International Journal of Applied and Pure Science and Agriculture

ISSN Online - 2394-5532 Impact Factor : 4.446 by SJIF ISSN Print - 2394-823X

AN EMPIRICAL STUDY ON FARMER'S AWARENESS AND IMPLEMENTATION OF AGRICULTURAL AUTOMATED PRODUCTS WITH SPECIAL REFERENCE TO GIPZONICS

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Abstract

In the current scenario, automation technologies are being developed by researchers that pose questions about the efficiency and effectiveness with which we carry out the agricultural practices. New automated concepts are being developed due to increased competition in the agricultural industry to enhance agricultural productivity, but the problem lies in raising awareness amongst farmers for the implementation of agricultural automated products. The reason for the present study was to research the effect marketing has on these procedures, and subsequently buyer decision. Implementation of agricultural automation products has resulted in incremental rise in the efficiency and effectiveness with which we carry out current agricultural practices. The time has come for allowing agricultural automation to flourish and deliver its full potential. This research will help us to find out the existing awareness of farmers towards the implementation of automated products. This study aims to raise the awareness about the alternatives to support the cropping system. It is not meant to give a definitive view. The changing environment poses a challenge for the automation companies to evolve continuously. The research will help us to analyze the motives, needs and desires of farmers towards the implementation of automation to farming activity based on subsidies or incentives provided by the government. The study will provide relevant recommendations for the agriculture automation companies to be different from competitors for enhancing the overall productivity of farm yield and acting as a good incentive for the youth to take up the farming activity.

Key words: Agriculture, Agricultural Automated Products, Awareness, Farmers.

I. INTRODUCTION

Agriculture, a primary sector occupies an important position in Indian economy. Agricultural sector is demographically the broadest economic sector in India. It is the oldest economic activity of the humankind. It plays a significant role in the socio economic fabric of the nation. As Mahatma Gandhi said, "India lives in villages and agriculture is the soul of Indian economy". Nearly two-thirds of its population depends directly on agriculture for its livelihood.

With the Indian population expected to reach 1.69 billion by 2050, agricultural production must double if it is to meet the increasing demands for food. This requirement cannot be met by following traditional methods of agricultural practice. Having this foresight, it is imperative that we implement automated products in agriculture.

Indian agriculturists use both traditional and modern farming techniques. The use of traditional techniques has led to the low per capita productivity and low farmer income. Therefore, to do away with such problems, along with the financial support by the government, the use of automated technology in farming is the need of the hour. Automation in farming will not only increase agricultural productivity but also reduce production costs, reduce the drudgery of manual labour and raises the quality of the produce. Adoption of fundamental technology in agriculture is a

must to adapt to the continuously changing agricultural scenario. Farmers will benefit massively from the implementation of agricultural automated products.

II. LITERATURE REVIEW

Ming Li, Kenji Imou, Katsuhiro Wakabayashi, Shinya Yokoyama (2011) this study conducted a brief survey of examination in agrarian vehicle direction advancements. The creators propose the calculated structure of an agrarian vehicle self-sufficient direction framework, and afterward dissect its gadget attributes. This paper presents route sensors, computational techniques, route organizers and guiding controllers. Sensors incorporate worldwide situating frameworks (GPS), machine vision, dead-retribution sensors, laser-based sensors, inertial sensors furthermore, geomagnetic bearing sensors. Computational strategies for sensor data are utilized to concentrate components and breaker information. Organizers produce development data to supply control calculations. Actuators change direction data into alters in position and course. Various model direction frameworks have been produced however have not yet continued to commercialization. GPS and machine vision melded or one intertwined with another assistant innovation is turning into the pattern improvement for horticultural vehicle direction frameworks. Utilization of new prominent mechanical advancements will expand the acknowledgment of horticultural vehicle mechanization later on.

Ms.Deweshvree Rane PG Scholar (2009) this study analyzes the various imperatives which are part of advancement in nourishment generation. In our nation, horticulture relies on the rainfall which is not adequate source of water. So the watering system is utilized as a part of agribusiness field. In this paper, programmed watering system framework in view of ARMs and RF module is studied. The entire framework will be setup utilizing ARM and RF module. The most imperative element of this framework is RF module which is utilized to send and receive the message from the controller. This framework utilized three hubs which convey each other and flood paddy field naturally. The task is to modernize agribusiness innovation by programming segments and assemble the essential parts for the framework. The framework is continuous based and concentrates the definite state of paddy field. There is one focal hub utilized to control other hub. The fundamental capacity of RF module is to pass the message to the hub and work the framework.

