

Impact of New Innovative Techniques usage in Agriculture in Tamil Nadu- A case study during Post-liberalization period

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Abstract

Agriculture played pivotal role in Indian economy and has been undergoing serious transition since Independence. Especially after implementation of new economic policy Agriculture sector witnessed huge transition in terms of cropping pattern, agrarian techniques, effective usage of water shed management, efficient usage of the inputs for optimum output. In fact Government also provided adequate technical supports with various programmes. The present study examines the impact of usage of new innovative techniques on agricultural production and productivity during post reform period. The study conducted with 200 cultivators using new innovative techniques in agriculture in Tiruvannamalai district. The result indicated that new innovative techniques has positive impact on agricultural production, efficient usage of scared water, crop diversification, less water intensive crops with loser gestation period. Thus, the usage of innovative techniques made adequate impact on agricultural production and productivity and also ensure sustainable agricultural development in the area as well.

Introduction

Agriculture plays a dynamic role in India's economy. Nearly 54.6% of the population is involved in agriculture and associated activities and it donates 17.4% to the country's Gross Value Added for the year 2016-17. Given the prominence of agriculture sector, Government of India took numerous phases for its sustainable development. Steps have been taken to increase soil fertility on a sustainable basis over the soil health card scheme, to deliver enhanced access to irrigation and improved water effectiveness through Pradhan Mantri Krishi Sinchai Yojana (PMKSY), to protect organic farming through Paramparagat Krishi Vikas Yojana (PKVY) and to support for conception of a incorporated national agriculture market to boost the revenue of farmers. Further, to alleviate risk in agriculture sector a new scheme "Pradhan Mantri Fasal Bima Yojana (PMFBY) has been launched for implementation from Kharif 2016. The total geographical area of the country is 328.7 million hectares, of which described net sown area is 140.1 million hectares and the gross cropped area is 198.4 million hectares with a cropping intensity of 142 percent. The net area sown works out to be 43 percent of the total geographical area. The net irrigated area is 68.4 million hectares.

As an outcome of momentous upsurges in the area under cropping and productivity of all major pulses, total production of pulses during 2016-17 is projected at a highest level of 22.95 million tonnes. The production during 2016- 17 is higher by 6.61 million tonnes than the previous year's production of 16.35 million tonnes. Total food grain production during 2016-17 in the country is estimated at 275.68 million tonnes which is higher by 10.64 million tonnes than the earlier record production of food grain of 265.04 million

tonnes (2013-14) and also higher by 24.12 million tones than the food grain production in 2015-16. Agriculture is the crucial momentous area that has not been subject to complete transformations. It is not extensively understood, though, that the decrease of industrial tariffs enhanced the domestic terms of trade significantly for agriculture. In terms of trade reforms in agriculture, these have been inhibited by the lack of advancement in the WTO and the inflexibility of developed countries in the decrease of their farm subsidies. There have, though, been a number of momentous reforms: elimination of restraints on inters state movement of food grains; the reorganization of the public distribution system (PDS); easing of limitations under the Essential Commodities Act; implementation of forward transaction in most agricultural commodities; and elimination of some promoting limitations on crop produce. However, the prominent of polices and the international trade could be feasible if innovative agricultural activities takes places in ground.

Challenges and significance of implementing innovative technology in agriculture

Since independence the policy makers are fighting to extend the agricultural production and to accomplish impartiality and social justice. Many programmes square degree enforced beneath these purposes, however the advancement is below the requirement in complete and relative terms. The low achievement is due to insufficient infrastructure amenities, low utilization of irrigation amenities and low output ensuing from caprices of monsoon and poor alternative of technology. Agricultural expansion is a component of rural development strategy. Enhancing employment in rural areas, impoverishment mitigation and decrease of rural and concrete classification wants agricultural development. Such development is intended with forethought of small development plans. Regional disparities in productivity and income have continued high and in some cases displayed an enhancing trend. Agriculturists usually, and little and marginal farmers and landless laborers precisely, stay very poor within the less well-endowed regions. The philosophy of agricultural coming up with is dynamical. WTO's arrangement on agriculture and various trade liberalization measures haven't exclusively transited the main emphasis to export-oriented crop agriculture hut additionally opened the door to low cost imports within the developing countries, and India is not an exception. low cost food imports reduce costs for domestic manufacture, and massive scale crop cultivation has not solely shifted land off from rudimentary food production however has led to concentration of land and resources within the hands of massive farmers, landlords and personal corporations. The removal of state grants and institutional support to agriculture has pushed up production prices and provides of agricultural inputs. Agriculture in India thus is confronting multiple challenges. It must become a lot of productive to satisfy the growing want for food and it's to supply financial gain and employment for the agricultural population to scale back migration and additionally to combat the inequalities and impoverishment. At a similar time, agriculture needs to maintain the balance between increased production,

property use of natural resources and environmental degradation. Additionally, due to declining potency of inputs, the gross margin of the farmers is declining.

Usage of technology in Agriculture

Indian Agriculture undergoing momentous transition especially in implementation of technology. Usage of technology is extensively utilized in farming. Technology has permitted man to get rid of the manual efforts that he put into agriculture. Now there are machineries to aid him. Here are some of the crucial uses of technology in the agricultural sector.

Use of devices: The utmost significant factors in agriculture are time and production. The production should be extraordinary and time expended should be less. With the help of machineries like tractors, cutters etc. farming has become quicker and more useful. Earlier, bulls were utilized for the same which was labor intensive as well as time-consuming.

