

International Journal of Agriculture Extension and Social Development

Volume 7; Issue 3; March 2024; Page No. 01-05

Received: 02-01-2024 Accepted: 03-02-2024

Indexed Journal Peer Reviewed Journal

Development and standardization of a scale to measure impact of ATIC on its **beneficiaries**

¹Kausadikar KD, ²Kadam RP and ³Shende SS

¹Ph.D. Scholar, Department of Agricultural Extension Education, VNMKV, Parbhani, Maharashtra, India

²H.O.D, Department of Agricultural Extension Education, VNMKV, Parbhani, Maharashtra, India

³Ph.D. Scholar, Department of Agricultural Extension Education, VNMKV, Parbhani, Maharashtra, India

DOI: https://doi.org/10.33545/26180723.2024.v7.i3a.387

Corresponding Author: Kausadikar KD

Abstract

A method used for evaluating or ordering entities based on quantitative characteristics or attributes is known as scaling. "Procedure for assigned numbers or other symbols to a property of objects in order to impart some of the characteristics of numbers to the properties in question" is the definition of scaling. The present investigation, was conducted in the region of Marathwada within 2021 and 2022, planned at developing and standardize a scale to measure the impact of Agricultural Technology Information Centres (ATIC) among the beneficiaries. The Agricultural Technology Information Center (ATIC) impact scale was developed and standardised according to the Likert (1932) summated rating method. 65 statements, expressing the impact of Agricultural technology information centre by Vasantrao Nike Marathwada Krushi Vidyapeeth, Parbhani on farmers have been collected under four components. These statements were edited on the basis of criteria suggested by Thurstone (1946), Likert (1932) and Edward (1957). Total 42 statements were retained after editing and sent to 160 judges to determine the relevancy. Out of that 103judges responded. After calculation of relevancy score, t-value calculation. Test-retest method of reliability final scale contain 30 statements to measure the impact of ATIC Scheme. The scale contain three continuum i.e. 'Strongly Agree" to "Strongly Disagree". The scoring pattern adopted was 3 to 1, in which, 3 weighs to Strongly Agree response, 2 to Partially Agree response, 1 to strongly disagree response for positive statement and negative statement, the scorning pattern was reversed.

Keywords: Scale, impact, likert, ATIC, Marathwada, reliability, validity

Introduction

Agricultural Technology Information Centre (ATIC)

The main role of agricultural extension education is to communicate the latest agricultural technology generated from state, central Agriculture Universities and research station to the farmers. Hence, research-extension-farmers (R-E-F) linkage is the essential element of agricultural extension. Indian farmers need to be well informed and well trained in the field of management therefore now the farmers are needed to replace traditional practices by using modern information technologies with the help of agricultural technology information centre.

For effective Dissemination of Latest agriculture information National Agriculture Technology Project (NATP) under the financial assistance of the World Bank was launched by Indian council of Agricultural Research (ICAR), New Delhi.

Establishment of Agricultural Technology Information Center (ATIC) under NATP has provided an efficient mechanism for information dissemination. ATIC acts as a single window system for farmers.

Objective

This research was conducted to measure Impact of ATIC, VNMKV on its beneficiary. A scale has been developed to measure the Impact of ATIC on its beneficiaries.

Materials and Methods

The present investigation was conducted to measure the impact of ATIC among its beneficiaries. In order to measure the Impact of ATIC an impact scale was developed by adopting method of summated rating suggested by Likert (1932)^[4]. The details of the steps which followed during developing and standardization of the scale are mentioned as below.

Identification of dimension

ATIC is the dimension related to impact of Agricultural Technology Information Centre on its beneficiaries, in this research which is identified on the basis of review of literature and discussion with the experts who is specialist in extension education.

Collection of items and editing

There are total 65 statements, expressing the impact of Agricultural technology information centre by Vasantrao Nike Marathwada Krushi Vidyapeeth, Parbhani on its beneficiaries have been gathered from available literature, websites and in dissuasion with the specialists in the area of extension education and they were edited on the basis of criteria suggested by Thurstone (1946)^[3], Likert (1932)^[4] Krishi Vigyan

and Edward (1957)^[1]. Out of 65 statements, 42 statements were remained after editing. These statements were found to be non-ambiguous and non-factual.

Relevancy test

The collected 42 statements, were sent to the 160 judges which are Expert, Specialist in the disciplines of Agricultural Extension which are senior faculty members from the State and Central Agricultural Universities, Research stations and Subject Matter Specialists of the Krishi Vigyan Kendras, Extension Scientists from the ICAR. They were requested to show their responses regarding each of the statements on a three point continuum namely, 'most relevant' 'relevant' and 'not relevant' with the score of 3, 2, and 1, respectively. Also request to give their opinion. A total of 103 judges responded to the appeal and returned the duly filled in schedules. On the basis of the responses received, the relevancy weight age, relevancy percentage and mean relevancy score for each statement were calculated through following formulae these value presented in Table 1.

 Table 1: List of total statements considered for scale construction to measure the impact of agricultural technology information centre on its beneficiaries

