Impact of Education and Training on Technology Adoption by Agri Producers

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Abstract

In India, considering the growth of the population, solutions should be found for the security of production, in this regard, the automation of agriculture is justified. The purpose of this research is the adoption and management of technology in the agricultural sector with special reference to horticulture. This research is a survey (field) type. In field research, the researcher examines the variable in the real scene. The general method of this research is descriptive-analytical. The statistical population of this research includes all Agri producers (farmers) working in the Maharashtra region, whose number is 3200. Since the members of each section have similar characteristics on average according to the research needs (gardening as a common characteristic), a simple random sampling method is used to equalize the chance of all members of the community to be selected as sample members. Based on the Cochran test standards, 343 agri producers (farmers) were selected as members of the statistical sample in this research. The findings of the research show that education have a significant relationship with the level of acceptance of agriculture and technology by agri producers (farmers).

Keywords: Technology acceptance, technology management, technology education, training programmes, agriculture.

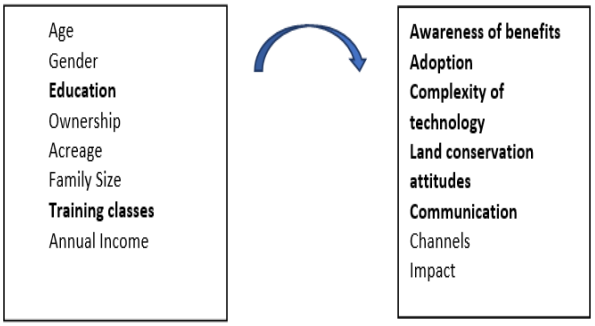
Introduction

There is always a challenge to increase agricultural production and farm productivity due to its high demand. Agriculture production is highly dependent on climatic conditions making productivity unpredictable. Education and training on use of modern technology is imperative to increase farm productivity and profitability. Education helps in enhancing skills required by farmers to increase production (Weir 1999). Food security is a complex and multidimensional issueand has posed a challenge for many years(Smith, 2013). Sustainable development cannot be realized without adequate focus on food security (UN, 2015). Therefore, this concept of food security has attracted attention from many researchers and policymakers (Godfrayet al.2010). By its definition, food security is achieved when all people, at any time, and physically and economically have access to food, have adequate, safe and nutritious access to meet the needs and satisfy dietary preferences for an

active and healthy life (FAO, 1996). Food security and quality and its coefficient depends on the quality of realization of the mentioned dimensions, which depends on the participation of all economic and social sectors. The agricultural sector as the main source of supply Food, by increasing and improving the quality of food products, (Cai. et al 2009).

Many agricultural products, including consumer goods are considered strategic which are consumed daily as food. However, due to the increase in global population on the one hand and the reduction of production resources on the other hand, researchers are looking for a way to increase productivity by using existing production capacities, relying on the adoption and application of modern technologies in the process of production and supply of agricultural products (Sinyolo, 2020).

Factors impacting farmers' views on adoption of technology



Factors Impacting the Technology Adoption

Objective

- To understand the impact of education o technology adoption by the agri producers
- To identify any significant relationship between Education and dependent variables of the adoption of technology by agri producers.

Research Methods

The statistical population includes a group of people who have one or more common traits and these traits are considered. Society may include all individuals, a particular type, or a limited number of the same group. The statistical community in research does not necessarily mean the community in which we live, but depending on the type of research, the statistical community is different, so that it can include objects and subjects, geographical areas and people, and so on. In fact, the statistical population is all the real or hypothetical members to whom we are interested in generalizing the research findings (Jan Bast, 1997, 24).The statistical population of this study includes all agricultural producers (farmers) working in Maharashtra region, the number of which is 3200.

According to the Cochran test standards, in this study, 343 farmers were selected as members of the statistical sample.

Table 1- Cronbach's alpha

Reliability test		
Components	Cronbach's alpha	Number of components
views of the agri producers on the impact of technology	0.729	5
Measurement of awareness of technology benefits	0.852	5
Adapting technology to the needs of agri producers	0.721	4
complexity of technologies	0.733	4

Agri producers views on land conservation attitudes	0.855	4
Communication channels	0.854	6
Technology adoption	0.738	4

Test hypotheses: There is a no significant relationship between training classes and Farmers' Adoption of technology.

