



# Policy Initiatives for Improving Competencies of Agricultural Extension Graduates for Promotion of Agricultural Innovations

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## Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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## ABSTRACT

Agricultural education and training systems still have some refinement to do for producing workforce-ready graduates. Even after continuous upgrading once in five years through Deans committee recommendations the existing curricula in Agricultural Universities are getting lots of criticism and still there is a mismatch to meet the demands of the needs of both modern industry employers and those of farmers. To address this lacuna, the present study was conducted in Kolar, Tumkur and Chikkaballapur districts of Karnataka state to identify possible areas according to agricultural extension professionals on the areas training is needed by field agricultural extension for effective promotion of agricultural innovations. A large group of agricultural extension professionals felt that, effective training should be given on techniques to develop long-term extension program plans, establish programming priorities and techniques of in need or problem

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assessment. Lack of required number of technical and non-technical staff at the field level, political interference and promotion of politically motivated popular subsidy schemes were major hurdles faced by the field extension professionals. The field level extension professionals opined that, more emphasis has to be given to techniques to use formal information gathering, digital communication skills in extension and techniques of evaluation of extension programs on an annual basis.

*Keywords: Policy initiatives; training needs; agricultural innovations; agricultural graduates.*

## 1. INTRODUCTION

For innovation to occur, useful knowledge must be created, accumulated and shared to the society. Innovations are new ideas, practices, or products that are successfully introduced into economic or social development and encompass technologies, organizations, institutions and policies. Innovation in agriculture is not only about what happens at the farm level; there needs to be innovation all along the value chain, including at the policy level in agribusiness and agricultural education [1]. In a dynamic world, innovations are important to remain competitive, protect the environment, keep pace with development, and have to improve the well-being of the people. Innovations do not occur in a vacuum, however. They occur when innovators acquire knowledge and process it to come up with new ideas, practices, or objects that can be successfully introduced into economic or social processes. Adequate and continuous investment in agricultural research and education is essential for sustained agricultural growth in the country [2]. There are no specialized courses to address trending issues such as climate-smart agriculture and protective agriculture. The agricultural education system needs to be redefined to equip agricultural professionals with subject competency, self-motivation, positive attitude and agri-business skills. Agricultural development policies need to be more holistic and systematic in order to support agri-entrepreneurship development and self-employment opportunities for agricultural graduates [3]. Pragmatic strategies to combine technical, socio-economic and managerial skills to build capable agricultural professionals in promoting agricultural innovations at the field level are the need of the hour. With this background, the present study was conceptualized with the following objectives:

1. To identify possible areas in which training is needed by agricultural extension graduates/staff for the promotion of agricultural innovations.

2. To identify problems and offer policy initiatives for the promotion of agricultural innovations.

## 2. METHODOLOGY

The present field study was conducted by collecting the data from the randomly selected agricultural extension professionals working in the Karnataka State Department of Agriculture, namely Assistant Agriculture Officers (AAOs), Agriculture officers (AOs) and Assistant Director of Agriculture (ADA) by using a pre-tested questionnaire with a set of questions identified by the agricultural extension experts. Hundred and fifty Agricultural Extension professionals working in the department of agriculture in Kolar, Chikkaballapur and Tumkur districts were selected as respondents for the study by selecting 50 extension professionals from each district and applying purposive random sampling. Borich's Educational and training need assessment model was used based on two dimensions of ability and importance and ranked based on five point continuum Likert format (1 for very low to 5 for very high in range). For ranking and determining educational needs, weighted mean difference scores (WMDS) were calculated.