NoOrderRPRPMRRPMRRPMR1-ATTC helps in kepring agricultural production at sustainable level0.8089480.80432.808113-Standard of living of fameres improved due to increase in annual income through benefits of ATIC programme0.7042376.42232.54.544-Annual income of beneficieries was increased due to imprementation of ATIC programme0.7642376.42232.54.545-Increase in income has resulted in increase in annual income through benefits of ATIC programme0.7642376.42232.54.546-Improved their per capita income and help to lead a better standard of living0.7642376.42232.54.547-ATIC training helps to start Agro based business for trutal youth0.7642376.42282.8345410Better seasonal corp management is possible due to ATIC cap advisory services.0.83188.33338.33332.70277-Communication aids, like radio, TV, Internet, mobile phone, computer etc. helps to communicate beneficiaries regarding0.84958.49592.262122-Farm mechanization is promoted due to ATIC0.764237.642282.70373Farm mechanization is promoted well on time with the help of wasther advisory0.841468.14632.703740.74237.642282.54315-Information about hivetack management Holes bee face are of his investok.0.8130113.0082.703	Sr.	Statemasta	Relevancy			
IDECOMPICE INSPICTIDECOMPIDECOMP8.88422.6819IDECOMPIDECOMP5.69982.5135IDECOMPIDECOMP7.64282.5459IDECOMPIDECOMP7.64282.5459IDECOMPIDECOMP7.64282.5459IDECOMPIDECOMP7.64282.5459IDECOMPIDECOMP7.64282.5459IDECOMPIDECOMP7.64282.5459IDECOMPIDECOMP7.64282.5451IDECOMPIDECOMP1.64282.5451IDECOMPIDECOMP1.64282.5451IDECOMPIDECOMP1.64282.5451IDECOMPIDECOMP1.64282.5451IDECOMPATTC void generate new employment opportunities in rural south0.76426.6428IDECOMPIDECOMP1.77022.5874IDECOMPIDECOMP0.85362.6871IDECOMPIDECOMP0.85368.35352.6871IDECOMPIDECOMP0.85368.35352.6874IDECOMPIDECOMP0.85368.35352.6874IDECOMPIDECOMPIDECOMP0.85368.35352.6874IDECOMPIDECOMPIDECOMP0.85368.35352.6874IDECOMPIDECOMPIDECOMP0.83338.33332.7027IDECOMPIDECOMPIDECOMP0.83378.33332.7027IDECOMPIDECOMPIDECOMP0.83378.33382.7027IDECOMPIDECOMP	No	Statements		RP	MRS	
1 ATTC helps in knoping agricultural production at sustainable level 0.80894 8.08945 2.68191 3 Standard of living of farmers improved due to increase in annual income through benefits of ATIC programme 0.70423 7.6422 2.5434 4 Annual income of beneficieries was increased due to inprementation of ATIC programme 0.70423 7.6422 2.5434 5 Increase in income has resulted in increase in annual income through benefits of ATIC programme 0.70423 7.6428 2.54345 6 Improved their per capita income and help to lead a better standard of living 0.70412 7.6428 2.83451 7 ATIC training helps to start Agro based basiness for rural youth 0.78455 7.8352 2.83411 10 Better seasonal crop management is possible due to ATIC argo advisory services. 0.8336 8.3333 3.27027 11 Communication aids, like radio, TV, Internet, mobile phone, computer etc. helps to communicate beneficiaries regarding and the season management. 0.8433 8.4333 2.7027 2 Offmanito mobil investork, management ATIC 0.8433 8.3333 2.7027 4 Offmanito mobil investork, management ATIC 0.84146		Economic Impact				
2 ATTC helps to improve personal and socio-economic status of beneficiaries. 0.7501 75.6098 25.1351 3 Standard living of fames improved due to incrases due to implementation of ATTC programme 0.76423 76.222 25.4545 6 Improved their per capita income and help to lead a better standard of living 0.76423 76.222 25.5405 6 Improved their per capita income and help to lead a better standard of living 0.76423 76.4222 2.5434 7 ATTC would generate new employment opportunities in traal areas 0.6166 6.1666 1.85946 8 ATTC ravining helps to sart Agross husel business for rural youth 0.74453 7.4552 2.83784 10 Proper technical guidance through ATTC lesson advisory services. 0.85566 85.3559 2.83784 2 Communication sids, like radio, TV, Imernet, mobile plone, computer etc. helps to commanicate beneficiaries regarding 0.84959 84.9593 2.8432 2 Farm mechanization is proper insect pest and disease management. 0.8333 8.3333 2.70727 4 Information about livestock management fuels to atrop er rotice toom mesures. 0.84146 8.4.1463 <t< td=""><td>1</td><td>ATIC helps in keeping agricultural production at a sustainable level</td><td>0.80894</td><td>80.8943</td><td>2.68919</td></t<>	1	ATIC helps in keeping agricultural production at a sustainable level	0.80894	80.8943	2.68919	
3 Standard of living of farmers improved due to increase in annual income through benefits of ATIC programme 0.76423 76.4223 5.5454 6 Increase in income as resulted in increase in ability of rural households to purchase food grains other essential commodifies detectation and healthcase 0.76823 76.4223 2.55450 6 Improved their per capita income and help to lead a better standard of living 0.76823 76.4228 2.5454 7 ATIC would generatine evenployment opportunities in rural areas 0.6166 61.666 1.85543 8 ATIC training helps to start Ago based basiness for rural youth 0.82114 82.1182 2.23774 7 Proper technical guidance through ATIC lessen economic burden of farmers 0.82114 82.1182 2.24732 8 Ommunication aids, like radio, TV, Internet, mobile phone, computer ct: helps to communicate beneficiaries regarding 0.84959 84.9593 2.84352 4 Ommunication about livestock management helps the farmer to take care of his livestock 0.8114 84.1463 2.7027 4 Weed management cabe aboo enore time with help of ATIC 0.76423 7.6428 2.54054 5 Information about livestock management fedg	2	ATIC helps to improve personal and socio-economic status of beneficiaries.	0.7561	75.6098	2.51351	
4 Annual income of beneficieries was increased due to implementation of ATIC programme 0.76423 76423 25454 5 Increase in income has resulted in increase in ability of rural households to purchase food grains other essential 0.76829 768293 255405 6 Improved their per capita income and help to lead a better standard of living 0.76823 764223 254451 7 ATIC would generate new employment opportunities in rural areas 0.6166 61.666 1.85946 8 Retter seasonal crop manugement is possible due to the ATIC agor advisory services. 0.83568 83.569 2.87441 10 Proper technical guidance through ATIC lessen economic burden of farmers 0.84114 8.41333 2.72737 1 Communication aids, like radio, TV, Internet, mobile phone, computer etc. helps to communicate beneficiaries regarding 0.84959 8.49593 2.82432 2 Farm mechanization is promoted due to ATIC 0.83333 8.3333 2.7027 4 Weed management cape tapes the farmer to take care of his livestock 0.81301 8.3333 2.7027 5 Information about livestock management helps the farmer to take care of his livestock 0.84146	3	Standard of living of farmers improved due to increase in annual income through benefits of ATIC programme	0.78049	78.0488	2.59459	
Increase in income has resulted in increase in ability of raral households to purchase fod grains ofher essential 0.76829 76.8293 2.55405 6 Improved their per capita income and help to lead a better standard of living 0.76423 76.4228 2.54054 7 ATTC would generate new employment opportunities in traal areas 0.6166 0.1668 10.668 15.6509 2.83784 9 Better seasonal crop management is possible due to the ATTC agro advicory services. 0.83148 82.1138 2.7027 10 Proper technical guidance through ATTC lessen economic burden of fameres 0.82114 82.1138 2.7027 1 Communication aids, like radio, TV, Internet, mobile phone, computer etc. helps to communicate beneficiaries regarding 0.84959 84.9592 2.82432 2 Param medianization is promoted due to ATTC 0.82927 82.9268 2.7027 4 Weed management laps be for amme to take care of his livestock 0.81301 81.3008 2.7027 6 Farm operations like sowine, marketing etc can be performed well on time with the help of weather advisory 0.84446 4.1463 2.7973 8 ATTIC helps farmers in proper dised to proper crop potection meas	4	Annual income of beneficieries was increased due to implementation of ATIC programme	0.76423	76.4228	2.54.54	
Image: commonities education and healthcare Commonities education and healthcare Commonities education and health care 6 Improved their per capita income and help to lead at better standard of living 0.76422 76.4228 2.54054 7 ATTIC would generate new employment opportunities in rural areas 0.6166 61.666 18.5944 8 ATTIC training programs provide by the to the ATIC area advisory services. 0.85366 85.3659 2.83743 9 Better seasonal crop management is possible due to the ATIC area advisory services. 0.82114 82.1138 7.27373 1 Communication aids, like radio, TV, Internet, moltle phone, computer etc. helps to communicate beneficiaries regarding 0.84959 84.9593 2.82422 2 Farm mechanization is promoted due to ATIC 0.76423 76.4228 2.5057 3 ATIC helps farmers in proper incet pest and disease management. 0.83333 83.333 2.7007 4 Hordmation about livestock management helps the farmer to take care of his livestock. 0.81408 84.1463 2.7973 5 Information about livestock management helps the farmer to take care of his livestock. 0.81416 84.1463 2.7973	5	Increase in income has resulted in increase in ability of rural households to purchase food grains other essential	0.76829	76.8293	2.55405	
