

Review Article

Changing Pattern of Agricultural Mechanization in Nalanda District of Bihar

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A B S T R A C T

In agricultural production, farm mechanisation is a very necessary input. The number of tractors has increased rapidly, and in recent years, the population of draught animals has decreased in Bihar. A study was conducted in Nalanda District of Bihar, to classify the trend of tractor use and their economics. Mechanization is one of the most striking and pervasive phenomena of our times. Unfortunately, its study has been neglected by the social sciences, which have not sufficiently recognized that while technology itself belongs to the field of the natural sciences, its far-reaching effects on social life make it a vital subject for study by the social sciences. Insufficient and high variable precipitation and low fertility are major constraints to agricultural productivity. This brings the role of irrigation facilities and use of fertilizers. India is witnessing growth in irrigation facilities. Wells, canals and dams are constructed to cater needs of farmers. However, there is a lot to be achieved in this regard. Applying fertilizers are increasing day by day. It increases production as well as productivity of the field. At the same time, there is rampant mechanization of agriculture. Thus, it reduces human efforts and increases production of the field.

Keywords: Insufficient, Irrigation Facilities, Fertilizers, Productivity, Mechanization, etc

Among all the factors, which lead towards surplus agricultural production, availability of irrigation facilities and their proper use are most crucial. Irrigation is, indeed, the life-breath of agriculture. All the inputs give better results only when controlled supply of water is made available because crops require water at specific period for growth. Therefore, irrigation is an important factor leading towards best returns from other inputs like insecticides and fertilizers. Presence of Ganga River, which is perennial source of water with a gentle slope, is favorable for the construction of canals. Fertile alluvial soils are also a major factors leading towards development of irrigational facilities in the study area.

Appropriate method are not available for measuring the intensity of irrigation except analysis of the ratio, which

exists between the net irrigated area and the total irrigated area, which if expressed in percentage gives a measure of the intensity of irrigation. Table-1 shows the block-wise data for this purpose explains that the average intensity of irrigation was 135.6 per cent for the district as a whole. It varies from 110.38 per cent for Giriyak block to 160 per cent for Hilsa block. The intensity of irrigation is very high in Biharsharif block (139.88 per cent) and Rajgir block (130.74 per cent).

While Giriyak (110.38 per cent) and Harnaut (112.14 per cent) blocks which lie in the south and North have very low intensity of irrigation. High intensity of irrigation in the block Hilsa and Biharsharif leads to Paddy cultivation and the arrival of Paddy in Hilsa and Biharsharif regulated market has increased several folds.

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Table 1

Intensity of Irrigation in Nalanda District (2013-2014)			
	Total Irrigated Area	Net Irrigated Area	Intensity of Irrigation
Biharsharif	17090	12218	139.88
Asthawan	21190	16286	130.11
Harnaut	18158	16192	112.14
Sarmera	13555	11110	122.01
Noorsari	12341	9582	128.79
Islampur	12426	9869	125.91
Rajgir	37419	28622	130.74
Giriyak	17191	15575	110.38
Hilsa	21210	13195	160.74
Chandi	6203	4347	142.70
Tharthari	7540	6281	120.04
Nagarnausa	13392	10820	123.77
Chandi	27135	21448	126.52
Chandi	27135	21448	126.52
Ekangersari	28773	22986	125.18

Source: District Statistical Book

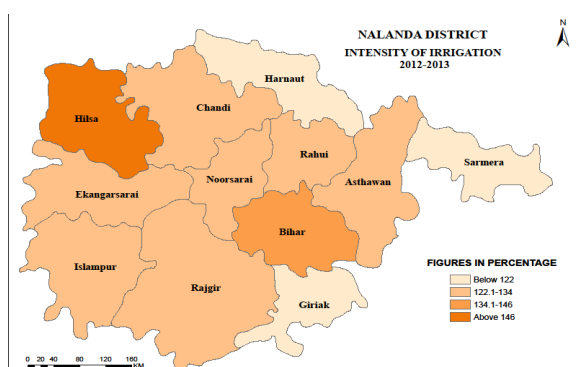


Figure 1

Growth of Fertilizers Consumption: Fertilizers are also one of the very important inputs for crop production. For achieving the success in the bumper production of any crop, the application of fertilizers according to soil quality is must. The importance of fertilizers has been well appreciated by the cultivators. The provision of fertilizers availability at reasonable price, and at appropriate time, is an essential requirement for the growth of crops.

With the growing emphasis on commercialization of agriculture by the establishment of agricultural markets in the district, fertilizers constitute an important input in agricultural operations. In any scheme, for boosting agricultural output, the use of chemical fertilizers has an important role to play.

Table 2

Consumption of Fertilizers in Nalanda District			
Fertilizers	2003-04	2013-14	Percentage Increase
Nitrogen	107668	137384.37	27.60
Phosphorous	99984	127579.58	95.80
Potash	76090	97090.84	184.06

Source: District Statistical Book

It can be understood by the Table 2, that the consumption of nitrogen increased from 107668 metric tons in the period of 2003-04 to 137384.37 metric tons in 2013-14. The overall increase was 27.60 per cent. In case of phosphorous, during the period of 2003-04, its consumption was 99984 metric tons but it again increased to 127579.58 metric tons in the period of 2013-14. The total increase in phosphorous consumption was 95.80 per cent. Potash consumption in the period of 2003-04 was 76090 metric tons, and in the period of 2013-14 it increased to 97090.84 metric tons. The total increase in potash consumption was 184.06 per cent.