Luca Bartoli, Macello De Rosa, Giuseppe La Rocca (2011) this study discussed the practical repositioning of agribusiness and rethinks the part of the ranch, by presenting new conceivable outcomes of generation and by cultivating multifunctional exercises. In this setting, new undertakings for horticultural expansion administrations (AES) rise, going for managing ranch advancement along either sectorial or regional ways. The aim is to break down the state of mind of Italian homesteads in accessing farming augmentation administrations. This is then portrayed through the AKAP (Awareness, Knowledge, Adoption, and Product) succession. Our outcomes affirm the legitimacy of the model and the need to assess AES in every period of the grouping, through an inside and out examination of the plausible stimulation for not receiving them.

III. RESEARCH DESIGN

a) Statement of the Problem:

In the current scenario, automation technologies are being developed by researchers that pose challenges about the efficiency and effectiveness with which we carry out the agricultural practices. New automated concepts are being developed due to the increased competition in the agricultural industry to enhance the agricultural productivity, but the problem lies in raising the awareness amongst the farming community for the implementation of agricultural automated products for improving their agricultural produce.

b) Objectives of the Study

1. To study on the awareness of the automated agricultural products and its implantation among the farming community.
2. To gain an insight into the awareness of the implementation of technology by the farmers.

3. To analyse the motives and needs that drives the farmers towards the implementation of automated agricultural products.
4. To investigate the relationship between the various factors that affects the farmers in implementing automated agricultural products.
5. To identify the price levels the farmers prefer to pay for automated agricultural products.

SIGNIFICANCE OF THE STUDY

The scope of the research is imperative considering the changing environment that poses a challenge for both agricultural automation companies and farming community. The research will help us to analyze the motives, needs and desires of farmers towards the implementation of automation to farming activity based on subsidies or incentives provided by the government. The study will provide relevant recommendations for the agriculture automation companies to be different from competitors for enhancing the overall productivity of farm yield and acting as a good incentive for the youth to take up the farming activity.

c) Hypothesis

H0: Incentives or subsidies provided by the government are not an important factor which creates awareness about the implementation of automation to farming activity.
H0: There exists no relationship between implementation of automation to farming activity with benefits availed from automation to farming activity.
H0: Benefits availed from implementation of automation and incentives or subsidies provided by the government for adoption of automation are independent of each other.
H0: Benefits and reliability of equipment for implementing automation in agriculture are independent.
H0: There exists no relationship between the type of crop grown and the type of soil farm holds.
H0: There exists no relationship between profits and types of crops grown.
H0: Barriers affecting for implementing automation of automation is not a good incentive for the youth to take up the farming activity.
H0: There is no significant difference between automation as a good incentive for the youth to take up the farming activity across education background.

d) Sampling

The sample size consists of 103 respondents from Belgaum district, Karnataka who are aware of the various subsidies provided by the government and the benefits availed from implementation of automation to farming activity. Convenient Sampling technique is used to collect data.

e) Sources of data

Primary data has been collected using a structured and focused questionnaire covering various aspects defining the dimensions of the research questions. Secondary data which helps us in analyzing the various aspects of research questions are collected from literature reviews, books, magazines and referred journals, fact sheets and online libraries and websites.

f) Analysis

The study is an exploratory study based on the primarily informed positivist philosophy and relies on both primary and secondary data. Data collected from the structured questionnaire was processed using SPSS software and MS-Excel. The processed data was analysed for Chi-square, and ANOVA.

IV. DATA ANALYSIS & INTERPRETATION

Hypothesis 1

H0: Incentives or subsidies provided by the government are not an important factor which creates awareness about the implementation of automation to farming activity.
Ha: Incentives or subsidies provided by the government are an important factor which creates awareness about the implementation of automation to farming activity.

