



Research Article

RESEARCH ATTITUDE OF ENTRY LEVEL INDIAN AGRICULTURAL SCIENTISTS AND ITS IMPLICATION

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Abstract: The present study was conducted to measure the attitude of entry level agricultural scientists towards research, so as to assess the quality of scientists appointed to Agricultural Research Service and to suggest measures to improve their attitude towards research. Data was collected from 550 respondents who were administered a standard psychometric test "Attitude Scale towards Research". The study revealed that 75 % of scientists have either moderately favourable or above attitude towards research. However, 25 % scientists have 'unfavourable' attitude towards research. Among the four dimensions of attitude towards research, the scores in 'General aspects of research and research process' and 'Difficulties in research and research anxiety' were lower compared to the scores in the dimensions, 'Usefulness of research in professional career' and 'Relevance of research in personal and social life'. Different ways and measures to improve the research attitude of these young (or would be) agricultural research professionals were discussed.

Keywords: Agricultural research, Attitude towards research, Quality research, Scientists

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Introduction

India has the largest agricultural research systems in the world with the biggest pool of scientific personnel in a developing country engaged in research and education relating to agriculture and allied areas. The research system includes approximately 30,000 scientists and more than 100,000 supporting staff actively engaged in research related to agriculture. Essentially, Indian agricultural research system works through two main streams, viz. the Indian Council of Agricultural Research (ICAR) at the national level and Agricultural Universities (AU's) at the state level. Besides these two, several other agencies such as the Conventional / General Universities, Scientific Organizations, various Ministries / Departments at the Centre, and Private or Voluntary Organizations participate directly or indirectly in research activities related to agriculture [1]. ICAR is unique among the major scientific organizations in the country, having dual responsibilities of research and education. As an apex body at the national level, ICAR is mainly responsible for the promotion and coordination of agricultural research in the various disciplines of agriculture and allied sciences in the country. In addition to its promoting and coordinating roles, ICAR is also directly involved in undertaking basic as well as applied research at the national level on diverse problems facing production of crops, animals, fish, etc., with the objective of evolving new production technologies suited to different agro-climatic conditions [2]. The quality of scientific manpower has a direct bearing on the research output of an organization. To be successful in any profession, a cluster of personality traits suitable for that profession are required. To be a successful researcher, one should have a high attitude for research, innovation and creativity. Psychological attributes like aptitude and attitude are important components in the selection, placement and training of manpower in any profession [3]. It has been demonstrated that attitudes significantly predict future behaviour and professional success [4]. Assessing the attitude of personnel towards research and its related aspects is important in order to predict the scientists' future performance and job satisfaction. Also, attitude towards research may be considered as the core competency or pivot for improving quality in research. Assessment of the attitude profile of entry level scientists also provides an opportunity for the organization for understanding their

deficiencies better and to arrange need based capacity building programmes as early as possible.

Objectives

The present study was conducted to measure the attitude of entry level agricultural scientists towards research or studies undertaken in their fields of specialization, so as to assess the quality of scientists engaged in agricultural research and to suggest measures to improve upon their attitude towards research. The objectives of the study are as follows:

1. To measure the level and dimensions of attitude of entry level agricultural scientists towards research.
2. To suggest measures to improve their attitude towards research.

Materials & Methods

Sample

The present study was conducted on entry level agricultural scientists, who were selected through the Agricultural Research Service (ARS) examination conducted by the Agricultural Scientists Recruitment Board (ASRB) to cater to the needs of placement in different research institutes of Indian Council of Agricultural Research (ICAR). These scientists, prior to placement at different ICAR institutes, would undergo a 3-month Foundation Course for Agricultural Research Service (FOCARS) at the National Academy of Agricultural Research Management (NAARM), Hyderabad. A total of 550 entry level agricultural scientists, who have undergone the FOCARS training at NAARM from 2012 to 2015 have participated in this study. These scientists represent different states of India and are qualified in different disciplines of agriculture, veterinary and animal sciences, fisheries, horticulture, forestry, agricultural engineering and basic sciences. Among the participants 66.5 % were males (n= 366) and 33.5 % were females (n= 184). The age of participants ranged from 24 to 36 years with an average of 28 years (standard deviation 5.2).

Tools

Attitude Scale Towards Research (ASTR) [5]. This scale was intended to measure the attitude of Ph.D. students/teachers towards research work or studies undertaken in their fields. It comprised of 42 statements out of which 26 were of positive (favourable) type and remaining 16 items were negative (unfavourable) type. The distribution of these statements (both favourable and unfavourable) was spread among the following four dimensions of attitude towards research:

- General aspect of research and research process
- Usefulness of research in professional career
- Relevance of research in personal and social life
- Difficulties in research and research anxiety

The method of summated rating [6] was employed for constructing the present scale. Each item/statement of the scale was to be rated on five consecutive points *i.e.* strongly agree, agree, undecided, disagree and strongly disagree. An individual respondent's score on the attitude scale was obtained from the sum total of his/her ratings on all statements. The score on the scale could range from 42 to 210. The higher total score on the scale would reflect favourable attitude towards research and vice-versa. Norms for interpretation and finding out the level of attitude of respondents towards research were given in Table 1.

Table-1 Norms for interpretation of level of attitude towards research

Range of raw scores	Level of attitude towards research
196 and above	Extremely Favourable
184-195	Highly Favourable
172-183	Above Average Favourable
156-171	Moderately Favourable
144-155	Unfavourable
132-143	Highly Unfavourable
131 and below	Extremely Unfavourable

Procedure

Data was collected from the participants during the Foundation Course for Agricultural Research Service (FOCARs) training programmes conducted at National Academy of Agricultural Research Management (NAARM), Hyderabad during 2012-15. Attitude Scale towards Research (ASTR) was administered to the participants after briefly explaining the purpose of the test. Scoring keys and interpretation norms were provided to find out the level of research attitude of the participants. The researcher personally administered the tool to the sample and collected the data. Tests were scored, tabulated and descriptive statistic indicators were calculated using MS Excel.