Mechanization of Agriculture: The use of mechanical appliances in agriculture means replacement of human as well as animal power by machinery wherever it is possible. Ploughing is to be done by tractor, sowing and putting of fertilizers by drilling machines and reaping and harvesting by the combined harvesters, threshers and so on. Man by himself produces very little but with the help of machines one can produce much more. The use of machinery in agriculture is not a very easy task especially for small and marginal farmers. Only the farmers of sound economic status are getting the benefits of machinery in agri-business.

The extent of Power tiller and tractors can be judged by table 3 and 4. It can be understood by the table 3, that the high growth of Power tiller machines was in the blocks of Harnaut, Sarmera and Rajgir, while the medium growth can be observed in the blocks of Islampur, Chandi, Hilsa and Asthawan. Biharsharif, Noorsari, Islampur, Giriyak and Ekangersari are the blocks in which the growth of the Power tiller machines was very low.

Table 3

Block-wise Growth of Power Tiller in Nalanda District			
Blocks	2003-04	2013-14	Percent of Increase
Biharsharif	68	80	17.65
Harnaut	13	19	46.15
Sarmera	6	9	50.00
Noorsari	12	14	16.67
Islampur	11	13	18.18

Islampur	45	58	28.89
Giriyak	17	21	23.53
Chandi	47	63	34.04
Hilsa	49	62	26.53
Ekangersari	54	60	11.11
Rajgir	29	42	44.83
Asthawan	67	87	29.85

Source: District Statistical Book

Table 4, explains the block-wise growth of tractors. Giriyak block records highest growth of tractors (43.75 per cent) during study period. After that, the blocks of Islampur (38.46 per cent), Hilsa (34.56 per cent), Noorsari (29.73 per cent), Ekangersari (27.27 per cent), Rajgirs (25.93 per cent), Biharsharif (24.41 per cent), Asthawan (24 per cent), Islampur (23.19 per cent) and Harnaut (20 per cent) records the growth of tractors in descending order. It can be understood from both the tables that the use of mechanical appliances is continuously increasing and the growth is going on in the positive direction.

Rajgir	54	68	25.93
Asthawan	75	93	24.00

Source: District Statistical Book

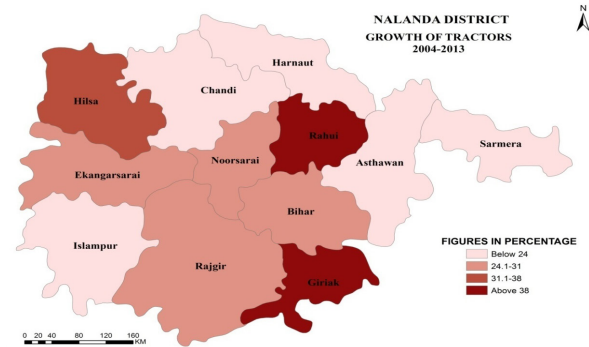


Figure 3

Conclusion

Agricultural mechanization invigorated by the economic motive is continuing at a fast rate in Louisiana. It has been capable to a more prominent or lesser degree for numerous changes on the cultivate and in cultivate individuals. At the side other innovative progresses and changes in belief systems and rationalities it has worked and is working to reduce the contrasts between the two up to this time very particular private segments of the population the provincial and the urban. The reality that much social alter is taking put in cultivate ranges emphasizes that provincial society is energetic and not inactive in nature that characteristics which describe it nowadays may not hold tomorrow. There’s both a caution and an opportunity for Rustic Sociologists within the over information. They must ever be on the caution to identify and call consideration to changes in provincial life. At the same time their work will never be done or gotten to be uninteresting.

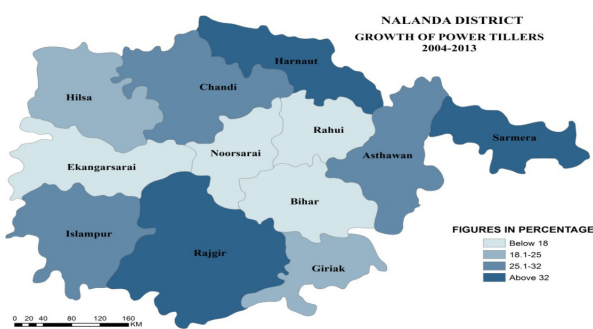


Figure 2

Table 4

Block-wise Growth of Tractors in Nalanda District			
Blocks	2003-04	2014-15	Percent of Increase
Biharsharif	127	158	24.41
Harnaut	45	54	20.00
Sarmera	22	26	18.18
Noorsari	37	48	29.73
Islampur	13	18	38.46
Islampur	69	85	23.19
Giriyak	32	46	43.75
Chandi	96	113	17.71
Hilsa	123	166	34.96
Ekangersari	66	84	27.27

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