## 3. RESULTS AND DISCUSSION

### 1. Job involvement of agricultural extension professionals

Most of the agriculture extension professionals perceived that they were confident and perfectionists about their work, as indicated by the score of 4.8. This was followed by those who were involved very much in the agriculture extension work even without payment for extra working hours to complete their job. These professionals also expressed that they also reach work place bit early to get things done as it clearly shown from the Table 1. The study clearly revealed that, extension professionals are confident and are perfectionists about their work but they are merely utilized for the transfer of

**Table 1. Job involvement of Agricultural extension professionals (n=150)**

S.N.	Statements	Mean Score
1	Ready to work overtime to finish a job even if not paid for it	4.2
2	Willing to reach work place bit early to get things ready	3.9
3	Wants to be perfectionist about work	4.8
4	Performing other activities more importantly than official work	2.5
5	Most of other things in life are important than my work	2.8

**Table 2. Perception of Agricultural extension professionals on Information Communication Technologies (n=150)**

S. N.	Particulars	Percent respondents	
		Yes	No
1	Need to learn the computer and internet skills	85	15
2	Do you have sufficient working knowledge on computer and internet	63	37
3	Do you have sufficient knowledge on connecting and installing new devices to computer	8	92
4	Do you feel it is waste of time to spend on internet?	13	87
5	Are you using search engines to find information?	17	83
6	Are you facing any difficulties in operating computer or internet?	72	28

technology. They weren't spending more time on administrative works as they were not trained as administrative professionals. This needs to be addressed by incorporating more of management courses with field-level projects and experiments. Similar findings were also reported by Deepanjana [4].

**2. Perception of agricultural extension experts on e-learning**

In this growing economy, e-learning is essential for agricultural professionals to effectively work and to perform better in agricultural extension work. Increased use of digital media by extension professionals at the field level will enable them to reach a large number of farm families with useful agricultural technologies within a short time. The data presented in Table-2 revealed that, majority of the professionals are willing to learn computer skills as it is very much essential for effective communication with the department officials and with other line departments, also with the farmers, which conforms to the findings of Mithu and Saumen [5]. Many respondents are facing problems in operating computers and use of internet, but the interest of acquiring the proficiency on information communication technologies by the extension professionals is appreciable and noteworthy. The details of willingness of the agricultural extension professionals on e-learning are presented in Table 2 may be considered seriously by administrators.

**3. Job competence of extension professionals**

Job competence is the most desirable characteristics a professional is supposed to possess. Liāna et al. [6] reported that, the competitiveness of an institution is influenced by the internal factors, which are formed by the internal environment of the institution - material, financial, personnel, infrastructure and other internal resources, and external factors formed by the external macro environment influenced by national policies (social, political, economic, legal, scientific and technical factors). The level of technical knowledge, command over the subject and ability to communicate effectively with the farming community is an essential character of any agriculture extension professional. Information with respect to the perception of the extension professionals on job competency was collected by seeking their responses on different statements and presented in Table 3. It was observed that majority of the respondents were able to give guidance independently to subordinates and at the same time they have expressed that they still need to be creative in spite of effective communication.

**4. Training needs of agricultural extension professionals for effectively carrying-out extension work at the field level**

The perception of extension professionalson important areas of training needs for effectively

**Table 3. Job competence of extension professionals (n=150)**

S. N.	Statement	Score
1	Strong in Technical knowledge	3.8
2	Able to give guidance to subordinates confidently	4.2
3	Can able to communicate effectively	4.1
4	Adaptability	3.6
5	Need to upgrade self-development	3.5
6	Need to be creative	4.1
7	Need to understand others (Empathy)	2.8

**Table 4. Technical and Management Areas of training needs of agricultural extension professionals for effectively carrying-out field extension activities (n=150)**

I.	Planning and Management Competency Area	Mean Score
1	Techniques of need or problem assessment	2.2
2	Techniques to develop technological gap survey	2.1
3	Techniques to assess and mobilize community resources, facilities and services	2.2
4	Techniques to develop long-term extension program plans	2.3
5	Techniques to develop an annual program of work	2.0
6	Techniques to develop weekly and monthly work schedules	1.9
7	Techniques to develop short and long term program goals and objectives	1.7
8	Techniques to establish program priorities	2.3
9	Techniques to relate national/state objectives of extension programs	1.9
II.	Technical Competency Areas	
10	Principles and procedures for evaluating extension programs and activities	1.5
11	Techniques to use formal information gathering: field survey questionnaire	1.7
12	Techniques of evaluation of extension programs on an annual basis	1.6
13	Techniques to prepare and compile reports on the findings of evaluation	1.5