Chi-square Tests			
	Value	**Df**	**Asymp. Sig. (2 sided)**
Pearson Chi-Square	25.114a	16	.048
Likelihood Ratio	17.956	16	.326
Linear-by-Linear Association	5.632	1	.018
N of Valid Cases	103		

Result

Since the Pearson Chi-Square calculated value (25.114, p=0.048) is less than the table value (0.05) we reject the null hypothesis. This means, the alternative hypothesis i.e. Incentives or subsidies provided by the government are an important factor which creates awareness about the implementation of automation to farming activity is accepted.

Inference: Incentives or subsidies provided by government are an important factor which creates awareness about the implementation of automation to farming activity.

Hypothesis 2

H0: There exists no relationship between implementation of automation to farming activity with benefits availed from automation to farming activity.

Ha: There exists a relationship between implementation of automation to farming activity with benefits availed from automation to farming activity.

Chi-square Tests			
	Value	**Df**	**Asymp. Sig. (2 sided)**
Pearson Chi-Square	26.843a	16	.043
Likelihood Ratio	27.765	16	.034
Linear-by-Linear Association	2.779	1	.096
N of Valid Cases	103		

Result

Since the Pearson Chi-Square calculated value (26.843, p=0.043) is less than the table value (0.05) we reject the null hypothesis. This means, the alternative hypothesis i.e. there exists a relationship between implementation of automation to farming activity with benefits availed from automation to farming activity is accepted.

Inference

There exists a relationship between implementation of automation to farming activity with benefits availed from automation to farming activity.

Hypothesis 3

H0: Benefits availed from implementation of automation and incentives or subsidies provided by the government for adoption of automation are independent of each other.

Ha: Benefits availed from implementation of automation and incentives or subsidies provided by the government for adoption of automation are dependent of each other.

Chi-square Tests			
	Value	**df**	**Asymp. Sig. (2 sided)**
Pearson Chi-Square	25.500a	16	.061
Likelihood Ratio	26.987	16	.042
Linear-by-Linear Association	8.331	1	.004
N of Valid Cases	103		

Result

Since the Pearson Chi-Square calculated value (25.500, p=0.061) is greater than the table value (0.05) we accept the null hypothesis. This means, the alternative hypothesis i.e. Benefits availed from implementation of automation and incentives or subsidies provided by the government for adoption of automation are dependent of each other is rejected.

Inference

Benefits availed from implementation of automation and incentives or subsidies provided by the government for adoption of automation are independent of each other.

Hypothesis 4

H0: Benefits and reliability of equipment for implementing automation in agriculture are independent.

Ha: Benefits and reliability of equipment for implementing automation in agriculture are dependent.

Chi-square Tests			
	Value	**df**	**Asymp. Sig. (2 sided)**
Pearson Chi-Square	23.481a	16	.101
Likelihood Ratio	21.238	16	.170
Linear-by-Linear Association	7.147	1	.008
N of Valid Cases	103		

Result

Since the Pearson Chi-Square calculated value (23.481, p=0.101) is greater than the table value (0.05) we accept the null hypothesis. This means, the alternative hypothesis i.e. Benefits and reliability of equipment for installing automation are dependent is rejected.

Inference

Benefits and reliability of equipment for implementing automation are independent.

Hypothesis 5

H0: There exists no relationship between the type of crop grown and the type of soil farm holds.

Ha: There exists a relationship between the type of crop grown and the type of soil farm holds

Chi-square Tests			
	Value	**df**	**Asymp. Sig. (2 sided)**
Pearson Chi-Square	18.087a	9	.034
Likelihood Ratio	19.014	9	.025
Linear-by-Linear Association	1.576	1	.209
N of Valid Cases	103		

Result

Since the Pearson Chi-Square calculated value (18.087, p=0.034) is less than the table value (0.05) we reject the null hypothesis. This means, the alternative hypothesis i.e. there exist a relationship between the type of crop grown and the type of soil farm holds is accepted.

Inference

There exists a relationship between the type of crop grown and the type of soil farm holds.

Hypothesis 6

H0: There exists no relationship between profits and types of crops grown.

Ha: There exists a relationship between profits and types of crops grown.

