



## Impact Of Agricultural Mechanization On Productivity

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### ABSTRACT

*The History of tractorisation in India dates back about 60 years. Farm mechanisation may be defined as the application of engineering and technology in Agricultural operations to do a job in a better way to improve productivity. Agriculture is coming up as business to make it profitable, farm mechanisation is key for remuneration and reducing labour force which is need of the day.*

*Data on various indicators of agricultural Development, Agricultural mechanisation, production, minimum support prices was recorded from various publications. The method suggested by Prem Narain was used to develop composite index.*

**Keywords : Agricultural Development, Agricultural Mechanisation, Production**

### Introduction

The history of tractorisation in India dates back about 60 years when the first batch of tractors was imported in 1950's. Farm mechanization may be defined as the application of engineering and technology in agricultural operations to do a job in a better way to improve productivity. The mechanical aids include the hand tools, animal drawn equipments, power tillers, tractors, electric motors, processing and hauling equipments. Mechanization emphasis on timelines, precision and general improvement in the quality of work. The collective efforts of the Government succeeded in increasing the level of farm mechanization.

The existence of Agricultural infrastructure produces Agricultural goods. Growth process in Agricultural sector does not operate to an even pace over time. The variation in Agricultural growth resulted in imbalanced growth. The districts endowed with infrastructural facilities develop rapidly as compared to those who do not possess these facilities.

Agriculture is coming up as business to make it profitable, farm mechanization is key for remuneration and reducing labor force which is need of the day. In view of studying impact of Agricultural mechanization and development of farm productivity present study is proposed with the objectives. To study the development in Agricultural Mechanization and to assess the impact of Agricultural Mechanization on productivity.

### Methodology

The study was conducted in Amravati Division of Maharashtra, for the period 1985-86 to 2005-06. Secondary data on indicators of Agricultural Development and indicators of Agricultural (Farm) Mechanizations and production of crops grown in the region was collected from various Government and non-government publications. The

total twenty one indicators of agricultural development and sixteen indicators of agricultural mechanization were selected for the study. To measure the degree of development of different districts, the composite Index of Agricultural Development and Agricultural Mechanisation were computed by using methodology suggested by Prem Narian. Composite index for each district for different time periods to examine the statistical significance of changes in mechanization indices over time, the slippage test suggested by Rai (1987) was used.

### Crops selected

To workout gross value of output crops covering 90 percent of area have been selected. The following crops were selected. The value of output was calculated by considering minimum support prices for the selected crops namely Rice , Gram ,Kh. Jowar ,Tur, Bajra ,Cotton, Wheat Sunflower, Soybean and Safflower , declared by Government of India from time to time.

### Results and Discussion:

To examine the development of Agricultural Mechanisation in districts of Amravati division, the development index were worked out and presented in table 1. The composite index of development approaching towards unity indicates backwardness; where as departure from unity shows the development.

Table No. 1: Composite Index of Agricultural Mechanisation District.

Sr. No.	Year	Buldana	Akola	Amravati	Yavatmal
1	1985-86	0.5496	0.6382	0.6341	0.8925
2	1990-91	0.5035	0.4591	0.5665	0.887
3	1995-96	0.4656	0.4521	0.5264	0.8677
4	2000-01	0.4283	0.3111	0.5140	0.8319
5	2005-06	0.4236	0.2772	0.4801	0.8240

$$\chi^2 = 182.48^{**}$$

It is revealed from the table that during First period, Buldana district secured first rank in agricultural mechanization, while from second period onwards Akola district stood first in agricultural mechanization. Yavatmal retained its Fourth and last rank during study period. The changes in development levels over the period were observed in all the district

Table No. 2: Composite Index of agricultural development District.

Sr. No.	Year	Buldana	Akola	Amravati	Yavatmal
1	1985-86	0.9409	0.6985	0.8206	0.8584
2	1990-91	0.9131	0.6472	0.7061	0.7112
3	1995-96	0.8763	0.6223	0.6306	0.5593
4	2000-01	0.8638	0.5613	0.5813	0.4282
5	2005-06	0.6689	0.5604	0.5689	0.3944

$$X^2 = 192.68^{**}$$

The indices of Agricultural development Constructed are presented in Table 2.

It is revealed from the table that Akola district stood first in Agricultural development during First two periods of Study, while From 1995-96 to 2005-06, Yavatmal district stood First in rank of development, Buldana district retained its Fourth and last rank during study period. The results indicated that, over a period of time, the ranking and rate of development of the districts changed.

Table No.3: Impact of Agricultural Development and Mechanism of on Gross out put.

Sr. No.	Particulars	Coefficient	
1	Intercept	(a)	6.2369 (0.1546)
2	Agril Development	(b <sub>1</sub> )	- 2.038** (0.5324)
3	Agril Mechanisation	(b <sub>2</sub> )	-1.94** (0.3832)

$$R^2 = 0.6835^{**}$$

Regression analysis between the variables Composite index of Agricultural development (x1), composite index of Agricultural mechanization (x2) and Gross value of out put (y), was carried, Cobb-douglas type function was found to be best.

The results indicated that both variates contributed significantly in gross value of out put, as revealed by coefficients. The total contribution explained by the two indices was 68.35 per cent of which, composite index of agricultural mechanization explained 58.35 per cent contribution in explaining gross value of out put.

### Conclusion

Agricultural mechanization contributed significantly in productivity over the study period in all districts of the region. Akola district stood First in latest period of study i.e. 2005-06.

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