Training Programmes / Classes – Technology Adoption

Crosstab							
Count							
		Farmers' adoption of technology					Total
		Verylow	low	Medium	high	very high	
classes	Yes	28	78	0	0	23	129
	No	0	0	29	131	54	214
Total		28	78	29	131	77	343

Using Wei Kramer test, we test the correlation by Spearman-Linear Regression between the training programmes and farmers' adoption of technology and it can be concluded that there is no significant relationship between training programmes and farmers' adoption of technology.

Test hypotheses: There is a no significant relationship between Education on dependent variables (7 factors) of Farmers' Adoption of technology.

According to the results, the level of significance (sig) obtained in Spearman correlation test between two variables equal to the value (0.000) was obtained which is less than (0.05) at the 95% confidence level, Hence the hypothesis that the variables are not related has been rejected and we conclude that there is a significant relationship between the variables - education and technology adoption. The effect of education on dependent variables (7factors) in technology adoption In Maharashtra in India

A. Model Summary

ModelSummary				
Model	R	RSquare	AdjustedRSquare	Std.ErroroftheEstimate
1	.888[a]	.789	.785	.54156

a. Predictors:(Constant),Application of technology, complexity of technologies, Land protection, Communication channels, The impact of technology, Awareness of the benefits of technology, Adapting technology to the needs of farmers

According to the table above, the R (correlation coefficient) between the independent variable and all dependent variables is 0.888, which indicates a high correlation between independent and dependent variables. Also, R Square with a coefficient of0.789 indicates the share of 78.9% of the model in the expression of dependent variables, also adjusted coefficient of determination (Adjusted R Square) is78.5%, which indicates a good percentage for predicting dependent variables.

B. Anova[a]

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	367.441	7	52.492	178.980	.000[b]
	Residual	98.250	335	.293		
	Total	465.691	342			
a. Dependent Variable: Education						
b. Predictors:(Constant),Applicationoftechnology,complexityoftechnologies,Landprotection,Communicationchannels,Theimpactoftechnology, Awareness of the benefits of technology, Adapting technology to the needs of farmers						

C. Coefficients[a]

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std.Error	Beta		
1	(Constant)	1.152	.174		6.640	.000
	Theimpact oftechnology	-.422	.058	-.464	-7.243	.000
	Awarenessofthe benefits of technology	.419	.054	.516	7.815	.000
	Adaptingtechnologytothe needsoffarmers	.667	.066	.775	10.097	.000
	complexityoftechnologies	-.136	.050	-.158	-2.716	.007
	Landprotection	.021	.042	.019	.510	.610
	Communicationchannels	-.818	.042	-.745	-19.555	.000

	Applicationoftechnology	.647	.058	.556	11.228	.000
a. Dependent Variable :Education						

Also according to the results the values of Std. Error, B and Beta were determined. The level of significance (sig) obtained in the linear regression test between education andtechnology complexity was equal to (0.007) and also the effect of education on othervariables except (land conservation) was 0.00. And considering that this value is less than (0.05) at the 95% confidence level, the statistical hypothesis of zero(H0) based on the lack of correlation of variables has been rejected. Farmers 'views on the impact of technology, measuring awareness of the benefits of technology, adapting technology to the needs of farmers, farmers' views on attitudes related to land protection, communication channels and the use of technology show a significant impact. Coming to the value of 0.610 and greater than this valueof0.05, we find that education has not been able to predict the complexity of technologies.

Conclusion:

Advancements in technology has impacted almost all sectors and domains including agriculture. Modern agricultural technologies result in better productivity and optimum utilization of resources.Some countries from Europe and America have immense benefits due to utilization of high-tech agriculture. This has resulted in significant advantage based on quality and output. This study concludes that the use of superior technologies can make India, especially the Maharashtra region, one of the main agricultural hubs.Education and training can benefit the agri producers which will help to create a cultureof technology acceptance by farmers, effective use and maintenance of mechanization offarming, awareness of credit facilities and its utilization in technology adoption, which may lead to higher productivity in the agricultural sector.

Achieving the ease of technology adoption and ensuring facilitative mechanisms are key to significant increase in productivity and corresponding increase in the export of produce which may ensure economic prosperity for the country and the region, and result in increased levels of well-being of families.

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