Chi-square Tests			
	Value	**df**	**Asymp. Sig. (2 sided)**
Pearson Chi-Square	18.782a	12	.049
Likelihood Ratio	21.183	12	.048
Linear-by-Linear Association	.026	1	.871
N of Valid Cases	103		

Result

Since the Pearson Chi-Square calculated value (18.782, p=0.094) is less than the table value (0.05) we reject the null hypothesis. This means, the alternative hypothesis i.e. there exists a relationship between profits and types of crops grown is accepted.

Inference

There exists a relationship between profits and types of crops grown.

Hypothesis 7

H0: Barriers affecting for implementing automation of automation is not a good incentive for the youth to take up the farming activity.

Ha: Barriers affecting for implementing automation is a good incentive for the youth to take up the farming activity.

Chi-square Tests			
	Value	**df**	**Asymp. Sig. (2 sided)**
Pearson Chi-Square	22.572a	16	.126
Likelihood Ratio	22.342	16	.132
Linear-by-Linear Association	1.113	1	.291
N of Valid Cases	103		

Result

Since the Pearson Chi-Square calculated value (22.572, p=0.126) is more than the table value (0.05) we accept the null hypothesis. This means, the alternative hypothesis i.e. Barriers affecting for installing of automation is a good incentive for the youth to take up the farming activity is rejected.

Inference

Barriers affecting for implementing automation is not a good incentive for the youth to take up the farming activity.

Hypothesis 8

H0: There is no significant difference between automation as a good incentive for the youth to take up the farming activity across education background.

Ha: There is a significant difference between automation as a good incentive for the youth to take up the farming activity across education background.

One Way Anova Result for Average of automation as a good incentive for the youth to take up the farming activity by Education Background.

Dimension	**Education Background**	**Count**	**Mean**	**Std. Deviation**	**F Value**	**Sig.**
Average of factors preferred before investing	Post Graduate	20	1.8000	.69585	2.989	.035
	Under Graduate	24	2.1667	1.00722		
	Pre University	37	2.1892	1.10146		
	Higher Secondary	22	2.7273	1.12045		
	Total	103	2.2233	1.04724		

Result

The One Way ANOVA result from the Table shows that there is an overall significance in mean score of automation as a good incentive for the youth to take up the farming activity ($F=2.989$, $p=0.0\,35$, $p<0.05$) across education background. Since the p-value is less than the table value (0.05), we reject the null hypothesis. This means, the alternative hypothesis i.e. There is a significant difference between automation as a good incentive for the youth to take up the farming activity across education background is accepted.

Inference

There is a significant difference between automation as a good incentive for the youth to take up the farming activity across education background.

V. FINDINGS OF THE STUDY

It is evident from the above analysis that the majority of the respondents (constituting 37.9% of the sample) belong to the age group of 20-30 years. This is followed by those from the age group of 40 to 50 years and 50 and above, which constitute 35% and 7.8%, respectively, of the sample. While the respondents from 30 to 40 years age group constitute 19.4% of the sample. The majority (constituting 80.6% of the sample) of the respondents are male. The remaining 19.4% are female. 56% of the respondents from the sample are married and the remaining 44% are unmarried. The majority of the respondents, constituting 35.9% of the sample have completed their Pre-university. This is followed by those from the Postgraduate and Undergraduates, who constitute 19.4% and 23.3 %, respectively, of the sample and the respondents from higher secondary education background constitute 21.4% of the sample.

Out of the analyzed respondents, the single largest category (constituting 31.1% of the sample) fall under the income level of 4 lakh to 6 lakh. This is followed by those from the income level of 2 lakh to 4 lakh and 6lakh to 8 lakhs which constitute 24.3%, and 18.4% respectively, of the sample. While the respondents from income level of 1 lakhs to 2 lakh and 8 lakh to 10 lakh constitute 7.8% and 18.4% of the sample respectively.

The majority of the respondents (77.7%) are aware about the agriculture automated products.
The majority of respondents (24.3%) use greater percentage of land for the purpose of irrigation.
The majority of the respondents (39.8%) grow fruits and vegetables.
The majority (44.7%) of the farms hold red soil.

The majority of the farmers (81.6%) are aware of the government subsidies slotted for farmers for the implementation of agriculture automated products.