Results

Attitude scale towards research (ASTR) scores of the respondents (n= 550) ranged from 102 (minimum) to 200 (maximum) with an average of 161 and standard deviation of 14.2. Out of the total, 246 participants (44.7 %) recorded having 'moderately favourable' attitude towards research, while 124 participants (22.5 %) have 'above average favourable' attitude towards research (Table 2). Only 37 (6.7 %) and 5 (0.9 %) participants were having 'highly favourable' and 'extremely favourable' attitude towards research respectively. However, it was found that 92, 36 and 10 participants (16.7, 6.5 and 1.8 %, respectively) recorded 'unfavourable', 'highly unfavourable' and 'extremely unfavourable' attitude towards research in the same order. In total, about 25 % of participants recorded having 'unfavourable' attitude towards research.

Table-2 Level of attitude towards research of the participants (n=550)

Level of attitude towards research	No. of participants	Percentage (%)
Extremely Favourable	5	0.9
Highly Favourable	37	6.7
Above Average Favourable	124	22.5
Moderately Favourable	246	44.7
Unfavorable	92	16.7
Highly Unfavourable	36	6.5
Extremely Unfavourable	10	1.8
Total	550	-

Among the four dimensions of attitude towards research, the average score in 'General aspects of research and research process' was the lowest (53) amounting to 71 % of the maximum possible score (75) (Table 3). Similarly, the score in dimension 'Difficulties in research and research anxiety' was lower (41) compared to the maximum possible score of 55. However, the scores in dimensions, 'Usefulness of research in professional career' and 'Relevance of research in personal and social life' were higher (85 and 82 %) compared to the other two dimensions.

Table-3 Dimensions of attitude towards research of the participants (n = 550)

Dimension of attitude towards research	Max. possible Score	Average score of participants	Percentage of max. possible Score
General Aspects of Research and Research Process	75	53	71
Usefulness of Research in Professional Career	40	34	85
Relevance of Research in Personal and Social life	40	33	82
Difficulties in Research and Research Anxiety	55	41	75
Total	210	161	77

Discussion

In the present study, 25 % of scientists found to have 'unfavourable' attitude towards research (Table 2). This is mainly due to lower scores of attitude in dimensions, 'General aspects of research and research process' and 'Difficulties in research and research anxiety' (Table 3). This indicates that the participants are having poor knowledge and skills with respect to concept of research, research process, current scenario of research work, publication of research findings etc. It also shows the participants' feelings of anxiety, tension as well as difficulties faced by them when they were asked to engage themselves in different sort of theoretical and practical research-related activities. These results draw support from earlier findings [7, 8] which have reported that lack of usefulness of research, misunderstanding of interpreting statistical findings, rudimentary awareness concerning the importance of research in the educational process, deficient comprehension of the relevance of research in professional endeavours or self-efficacy issues concerning ability and motivation to learn and perform research-related procedures are some of the major concerns that resulted in unfavourable and negative attitude towards research. In general, students at the undergraduate university level, typically tend to view research-related courses with negative attitude and feelings. These negative attitudes have been documented in a number of studies [9, 10, 11] for many years in relation to courses in research, statistics and mathematics. One of the main problems of these negative attitudes is that they have been found to serve as obstacles to [10,12] In turn, these negative attitudes have been found to be associated with poor performance in such courses [13, 14, 15]. Causal models, however suggest that attitudes are actually mediators between past performance and future achievement [16].

Conclusion

Identification of the level and deficit domains of attitude of respondents (agricultural scientists at entry level) towards research, bear important theoretical and practical implications, especially due to the fact that this was never examined before. The study opens up the issue of the type and quality of education (higher agricultural education in particular) being offered to the students, where majority of them end up their academic carrier with an 'unfavourable' attitude towards research. The possible ways and measures to enhance the research attitude of these young (or would be) agricultural research professionals suggested are:

- Advancing the instructional methods and overall quality of higher agricultural education in the country, so as to sustain a positive and favourable attitude of these students towards research. There is a need to recruit qualified and highly motivated faculty to teach and impart skills involved in research through research related courses apart from a strong basic knowledge in their domain of studies.

2. Introduce courses providing an understanding of research-teaching-extension linkages and their role in national development.
3. Recruitment and selecting candidates who possess a minimum level of research aptitude/ attitude. For this purpose, the selection criteria should prescribe an aptitude test for research along with the proficiency of the subject matter concerned. Authors suggest adopting the screening pattern being followed by CSIR-UGC (NET) exam for award of JRF and eligibility for lectureship, where minimum qualifying marks are required in the General Paper on Teaching and Research Aptitude.
4. Induction/orientation programme (foundation course) at entry level to make them realize the role and relevance of organization and research to the society.
5. Capacity building of entry level agricultural scientists through need based training programmes in order to improve and update their understanding and skills, so they feel comfortable in dealing issues related research and research-related activities.
6. Finally, a favourable and congenial organizational environment where the young recruited agricultural scientists are able to realize their potential in terms of scientific creativity and innovative ideas through sustained positive attitude, and are able to contribute towards quality research.

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Application of research: The importance of research attitude and or aptitude for improving the performance of research scientists.

Research Category: Human Resource Development for Agricultural Research

Abbreviations: None

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