6 Improved ther per capita ancome and help to lead a better standard of living 0.76423 76.428 25.439 7 ATTIC would generate new employment opportunities in rural areas 0.61666 61.85946 8 ATTIC Taining helps to start Agro based business for rural youth 0.78455 78.4553 2.68114 9 Better seasonal crop management is possible due to the ATTIC agro advisory services. 0.82114 82.1138 2.72773 10 Proper technical guidance through ATTIC less on communicate beneficiaries regarding business in promoted due to ATIC 0.84959 84.9593 2.82432 2 Farm mechanization is promoted due to ATIC 0.82027 82.9268 2.75675 3 ATIC helps farmers in proper insect pest and disease management. 0.8333 83.333 2.7027 4 Weed management can be done on time with the help of ATIC 0.76423 2.7427 5 Information about livestock management helps the farmer to take care of his livestock 0.81301 81.4063 2.7973 7 Timely pest and disease forecasting leads to proper crop protection measures 0.84146 84.1463 2.7973 8 ATIC helps farmers in	-	commodifies education and healthcare	0 5 4 1 9 9	T (1000		
7 ATIC would generate new employment opportunities in rural areas 0.0166 61.666 1.85946 8 ATIC training helps to start Argo based business for rural youth 0.7545 78.4552 26.0811 9 Better seasonal crop management is possible due to the ATIC argo advisory services. 0.8114 82.1138 2.72973 Technological Impact 1 Communication aids, like radio, TV, Internet, mobile phone, computer etc. helps to communicate beneficiaries regarding 0.84959 84.9593 2.82432 2 Farm mechanization is promoted due to ATIC 0.82333 83.3333 2.70027 3 ATIC helps farmers in proper insect pest and disease management. 0.81301 81.3008 2.7027 6 Farm operations like sowing, harvesting, marketing etc can be performed well on time with the help of weather advisory 0.84146 84.1463 2.7973 8 ATIC helps farmers in forcive annual planning of crop culvivation practices 0.84146 84.1463 2.7973 9 ATIC chelps farmers in effective annual planning of crop culvivation practices 0.84146 84.1463 2.7973 10 Weather advisory delivered through ATIC can avert crop los	6	Improved their per capita income and help to lead a better standard of living	0.76423	76.4228	2.54054	
8 ATIC training helps to start Agro based business for rural youth 0.743:5 7.43:55.3 2.60811 9 Better seasonal crop management is possible due to the ATIC agro advisory services. 0.82114 82.1138 2.7273 Technological Impact Technological Impact 2 Farm mechanization is promoted due to ATIC 0.84959 84.9593 2.82432 2 Farm mechanization is promoted due to ATIC 0.84959 84.9593 2.8742 2 Farm mechanization is promoted due to ATIC 0.84959 84.9593 2.7057 3 ATIC helps farmers in proper insect pest and disease management. 0.8333 83.3333 2.7002 4 Weed management helps the farmer to take care of his livestock 0.81140 81.4008 2.7097 6 Farm operations like sowing, harvesting, marketing etc. can be performed well on time with the help of weather advisory services. 0.84146 84.1463 2.7973 8 ATIC helps farmers in effective annual planning of crop cultivation practices 0.84146 84.1463 2.7927 10 Weather advisory delivered furough ATIC no vert cop loses	7	ATIC would generate new employment opportunities in rural areas	0.6166	61.666	1.85946	
9 Better seasonal crop management is possible due to the ATIC agro advisory services. 0.83566 85.3659 2.83734 10 Proper technical guidance through ATIC lessen comonic burden of farmers 0.8414 82.1132 2.72973 1 Communication aids, like radio, TV, Internet, mobile phone, computer tech. helps to communicate beneficiaries regarding 0.84959 84.9593 2.82432 2 Farm mechanization is promoted due to ATIC 0.82927 82.9206 2.75675 3 ATIC helps farmers in proper insect pest and disease management. 0.8333 83.3333 8.3333 8.3332 2.7027 4 Weed management can be done on time with help of ATIC 0.76423 7.64228 2.54054 5 Information about livestock management helps the farmer to take care of his livestock 0.81301 81.3008 2.7027 6 Farm operations like sowing, harvesting, marketing etc can be performed well on time with thelp of weather advisory 0.84146 84.1463 2.7973 7 Timely pest and disease forecasting leads to proper crop protection measures 0.84146 84.1463 2.7973 8 ATIC helps farmers in effective annual planning of crop cultivation practi	8	ATIC training helps to start Agro based business for rural youth	0.78455	78.4553	2.60811	
10 Proper technical guidance through ATIC lessen economic burden of Tarrers 0.82114 82.7187 72.72975 Technological Impact 1 Communication aids, like radio, TV, Internet, mobile phone, computer etc. helps to communicate beneficiaries regarding benefits about ATIC 0.84959 84.9593 2.82432 2 Farm mechanization is promoted due to ATIC 0.8333 83.3333 2.77027 4 Weed management helps the farmer to take care of his livestock 0.8101 81.3008 2.7027 6 Farm operations like sowing, harvesting, marketing etc can be performed well on time with the help of weather advisory services 0.84146 84.1463 2.7973 7 Timely pest and disease forecasting leads to proper crop protection measures 0.84146 84.1463 2.7973 8 ATIC rolepts farmers in effective annual planning of crop cultivation practices 0.94144 94.141 2.84323 9 ATIC reduces frequency of sprays in crops 0.6433 65.3333 196217 10 Weather advisory delivered through ATIC can avert crop losses 0.81018 81.3008 2.7027 12 Proper input management reduces economic issues of	9	Better seasonal crop management is possible due to the ATIC agro advisory services.	0.85366	85.3659	2.83784	
$\begin{tabular}{ c c c c c c } \hline Technological Impact Technological Impact is provided in the child phone, computer etc. helps to communicate beneficiaries regarding 0.84959 84.9593 2.82432 benefits about ATIC benefits about ATIC is provided us to ATIC 0.82927 82.9268 2.75675 3 is a ATIC helps farmers in proper insect pest and disease management. 0.83333 83.3333 2.77027 4 Weed management can be done on time with help of ATIC 0.76423 76.4228 2.54054 0.81301 81.008 2.7027 76 Farm operations like sowing, harvesting, marketing etc can be performed well on time with help of weather advisory 0.84146 84.1463 2.7973 0.81301 81.3008 2.7027 0.81301 81.3008 2.7027 0.81301 81.3008 2.7027 0.81301 81.3008 2.7027 0.81301 81.3008 2.7027 0.81414 1.4142 0.82432 0.84146 0.81416 0.81303 0.81301 81.3008 2.7027 0.81414 0.84142 0.84232 0.84146 0.81106 0.81301 81.3008 2.7027 0.81301 81.300 0.86179 0.81301 81.3008 2.7027 0.91414 0.81412 0.82432 0.92432 0.81301 0.81301 81.3008 2.7027 0.91414 0.91414 0.84142 0.84142 0.91414 0.91414 0.84143 0.91414$	10	Proper technical guidance through ATIC lessen economic burden of farmers	0.82114	82.1138	2.72973	
1 Communication aids, like radio, TV, Internet, mobile phone, computer etc. helps to communicate beneficiaries regarding benefits about ATIC 0.84959 84.9593 2.82432 2 Image: Communication is promoted due to ATIC 0.82333 2.73675 3 ATIC helps farmers in proper insect pest and disease management. 0.83333 2.73675 4 Weed management nelps the farmer to take care of his livestock 0.81401 81.1068 2.7027 6 Farm operations like sowing, harvesting marketing et can be performed well on time with the help of weather advisory 0.84146 84.1463 2.7973 7 Timedy pest and disease forecasting leads to proper crop protection measures 0.84146 84.1463 2.7973 8 ATIC helps farmers in effective annual planning of crop cultivation practices 0.94144 94.1441 2.82432 9 ATIC reduces frequency of sprays in crops 0.6333 65.3333 196217 10 Weather advisory delivered through ATIC can avert crop losses 0.81301 81.3008 2.7027 12 Proper input management reduces conomic issues of the farmers 0.81301 81.3008 2.7027 14 Atvanced		Technological Impact				
2 Farm mechanization is promoted due to ATIC 0.82927 82.9268 2.75675 3 ATIC helps farmers in proper insect pest and disease management. 0.83333 8.73032 2.7027 4 Weed management can be done on time with help of ATIC 0.76423 7.64228 2.54054 5 Information about livestock management helps the farmer to take care of his livestock 0.8110 81.3008 2.7027 6 Farm operations like sowing, harvesting, marketing etc can be performed well on time with the help of weather advisory 0.84146 84.1463 2.7973 7 Timely pest and disease forecasting leads to proper crop protection measures 0.84146 84.1463 2.7973 8 ATIC helps farmers in effective annual planning of crop cultivation practices 0.94144 94.1441 2.8432 9 ATIC reduces frequency of sprays in crops 0.6433 65.3333 1.96217 10 Weather advisory delivered through ATIC can avert crop losses 0.81301 81.3008 2.7027 12 Proper input management reduces economic losses of the farmers 0.76423 7.64228 2.54054 13 Advanced technology	1	Communication aids, like radio, TV, Internet, mobile phone, computer etc. helps to communicate beneficiaries regarding benefits about ATIC	0.84959	84.9593	2.82432	