The majority (43.7%) of the respondents feel that their experience about agricultural automated products is good.

The majority (49.5%) of the respondents agree that profits depend on the selection of type of crops.

We can observe that the majority of respondents (52.4%) agree that the subsidies awareness helped them in implementation of agriculture automated products

Reliability of the equipment is a major hindrance for installing automation according to the majority (52.4%) of the respondents.

From this study we can observe that the majority (56.3%) of respondents agree that incentives or subsidies provided by the government is an important factor that influences in the adoption of automation.

The majority (56.3%) of the respondents agree that Krishi organised by government is a major platform for providing information about agriculture automated products.

We can observe that in future, majority (36.9%) of the farmers will implement automation to farming activity.

43.7% of the respondents agree that automation is good incentive for the youth to take up the farming activity.

It was evident from chi-square test that incentives or subsidies provided by the government is an important factor which creates awareness about subsidy for implementation of automation to farming activity.

We can observe that there exists no relationship between implementation of automation to farming activity with benefits availed from automation to farming activity.

It is observed that the benefits availed from implementation of automation and incentives or subsidies provided by government for adoption of automation are independent of each other.

From the study we can observe that benefits and reliability of equipment for installing automation are dependent.

We can observe that there exists a relationship between type of crop grown and type of soil farm holds.

From the study we can observe that there exists a relationship between profits and types of crops grown.

It is observed that the barriers affecting installing of automation is not a good incentive for the youth to take up the farming activity.

It was evident from ANOVA that the automation is a good incentive for the youth to take up the farming activity preferred by respondents across different educational backgrounds

VI. SUGGESTIONS

With booming innovations, new automated concepts are being developed to enhance agricultural productivity due to the increased competition in the agricultural industry.

Since the farmers choice to implement automation to farming activity is in light of the apparent nature of the automated products being offered, industrialists need to convey automated products complying with the pertinent quality properties, furthermore having the ability to fulfil their necessities.

The industrialists need to consider the awareness, needs and motives of the farmer towards the implementation of automation to farming activity.

Industrialists need to apply the suggestions based on the findings of this study while making their major policy decisions on offering the automated agricultural products to the famers.

Industrialists need to come up with new formats of awareness programmes that could be beneficiary to the farmers describing the incentives or subsidies provided by the government towards the implementation of automated agricultural products.

In the fast changing environment automation agriculture companies should evolve continuously to fulfil the desire, needs and motives of the farmers towards the implementation of automation to farming activity in order to create the demand from buyers. This approach will help the automation companies to improve the products and services.

They should also have improvement in their marketing strategy to be different from competitors for creation of value for money concept to the consumers.

SUGGESTIONS TO THE ORGANISATION

Gipzonics techno labs should come up with new formats of awareness programmes that could be beneficiary to the farmers describing the incentives or subsidies provided by government towards the implementation of automated agricultural products to capitalize the changing environment and in order to drive the perception of the farmers. The companies should evolve continuously to fulfil the desire, needs and motives of the farmers towards the implementation of automation to farming activity in order to create the demand from buyers. They should also make improvements in their marketing strategy to be different from competitors for creation of value for money concept to the consumers.

VII. CONCLUSION

In the current scenario due to fast changing environment, demand for automated agriculture products has reached unprecedented level. The reason for this might be the change in consumption pattern and income level of the farmers resulting in adoption of automation to farming activity. The agriculture automation industry is fast evolving in order to generate demand from buyers. However, lack of sufficient research in India on this account, encouraged this research. The purpose of this study was to advance the understanding about the awareness, motives, needs and desires of farmers towards the implementation of automation to farming activity based on subsidies or incentives provided by government. The research also analyzed the price levels farmers prefer to pay for automated agriculture products.

It is evident from the study that reliability of equipment is a major hindrance towards adoptions of automation to farming activity. Hence there are huge opportunities for the automated companies to bring in innovation in the competitive market to drive the perception and purchase intention of farmers towards implementation of automation to farming activities. Automated agriculture companies take the role of avatar in understanding the needs, motives and desires of the farmers towards implementation of automation to farming activity and to be different from competitors for enhancing the overall productivity of farm yield and acting as a good incentive for the youth to take up the farming activity.

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