	128.46	38040	86.35	10417	68.69
1997-98	89207	114.19	42249	95.90	10465	69.00
1998-99	114125	146.09	51227	116.28	15283	100.77
1999-2000	106964	136.92	55053	124.96	16950	111.76
2000-01	108219	138.53	52016	118.07	15439	101.80
2001-02	105311	134.81	51932	117.88	14701	96.93
2002-03	78816	100.89	38461	87.30	14705	96.96
2003-04	93755	120.01	44568	101.16	19144	126.23
2004-05	111506	142.74	58154	132.00	24696	162.84
2005-06	130675	167.27	63165	143.38	27988	184.54

Source: Seasonal and Crop Reports, various issues. Bureau of Economics and Statistics, Government of Andhra Pradesh, Hyderabad - 500 004.

in 1987-88 due to the adverse weather conditions prevailed in the district due to rise in fertilizer prices. We can observe the increasing trend from the year 1987-88 to 1989-90 and from 1991-92 to 1994-95. The nitrogen consumption was decreased from 1,33,890 tonnes (171.39 %) in 1989-90 to 96,174 tonnes (123.11 %) in 1991-92 and similar trend can be noticed from 1994-95 to 2002-03 with some fluctuations. From the year 2002-03 onwards, we can notice increasing trend in nitrogen fertilizer consumption.

The consumption of phosphoric fertilizers in the district decreased from 1985-86 i.e., 44,055 tonnes to 25,016 tonnes (56.78%) in 1987-88. We can observe the increasing trend from 25,016 tonnes (56.78 %) in 1987-88 to 63,165 tonnes (143.38 %) in 2005-06 with some fluctuations in growth.

The potassic fertilizers in the district in general observed an increasing trend from 15,166 tonnes (100%) in the year 1985-86 to 27,988 tonnes (184.54 %) in the year 2005-06 with some variations like very low consumption in the year 1992-93 (43.72%) and reasonably high consumption in 1990-91.

Table -3 shows the compound growth rates both for the state and district. The compound growth rates for nitrogen, phosphorous and potassium in Andhra Pradesh were found to be 3.36 percent, 3.90 percent and 6.99 percent respectively. Similarly the compound growth rates for the district were 1.356 percent, 1.943 percent and 2.883 percent respectively.

Conclusion

It can be concluded that the fertilizer consumption was more both in Guntur district and Andhra Pradesh. It can be suggested that extensive research on balanced use of fertilizers and integrated nutrient management should be carried out. Proper extension method should be undertaken to disseminate the economic doses of fertilizers to the farmers so that the imbalance in the fertilizer mix can be minimized. The extension service should be enhanced in the district as well as in the state for dissemination of information on the benefits of balanced use of fertilizers and the adverse effects that would be caused due to the indiscriminate use of fertilizers.

Table 3. Compound Growth Rates of N P K fertilizer in Andhra Pradesh and Guntur District.

Fertilizer	Andhra Pradesh	Guntur District
N	3.364	1.356
P	3.392	1.943
K	6.992	2.883

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