3 ATIC helps farmers in proper insect pest and disease management. 0.83333 8.3333 2.77027 4 Weed management can be done on time with help of ATIC 0.76423 76.428 2.54054 5 Information about livestock management helps the farmer to take care of his livestock 0.81103 81.3008 2.7027 6 Farm operations like sowing, harvesting, marketing et can be performed well on time with the help of weather advisory services 0.84146 84.1463 2.7973 7 Timely pest and disease forecasting leads to proper crop protection measures 0.84146 84.1463 2.7973 8 ATIC helps farmers in effective annual planning of crop cultivation practices 0.94144 94.1411 2.82432 9 ATIC reduces frequency of sprays in crops 0.6433 65.3331 1.96217 10 Weather advisory delivered through ATIC can avert crop losses 0.81301 81.3008 2.7027 12 Proper irrigation management reduces economic issues of the farmers 0.8101 81.3008 2.7027 12 Proper irrigation management reduces economic issues of the farmers 0.8101 81.3008 2.7027 13 </td <td>2</td> <td>Farm mechanization is promoted due to ATIC</td> <td>0.82927</td> <td>82.9268</td> <td>2.75675</td>	2	Farm mechanization is promoted due to ATIC	0.82927	82.9268	2.75675	
4Weed management can be done on time with help of ATIC0.7642376.42282.540545Information about livestock management helps the farmer to take care of his livestock0.8130181.30082.70276Farm operations like sowing, harvesting, marketing etc can be performed well on time with the help of weather advisory0.8414684.14632.79737Timely pest and disease forecasting leads to proper crop protection measures0.8414684.14632.79738ATIC helps farmers in effective annual planning of crop cultivation practices0.9414494.14412.824329ATIC reduces frequency of sprays in crops0.643365.33331.9621710Weather advisory delivered through ATIC can aver crop losses0.825282.52032.702712Proper input management reduces economic losses of the farmers0.7642376.42282.5405413Advanced technology provided in ATIC programme increases the productivity of crops.0.8130181.30082.702714ATIC provides information of different university products, their use and sales (seeds, nursery, implements, bio fertilizers, publications)0.8617986.17892.864862Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field0.8455384.55282.810815The training programmers of ATIC helps in increasing knowledge level of farmers, farm women and rural youth.0.8455384.55282.810815The technical guidance through ratining programmer can not only improve the social b	3	ATIC helps farmers in proper insect pest and disease management.	0.83333	83.3333	2.77027	
5 Information about livestock management helps the farmer to take care of his livestock 0.81301 81.3008 2.7027 6 Farm operations like sowing, harvesting, marketing etc can be performed well on time with the help of weather advisory 0.84146 84.1463 2.7973 7 Timely pest and disease forecasting leads to proper crop protection measures 0.84146 84.1463 2.7973 8 ATIC helps farmers in effective annual planning of crop cultivation practices 0.94144 94.1441 2.82432 9 ATIC reduces frequency of sprays in crops 0.6433 65.333 1.96217 10 Weather advisory delivered through ATIC can avert crop losses 0.8252 82.5203 2.74324 11 Proper iringation management reduces economic issues of the farmers 0.76423 76.4228 2.54054 13 Advanced technology provided in ATIC programme increases the producivity of crops. 0.81301 81.3008 2.7027 1 ATIC provides information of different university products, their use and sales (seeds, nursery, implements, bio fertilizers, publications) 0.86179 86.1789 2.86486 2 Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field 0.84153 84.5528<	4	Weed management can be done on time with help of ATIC	0.76423	76.4228	2.54054	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	5	Information about livestock management helps the farmer to take care of his livestock	0.81301	81.3008	2.7027	
7 Timely pest and disease forecasting leads to proper crop protection measures 0.84146 84,1463 2.7973 8 ATIC helps farmers in effective annual planning of crop cultivation practices 0.94144 94,1441 2.82432 9 ATIC reduces frequency of sprays in crops 0.6433 65.3333 1.96217 10 Weather advisory delivered through ATIC can avert crop losses 0.8252 82.5203 2.74324 11 Proper input management reduces economic losses of the farmers 0.76423 76.4228 2.54054 13 Advanced technology provided in ATIC programme increases the productivity of crops. 0.81301 81.3008 2.7027 14 Atric provides information of different university products, their use and sales (seeds, nursery, implements, bio fertilizers, publications) 0.86179 86.1789 2.86486 2 Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field Tour etc. 0.84146 84.1553 84.5528 2.81081 3 The training programmers of ATIC help in increasing knowledge level of farmers, farm women and rural youth. 0.84553 84.5528 2.81081 5 The technical guidance through training programme can not only improve the social but the economic status of	6	Farm operations like sowing, harvesting, marketing etc can be performed well on time with the help of weather advisory services	0.84146	84.1463	2.7973	
8 ATIC helps farmers in effective annual planning of crop cultivation practices 0.94144 94.1441 2.82432 9 ATIC reduces frequency of sprays in crops 0.6433 65.3333 1.96217 10 Weather advisory delivered through ATIC can avert crop losses 0.8325 82.5203 2.74324 11 Proper input management reduces economic losses of the farmers 0.76423 76.4228 2.54054 13 Advanced technology provided in ATIC programme increases the productivity of crops. 0.81301 81.3008 2.7027 Marketing Impact 1 ATIC provides information of different university products, their use and sales (seeds, nursery, implements, bio fertilizers, publications) 0.86179 86.1789 2.86486 2 Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field Tour etc. 0.84553 84.5528 2.81081 3 The training conducted by ATIC are useful in motivating the farmers towards adoption of the improved agricultural practices. 0.84553 84.5528 2.81081 5 The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries 0.81707 81.7073 2.71622 7 ATI	7	Timely pest and disease forecasting leads to proper crop protection measures	0.84146	84,1463	2,7973	
Sector Sector Sector Sector 9 ATIC reduces frequency of sprays in crops 0.6433 65.3333 1.96217 10 Weather advisory delivered through ATIC can avert crop losses 0.8252 82.5203 2.74324 11 Proper imput management reduces economic losses of the farmers 0.81301 81.3008 2.7027 12 Proper irrigation management reduces economic issues of the farmers 0.81301 81.3008 2.7027 14 Advanced technology provided in ATIC programme increases the productivity of crops. 0.81301 81.3008 2.7027 1 ATIC provides information of different university products, their use and sales (seeds, nursery, implements, bio fertilizers, publications) 0.86179 86.1789 2.86486 2 Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field Ure etc. 0.88114 82.1138 2.72973 3 The training programmers of ATIC help in increasing knowledge level of farmers, farm women and rural youth. 0.84553 84.5528 2.81081 5 The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries 0.76423 </td <td>8</td> <td>ATIC helps farmers in effective annual planning of crop cultivation practices</td> <td>0.94144</td> <td>94.1441</td> <td>2.82432</td>	8	ATIC helps farmers in effective annual planning of crop cultivation practices	0.94144	94.1441	2.82432	
Internet relation request request requests Out 100 10 Weather advisory delivered through ATIC can avert crop losses 0.8252 82.5203 2.74324 11 Proper input management reduces economic losses of the farmers 0.76423 76.4228 2.54054 13 Advanced technology provided in ATIC programme increases the productivity of crops. 0.81301 81.3008 2.7027 Marketing Impact 1 Advanced technology provided in ATIC programme increases the productivity of crops. 0.81101 81.3008 2.7027 11 Advanced technology provided in ATIC programme increases the productivity of crops. 0.86179 86.1789 2.86486 2 Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field 0.82114 82.1138 2.72973 3 The training conducted by ATIC are useful in motivating the farmers towards adoption of the improved agricultural practices. 0.84553 84.5528 2.81081 5 The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries 0.76423 76.4228 2.54054 6 ATIC Training generate self confidence among	9	ATIC reduces frequency of strays in crons	0.6433	65 3333	1 96217	