Modern Transportation Systems: No more bullock carts are required for carrying the crop to the market. Contemporary transportation systems have permitted the farmers to transport their crops to the market within a short period. This way the legitimacy of the harvest is also sustained. Crops are no more damaged during transportation, and fresh products are available for the consumers.

Weather forecast systems: One of the principal advantages of technology to agriculture is the weather forecast system. Now farmers can know the weather earlier and take essential precautions to preclude damage to their crops.

Irrigation of plants: Waterways are no more a big problem for agriculture. Water drives are utilized to deliver water for irrigating the crops. In Egypt, farmers have effectively utilized water pumps to draw water from the Nile and irrigate their crops.

Genetic Engineering: Currently, some plants are made genetically which make them unaffected to insects and other circumstances and at the same time allows them to produce a good yield. These are mostly known as hybrid products.

The Impact of Technology in Agriculture

Technology has had a great impact on agriculture. The productivity and yield of goods have increased, and at the same time, it has proved to be profitable for the farmers. Technology has not only made the farmers profitable but has brought us good products. It is a challenging task to meet the food demand of such a big population. In such a condition technology, has empowered the farmers to produce a much higher yield than

ever before. With the initiation of technology, we have got improved and hybrid products. The nutritional value of crops has now augmented, and plants are no more disposed to diseases. Now our farmers no more depend on rainfall, they have pumps to irrigate their fields. Thus, the price of food items has gone down significantly. Scientists have prepared better DNAs of plants which are powerful enough to sustain any attack. Technology has primarily impacted this sector.

Objectives of the study

To examine the socio-economic conditions of the selected cultivators in Tiruvannamali district

To examine the impact of usage of new innovative technology on revenue of the selected cultivators in Tiruvannamali district

Data

The study utilized primary data collected from Tiruvannamalai district. This district has sufficient scope for selling of agricultural product square measure direct manner, and also the space has sufficient water system resources to enable farmers to implement new technology. The current study is conducted in 5 panchayats of Tiruvannamalai District in Cheyyar taluk viz Parasur, valkadai, mukur, anakur, thavasi. In selected panchayats, the sample size decided by purposive random sampling. In every village, 40 samples are elected for the study. Totally, 200 sample respondents chosen for the study. The primary data for the study have been collected over interview schedule which contains of many questions aimed to probe sufficient information for the study.

Analysis

Table.1 (a) Paired Samples Statistics

	Mean	Std. Deviation	Std. Error Mean
Pre-Usage	2835.8	43.5	42.74
Post- Usage	5429.0	40.0	121.3

Source: Computed from primary survey

Table.1 (b): Paired Samples Correlations

	N	Correlation	Sig.
Pre-Usage & Post- Usage	200	0.955	0

Source: Computed from primary survey

Table.1 (c): Paired Differences

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pre-Usage - Post- Usage	9375	87.8	128.6	-1416	-233	9.329	10	0.04

Results and discussion

The inferences derived from the analysis reveals that, major portion of the (39.7%) of the samples are hails from the 35-45 age category, 30.1% hails from the 45-55 age group category, 17.6% hails from the 55-60 age group category, 7.5% hails from more than 60 age group category. In this study major proportion of the (89.9%) samples are male and remaining 10.1% are female. Major percentage (65.3%) of the samples are having 1-5 years' length of service, 28.5 % of them are among 6-10 years length of service. More than half (58.6%) of the samples hails from nuclear family type and the remaining 41.4% of them are joint family type. More than half (78.7%) of the selected samples are not members of farmers association, and remaining 21.3% of them are having membership. Major proportion (51.0%) of the samples earning between 15000-20000 monthly remuneration, 23.8% of them earning between 20001-25000, 17.6% of them earning between `25,000. With regard to the acquaintance with usage of modern technology in agriculture more effectively 69.0% of the selected samples have higher level of familiarity and 31.0% of the samples have lesser familiarity. With regard to the benefits obtained from the usage of new innovative technology in cultivation nearly 84.8% of the selected samples have obtained adequate benefits and 25.2% of the samples have not obtained adequate benefits. The Paired 't'-test was utilized to the compare the means of the pre-test and the post-test. The T-value obtained from the analysis of the overall mean scores of the pre-test and the

post-test is 9.32. The details also reveal that the P-value or value of significance is 0.04, at the level of 0.05. The analysis shows that there was significant difference between the overall mean scores of the pre-test and post-test at 5% level of significance. Hence, it was implied from the empirical verification that utilization of technology on agriculture has enhanced the income of the selected cultivators in the Tiruvannamalai district. Further, the advancement in agricultural activities reduces the cost of cultivation by utilizing the input in optimum level and the technology used has also reduced leakages.

Conclusion

Usage of technology is the prominent determinant of development of agricultural industry. Bio-technology enables the crops to grow in deserts as well. Efficient use of water, inputs and other technological nuances have enriched production, productivity and income of the cultivators. With this technology, plants have been contrived to continue in drought circumstances. Technology has transformed farming into a actual business, now farmers have captivated every procedure. Direct transaction between farmers and the consumers had diminished the middle man problems. This protects the farmer money and it reduces mediators who tend to buy low from farmers and sell high to end consumers. Every farmer uses this technology in their own way. Some use it to generate fertilizers, others utilize it to market their products, and others utilize it in production. So as a farmer, you have to postulate the requirement. It is a good symbol that technology has touched agriculture. The benefits that technology has delivered in the agricultural sector are numerous. Technology has proved to be the perfect acquaintance to farming. Global population has customarily been pretentious by the use of technology in agriculture. It is an actual legacy and will be immensely useful in the future when we face shortage in some of the most valuable natural resources.

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