11 Proper input management reduces economic losses of the farmers 0.81301 81.3008 2.7027 12 Proper inrigation management reduces economic issues of the farmers 0.76423 76.4228 2.54054 13 Advanced technology provided in ATIC programme increases the productivity of crops. 0.81301 81.3008 2.7027 Marketing Impact 1 ATIC provides information of different university products, their use and sales (seeds, nursery, implements, bio fertilizers, publications) 0.86179 86.1789 2.86486 2 Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field 0.82114 82.1138 2.72973 3 The training conducted by ATIC are useful in motivating the farmers towards adoption of the improved agricultural practices. 0.84553 84.5528 2.81081 5 The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries 0.81707 81.7073 2.71622 7 ATIC helps to create Farmers Help Group for processing and marketing their produce 0.82114 82.1138 2.72973 1 ATIC helps to improve the farm educational level of rural people 0.76423 76.4228	10	Weather advisory delivered through AFIC can avert crop losses	0.8252	82 5203	2 74324	
11 The proper impaction management reduces economic issues of the farmers 0.76423 76.4228 2.54054 13 Advanced technology provided in ATIC programme increases the productivity of crops. 0.81301 81.3008 2.7027 Marketing Impact 1 ATIC provides information of different university products, their use and asles (seeds, nursery, implements, bio fertilizers, publications) 0.86179 86.1789 2.86486 2 Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field Tour etc. 0.84553 84.5528 2.81081 3 The training conducted by ATIC are useful in motivating the farmers towards adoption of the improved agricultural practices. 0.84553 84.5528 2.81081 5 The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries 0.76423 76.4228 2.54054 6 ATIC Training generate self confidence among beneficiaries for better results 0.81707 81.7073 2.71622 7 ATIC helps to create Farmers Help Group for processing and marketing their produce 0.76423 7.64223 2.58108 2 ATIC help to improve the farm educational level of rural people 0.76423 7.64223 2.58108 <td>11</td> <td>Proper input management reduces economic losses of the farmers</td> <td>0.81301</td> <td>81 3008</td> <td>2 7027</td>	11	Proper input management reduces economic losses of the farmers	0.81301	81 3008	2 7027	
13 Advanced technology provided in ATIC programme increases the productivity of crops. 0.81301 81.3008 2.7027 1 ATIC provides information of different university products, their use and sales (seeds, nursery, implements, bio fertilizers, publications) 0.86179 86.1789 2.86486 2 Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field 0.82114 82.1138 2.72973 3 The training conducted by ATIC are useful in motivating the farmers towards adoption of the improved agricultural practices. 0.84553 84.5528 2.81081 4 Training programmers of ATIC help in increasing knowledge level of farmers, farm women and rural youth. 0.84553 84.5528 2.81081 5 The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries 0.76423 76.4228 2.54054 6 ATIC Training generate self confidence among beneficiaries for better results 0.8114 82.1138 2.72973 7 ATIC helps to create Farmers Help Group for processing and marketing their produce 0.82114 82.1138 2.72973 8 ATIC helps to creating co-operation, co-ordination almong beneficiaries of ATIC 0.76423 76.4223 2.58108	12	Proper impact management reduces economic issues of the farmers	0.76423	76 4228	2 54054	
1 Native realized control provides in Proceeding Impact 1 100001 <t< td=""><td>13</td><td>Advanced technology provided in ATIC programme increases the productivity of crons</td><td>0.81301</td><td>81 3008</td><td>2 7027</td></t<>	13	Advanced technology provided in ATIC programme increases the productivity of crons	0.81301	81 3008	2 7027	
ATIC provides information of different university products, their use and sales (seeds, nursery, implements, bio fertilizers, publications)0.8617986.17892.864862Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field Tour etc.0.8211482.11382.729733The training conducted by ATIC are useful in motivating the farmers towards adoption of the improved agricultural practices.0.8455384.55282.810814Training programmers of ATIC help in increasing knowledge level of farmers, farm women and rural youth.0.8455384.55382.540545The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries0.7642376.42282.540546ATIC Training generate self confidence among beneficiaries for better results0.81170781.70732.716227ATIC helps to create Farmers Help Group for processing and marketing their produce0.8211482.11382.729732MIC helps to create Farmers Help Group for processing and marketing their produce0.8211482.11382.729732ATIC helps to create Farmers Help Group for unal people0.776427.64232.648653Standard of living of family increased due to benefits derived by ATIC0.616661.6661.852314Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.7926879.26832.635145Standard of living of family increased due to benefits derived by ATIC0.616661.6666 <td< td=""><td>15</td><td>Marketing Impact</td><td>0.01501</td><td>01.5000</td><td>2.7027</td></td<>	15	Marketing Impact	0.01501	01.5000	2.7027	
1 ATTC protects information of an entry production in the agend of eccas, handerly implements, or of the first production in the agend of the		ATIC provides information of different university products their use and sales (seeds nursery implements bio				
2Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field Tour etc.0.8211482.11382.729733The training conducted by ATIC are useful in motivating the farmers towards adoption of the improved agricultural practices.0.8455384.55282.810814Training programmers of ATIC help in increasing knowledge level of farmers, farm women and rural youth.0.8455384.55382.810815The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries0.7642376.42282.540546ATIC Training generate self confidence among beneficiaries for better results0.8110781.70732.716227ATIC helps to create Farmers Help Group for processing and marketing their produce0.8211482.11382.729731ATIC is a new concept in Agriculture0.7764277.64232.581082ATIC help to improve the farm educational level of rural people0.7967579.67482.648653Standard of living of family increased due to benefits derived by ATIC0.616661.6661.852314Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.726879.26832.635145Shifting from traditional farming to new technology farming is very difficult0.633363.3331.902436The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving beneficiaries0.7601676.01632.571436The migration of b	1	fertilizers, publications)	0.86179	86.1789	2.86486	
3The training conducted by ATIC are useful in motivating the farmers towards adoption of the improved agricultural practices.0.8455384.55282.810814Training programmers of ATIC help in increasing knowledge level of farmers, farm women and rural youth.0.8455384.55382.810815The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries0.7642376.42282.540546ATIC Training generate self confidence among beneficiaries for better results0.8170781.70732.716227ATIC helps to create Farmers Help Group for processing and marketing their produce0.8211482.11382.729731Social Impact0.7764277.64232.581082ATIC help to improve the farm educational level of rural people0.7967579.67482.648653Standard of living of family increased due to benefits derived by ATIC0.616661.6661.852314Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.792879.26832.63145Shifting from traditional farming to new technology farming is very difficult0.633363.3331.902436The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC0.62661.881057Grot dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7061676.016382.52738The participation of beneficiares in socio-political programmers were increased due to ATIC <td< td=""><td>2</td><td>Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field Tour etc.</td><td>0.82114</td><td>82.1138</td><td>2.72973</td></td<>	2	Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field Tour etc.	0.82114	82.1138	2.72973	
4Training programmers of ATIC help in increasing knowledge level of farmers, farm women and rural youth.0.8455384.55382.810815The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries0.7642376.42282.540546ATIC Training generate self confidence among beneficiaries for better results0.8170781.70732.716227ATIC helps to create Farmers Help Group for processing and marketing their produce0.8211482.11382.72973Social Impact1ATIC help to improve the farm educational level of rural people0.7764277.64232.581082ATIC help to improve the farm educational level of rural people0.7967579.67482.648653Standard of living of family increased due to benefits derived by ATIC0.616661.6661.852314Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.7626879.26832.635145Shifting from traditional farming to new technology farming is very difficult0.633363.3331.902436The migration of beneficiaries from rural areas have been reduced due to receiving beneficiaries0.7601676.01632.527038The participation of beneficiaries in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	3	The training conducted by ATIC are useful in motivating the farmers towards adoption of the improved agricultural practices.	0.84553	84.5528	2.81081	
5The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries0.7642376.42282.540546ATIC Training generate self confidence among beneficiaries for better results0.8170781.70732.716227ATIC helps to create Farmers Help Group for processing and marketing their produce0.8211482.11382.72973Social Impact1ATIC helps to create Farmers Help Group for processing and marketing their produce0.7764277.64232.581082ATIC help to improve the farm educational level of rural people0.7967579.67482.648653Standard of living of family increased due to benefits derived by ATIC0.616661.6661.852314Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.7926879.26832.635145Shifting from traditional farming to new technology farming is very difficult0.633363.3331.902436The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC0.626662.66661.881057For dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7601676.01632.527038The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	4	Training programmers of ATIC help in increasing knowledge level of farmers, farm women and rural youth.	0.84553	84.5538	2.81081	
6ATIC Training generate self confidence among beneficiaries for better results0.8170781.70732.716227ATIC helps to create Farmers Help Group for processing and marketing their produce0.8211482.11382.72973Social Impact1ATIC help to improve the farm educational level of rural people0.7764277.64232.581082ATIC help to improve the farm educational level of rural people0.7967579.67482.648653Standard of living of family increased due to benefits derived by ATIC0.616661.6661.852314Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.7926879.26832.635145Shifting from traditional farming to new technology farming is very difficult0.633363.3331.902436The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC0.626662.66661.881057For dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7601676.01632.527038The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	5	The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries	0.76423	76.4228	2.54054	
7ATIC helps to create Farmers Help Group for processing and marketing their produce0.8211482.11382.72973Social Impact1ATIC is a new concept in Agriculture0.7764277.64232.581082ATIC help to improve the farm educational level of rural people0.7967579.67482.648653Standard of living of family increased due to benefits derived by ATIC0.616661.6661.852314Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.7926879.26832.635145Shifting from traditional farming to new technology farming is very difficult0.633363.3331.902436The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC0.626662.66661.881057For dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7601676.01632.527038The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	6	ATIC Training generate self confidence among beneficiaries for better results	0.81707	81,7073	2.71622	
Social Impact1ATIC is a new concept in Agriculture0.7764277.64232.581082ATIC help to improve the farm educational level of rural people0.7967579.67482.648653Standard of living of family increased due to benefits derived by ATIC0.616661.6661.852314Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.7926879.26832.635145Shifting from traditional farming to new technology farming is very difficult0.633363.3331.902436The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC0.626662.66661.881057For dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7601676.01632.527038The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	7	ATIC helps to create Farmers Help Group for processing and marketing their produce	0.82114	82.1138	2.72973	
1ATIC is a new concept in Agriculture0.7764277.64232.581082ATIC help to improve the farm educational level of rural people0.7967579.67482.648653Standard of living of family increased due to benefits derived by ATIC0.616661.6661.852314Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.7926879.26832.635145Shifting from traditional farming to new technology farming is very difficult0.633363.3331.902436The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC0.626662.66661.881057For dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7601676.01632.527038The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548		Social Impact				
2ATIC help to improve the farm educational level of rural people0.7967579.67482.648653Standard of living of family increased due to benefits derived by ATIC0.616661.6661.852314Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.7926879.26832.635145Shifting from traditional farming to new technology farming is very difficult0.633363.3331.902436The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC0.626662.66661.881057For dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7601676.01632.527038The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	1	ATIC is a new concept in Agriculture	0.77642	77.6423	2.58108	
3Standard of living of family increased due to benefits derived by ATIC0.616661.6661.852314Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.7926879.26832.635145Shifting from traditional farming to new technology farming is very difficult0.633363.3331.902436The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC0.626662.66661.881057For dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7601676.01632.527038The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	2	ATIC help to improve the farm educational level of rural people	0.79675	79.6748	2.64865	
4Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC0.7926879.26832.635145Shifting from traditional farming to new technology farming is very difficult0.63336.3.3331.902436The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC0.626662.66661.881057For dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7601676.01632.527038The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	3	Standard of living of family increased due to benefits derived by ATIC	0.6166	61.666	1.85231	
5Shifting from traditional farming to new technology farming is very difficult0.633363.3331.902436The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC0.626662.66661.881057For dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7601676.01632.527038The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	4	Technology helps in creating co-operation co-ordination among beneficiaries of ATIC	0.79268	79.2683	2.63514	
6The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC0.626662.66661.881057For dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7601676.01632.527038The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	5	Shifting from traditional farming to new technology farming is very difficult	0.6333	63,333	1.90243	
7For dryland agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries0.7601676.01632.527038The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	6	The migration of beneficiaries from rural areas to urban areas have been reduced due to receiving benefit of ATIC	0.6266	62.6666	1.88105	
8The participation of beneficiares in socio-political programmers were increased due to ATIC0.596659.6661.792349Participation in social welfare through political party increased0.623362.3331.87548	7	For dryland agriculture in Marathwada region ATIC is boon for small marginal beneficiaries	0.76016	76.0163	2.52703	
9 Participation in social welfare through political party increased 0.6233 62.333 1.87548	8	The participation of beneficiares in socio-political programmers were increased due to ATIC	0.5966	59.666	1.79234	
	9	Participation in social welfare through political party increased	0.6233	62.333	1.87548	
10 Beneficiaries developed relations with other beneficiaries because of more social and political participation 0.6466 64.666 1.94621	10	Beneficiaries developed relations with other beneficiaries because of more social and political participation	0.6466	64.666	1.94621	
11 Beneficiaries able to motivate and direct others through social and political participation about ATIC programmers 0.6533 65.333 1.96217	11	Beneficiaries able to motivate and direct others through social and political participation about ATIC programmers	0.6533	65.333	1.96217	
12 Knowledge gained through participation in ATIC and relationship build up among the community 0.6033 60.333 1.81308	12	Knowledge gained through participation in ATIC and relationship build up among the community	0.6033	60.333	1.81308	

RW: Relevancy weightage, RP: Relevancy Percentage, MRS: Mean Relevancy Score

I. Relevancy weightage

Following formula was used to work out the relevancy.

$$RW = \frac{MRR X 3 + RR X 2 + NRR X 1}{MOS (3 X 103 = 309)}$$

Where,

RW= Relevancy Weightage MRR = Most Relevant Response RR = Relevant Response MOS = Maximum Obtainable Score

II. Relevancy percentage

Relevancy percentage of each statement was computed by using the following formula.

$$RP = \frac{OS}{MOS (3x103=309)}$$

Where, RP = Relevancy Percentage OS = Obtained Score MOS = Maximum Obtainable Score.

III. Mean relevancy score

For calculating the mean relevancy score of each item,

following formula was used.

$$MRS = ---MRR X 3 + RR X 2 + NRR X 1$$

No. of judges (103)

Where,

MRS = Mean Relevancy Score MRR = Most Relevant Response RR = Relevant Response NRR = Not Relevant Response

Using these three criteria, the items were screened for their relevancy. Finally, the statements having, more than 0.66 relevancy weightage, more than 66.00 per cent relevancy percentage and more than 2 mean relevancy score were considered for the inclusion in item analysis. Thus, 30 statement were retained out of 65 statements.

Calculation of 't' value (item analysis)

The 't' value which is a measure of the extent to which a given statement differentiates between the high and low groups of the ATIC beneficiaries for each statements was analyzed through the formula suggested by Edward (1957)^[1].

After calculating the 't' value for all the 32 statements, statements with greater than 1.75 and highest 't' value were finally selected for the scale. The lists of statement and their 't' values are expressed in Table 2.

Table 2: List of total Statements of scale with their 't'	values to measure the impa	act of of agricultural	technology information	centre on its
	beneficiaries			

Sr. No	Statements	
A)	Economic Impact	
1	ATIC helps in keeping agricultural production at a sustainable level	
2	ATIC helps to improve personal and socio-economic status of beneficiaries.	
3	Standard of living of farmers improved due to increase in annual income through benefits of ATIC programme	1.8163
4	Annual income of beneficieries was increased due to implementation of ATIC programme	1.575
5	Increase in income has resulted in increase in ability of rural households to purchase food grains other essential commodities education and healthcare	
6	Improved their per capita income and help to lead a better standard of living	1.5551
7	ATIC training helps to start Agro based business for rural youth	
8	Better seasonal crop management is possible due to the ATIC agro advisory services.	
9	Proper technical guidance through ATIC lessen economic burden of farmers	2.0635
B)	Technological Impact	
1	Communication aids, like radio, TV, Internet, mobile phone, computer etc. helps to communicate beneficieries regarding benefits about ATIC	1.9222
2	Farm mechanization is promoted due to ATIC	
3	ATIC helps farmers in proper insect pest and disease management.	2.0617
4	Weed management can be done on time with help of ATIC	2.0416
5	Information about livestock management helps the farmer to take care of his livestock	2.0582
6	Farm operations like sowing, harvesting, marketing etc. can be performed well on time with the help of weather advisory services	2.0230
7	Timely pest and disease forecasting leads to proper crop protection measures	
8	ATIC helps farmers in effective planning of crop cultivation practices	1.9950
9	Weather advisory delivered through ATIC can avert crop losses	1.9423
10	Proper input management reduces economic losses of the farmers	1.8230
11	Proper irrigation management reduces economic issues of the farmers	1.9950
12	Advanced technology provided in ATIC programme increases the productivity of crops.	1.8163
C)	Marketing Impact	
1	ATIC provides information of different university products, their use and sales (seeds, nursery, implements, bio fertilizers, publications)	3.2334
2	Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field Tour etc	2.9327

3	The training conducted by ATIC are useful in motivating the farmers towards adoption of the improved agricultural practices.	2.0233
4	Training programmes of ATIC help in increasing knowledge level of farmers, farm women and rural youth.	1.9423
5	The technical guidance through training programme can not only improve the social but the economic status of the Beneficiaries	1.7995
6	ATIC Training generate self confidence among beneficiaries for better results	1.9821
7	ATIC helps to create Farmers Help Group for processing and marketing their produce	1.9222
D)	Social Impact	
1	ATIC is a new concept in Agriculture	1.75
2	ATIC help to improve the farm educational level of rural people	1.9222
3	Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC	1.9222
4	For dry land agriculture in Marathwada region ATIC is boon for small, marginal beneficiaries	2.0582

These 32 statements undergo item analysis in the items based on the extent to which they can differentiate the beneficiaries with high impact than the beneficiaries with low impact of ATIC on beneficiaries in Marathwada region. From non-sample areas, 60 farmers had been selected for this. On a three-point continuum which range from "Strongly Agree" to "Strongly Disagree", those who responded were requested to state the extent to which they agreed or disagreed with each item. The chosen scoring scheme was 3 to 1, with 3 weights indicating a "Strongly Agree" response, 2 expressing a partially agree response, and 1 expressing a "Strongly Disagree". Reaction for both positive and negative statements. The scorning pattern was reversed. The respondents have been arranged in descending order according to their overall scores. Because both of these categories act as criteria groups to evaluate each of the respondents, the top 25% of respondents with their total score were considered to have in the high group and the bottom 25% as the low group. Provide criterion groups in terms of evaluating the individual statements as suggested by Edwards (1957)^[1]. Thus out of 60 beneficiaries to whom the items were administered for the item analysis, 15 beneficiaries with lowest, 15 with highest scores were used as criterion groups to evaluate individual items.

$$t = \frac{\overline{X}_H - \overline{X}_L}{\sqrt{\frac{\Sigma (X_H - \overline{X}_H)^2 + (X_L - \overline{X}_L)^2}{n(n-1)}}}$$

Where,

 $(XH - XH)^2 = XH^2 - (XH)^2$

 $(XL - XL)^2 = XL2 - (XL)^2$

XH = The mean score on given statement of the high group XL = The mean score on given statement of the low group $XH^2 =$ Sum of squares of the individual score on a given statement for high group

 XL^2 = Sum of squares of the individual score on a given statement for low group

XH = Summation of scores on given statement for high group

XL= Summation of scores on given statement for low group n = Number of respondents in each group

 \sum = Summation

Reliability test-retest method

Test-retest was used to determine the scale's reliability. The final 30 statements, which define the impact of the agricultural technology information centre on beneficiaries, were presented with to a three-point continuum to a fresh group of sixty beneficiaries who which were not included in the actual sample. After 15 days interval the scale was again administered to the same respondents and thus two sets of scores were obtained. For both sets, the correlation coefficient was calculated. The impact scale was suitable for administering to extension staff due to its stable and reliable measurement, as indicated by the significant "r" value (0.742) at the 0.01 level of probability.

Content validity

The scale's content validity was tested. The content validity is the sampling or representative adequacy of the content, the matter and the topics of a measuring instrument. This method was used in the present scale to evaluate the content validity of the scale. As the content of the impact was thoroughly covered the entire field of agricultural technology information centre on beneficiaries through literature and expert opinion, it was assumed that present scale satisfied the content validity. As the scale value difference for almost all the statements included had a very high discriminating value, it seemed reasonable to accept the scale as a valid measure of the impact. Thus, ensuring a fair degree of content validity.

Administration of scale

The three-point continuum, which ranges from "Strongly Agree" to "Strongly Disagree," was used for administering the scale. It measures the degree of relevancy or not relevant. Three points were allocated for an "Strongly Agree" answer, two for a Partially Agree response, and one for a strong "Strongly Disagree," response for both positive and negative statements. The scoring scheme used was three to one.

Table 3: List of total selected statements for final scale construction to measure the impact of agricultural technology information centre on its beneficiaries

Sr. No	Statements	SA	PA	SD
		3	2	1
A)	Economic Impact			
1.	ATIC helps in keeping agricultural production at a sustainable level			
2.	ATIC helps to improve personal and socio-economic status of beneficiaries.			
3.	Standard of living of farmers improved due to increase in annual income through benefits of ATIC programme			
4	Increase in income has resulted in increase in ability of rural households to purchase food grains other essential commodities			
4.	education and healthcare		1	
5.	ATIC training helps to start Agro based business for rural youth			
6.	Better seasonal crop management is possible due to the ATIC agro advisory services.		1	
7.	Proper technical guidance through ATIC lessen economic burden of farmers			
B)	Technological Impact			
1	Communication aids, like radio, TV, Internet, mobile phone, computer etc. helps to communicate beneficiaries regarding			
1.	benefits about ATIC			
2.	Farm mechanization is promoted due to ATIC			
3.	ATIC helps farmers in proper insect pest and disease management.		1	
4.	Weed management can be done on time with help of ATIC			
5.	Information about livestock management helps the farmer to take care of his livestock		1	
6	Farm operations like sowing, harvesting, marketing etc can be performed well on time with the help of weather advisory			
0.	services			
7.	Timely pest and disease forecasting leads to proper crop protection measures			
8.	ATIC helps farmers in effective annual planning of plant crop cultivation practices			
9.	Weather advisory delivered through ATIC can avert crop losses			
10.	Proper input management reduces economic losses of the farmers		1	
11.	Proper irrigation management reduces economic issues of the farmers			
12.	Advanced technology provided in ATIC programme increases the productivity of crops.			
C)	Marketing Impact			
1	ATIC provides information of different university products, their use and sales (seeds, nursery, implements, bio fertilizers,		l	
1	publications)			
2	Higher social involvement can be achieved by participating in the Agril. Exhibitions, Agro expositions, Agri Tour, Field Tour		1	
2	etc.			
3	The training conducted by ATIC are useful in motivating the farmers towards adoption of the improved agricultural practices.		L	
4	Training programmes of ATIC help in increasing knowledge level of farmers, farm women and rural youth.			
5	The technical guidance through training programme can not only improve the social but the economic status of the		l	
5	Beneficiaries			
6	ATIC Training generate self confidence among beneficiaries for better results			
7	ATIC helps to create Farmers Help Group for processing and marketing their produce			
D)	Social Impact		<u> </u>	
1	ATIC is a new concept in Agriculture			
2	ATIC help to improve the farm educational level of rural people		\vdash	
3	Technology helps in creating co-operation, co-ordination among beneficiaries of ATIC			
4	For dryland agriculture in Marathwada region ATIC is been for small marginal beneficiaries	1	1	1

SA: Strongly Agree, PA: Partially Agree, SD: SD is agree

Conclusion

The Agricultural Technology Information Center helps to establish strong connections between various research stations, line departments, and users of new technology. It also provides a "Single Window Delivery System" for seed, planting material, processed products, biofertilizers, biopesticides, equipment, and literature. Therefore, policy makers are able to benefit from this scale. The validity and reliability of the scale indicates how consistently the results are attained.

Recommendation: The scale developed in the present study to assess the impact of ATIC will be useful to researchers interested in similar types of studies in the future.

Acknowledgement

I express my deepest sense of gratitude towards my honorable research guide Dr. RP Kadam for his learned council, intellectual inspiration, constructive criticism, valuable suggestions, constant guidance, cooperative attitude and willing help throughout the course of investigation and preparation of the manuscript.

Conflict of interest

"No conflict of Interest" among researcher.

References

- 1. Edward. Techniques of Attitude Scale Construction. Appeton Century Crafts, New York; c1957. p. 149-160.
- 2. Kerlinger FN. Foundation of behavioural research. New Delhi: Surjeet Publication; c1976.
- 3. Thurstone. Comment, American J Sociology. 1946;52:39-50.
- Likert R. A technique for the measurement of attitudes, Archology Psychology, No 140. Lodhal TM and Kejner M, 1965, J Appl. Psy. 1932;49:24-33.
- 5. Uma, Prasher. Mahatma Gandhi National Employment guarantee act and its impact on the beneficiaries. Asian Journal of Research in Social Sciences and Humanities. 2014;4(4)50-60.