carrying out field extension work was elicited on three-point continuum scale namely very much important, important and not important and the results are presented in Table 4. Majority of the extension professionals expressed that, there must be an integration of current advances in agricultural extension technologies into the curriculum [7]. Large group of agricultural extension experts felt that effective training should be given on techniques to develop long-term extension program plans, techniques to establish programming priorities, techniques of identifying technological needs of the farm families and problem assessment. Further, they also expressed to have training on developing and conducting technological need assessment, techniques to assess and mobilize community resources, techniques to develop an annual program of work, techniques to develop weekly and monthly work schedules, techniques to develop short and long term program goals and objectives and techniques for relating national/state objectives to extension programs. Further, they also articulated to have training with respect to techniques of group surveying using questionnaire (1.7 score) and techniques of evaluation of extension programs on an annual

basis (1.6 score). Thus, the results of the training needs of the extension professionals clearly high lights the need for reorienting the present curriculum at the farm universities. Accordingly so as to equip the agricultural graduates could carry out the extension programs and development activities effectively with greater confidence [8].

**5. Problems in performing effective field extension work and policy initiatives for promotion of agricultural innovations**

The field level problems in performing extension work by agricultural extension professionals were elucidated from the respondents and priority scores were calculated. Lack of required number of technical and non-technical staff, political interference and promotion of politically motivated popular subsidy schemes were major hurdles faced by the field extension workers followed by others as mentioned in Table 5. The analysis identified that majority of professionals lack knowledge on the use of computer skills and digital communication. Therefore, it is essential that concerned policy makers should revise the contents of the curriculum to improve competencies of the extension workers,

**Table 5. Problems in performing field extension work by the agricultural extension professionals (n=150)**

S. N.	Problems as perceived by the agricultural extension professionals	Score
1	Political interference leading to work pressure	2.8
2	More number of governmental popular schemes and programmes	2.7
3	Lack of required number of technical and non-technical staff	2.8
4	Lack of coordination and support from the higher authorities	2.4
5	Time to time lack of up-gradation of technical knowledge	2.4
6	Lack of practical field oriented courses designed at the university	2.0
7	More of clerical work and little scope for transfer of technical guidance to farmers	2.3
8	Majority of work time is apportioned for attending meetings and preparation of reports	2.5
9	Lack of digitalization and less scope for use of ICT tools	2.3
10	More of attending office and papers work	2.4
11	Delayed response and sanctions from the higher authorities	1.8
12	Lack of required logistics to visit villages and meet farmer in time	2.2

particularly on communication and information management skills. Majority of agricultural extension professionals expressed that they were able to provide guidance independently to subordinates, but it was found that there is a gap in the creative way of handling the work assigned to address the challenges of the farmers [9,10]. Hence, agricultural graduates should be taught on the courses about creativity, networking and partnership development, facilitation of development programs, coordination, agribusiness promotion, group mobilization and media management.

#### 4. CONCLUSION

Most of the agriculture extension professionals perceived that they were confident and perfectionists about their work. Majority of professionals were willing to learn computer skills as it is essential for effective communication both at the official and farmers' level. Agricultural extension professionals felt that training should be given on techniques to develop long-term extension program plans, techniques to establish program priorities, techniques of training need assessment and techniques of addressing the farmers' problems independently. Due to scarcity of manpower (technical and non-technical staff), high degree of political interference and more number of governmental schemes and programmes were the major hurdles faced by the extension professionals. This clearly indicates that, they are looking forward for additional opportunities for improving their professional development and competencies in their services. An extension worker who has to perform verities of role amongst the farmers must prove to

possess competencies in many diverse areas. A holistic approach to revamp agricultural extension education is needed for extension program to be more effective. There should be a policy to strengthen institutions offering extension education and enable them to provide quality education in attaining core competencies and skills by revising the course contents.

Besides, extension programs in rural areas play an important role in linking farmers and other stake holders in rural development. The relevance of these programs in agriculture is largely dependent on their ability to meet farmers' needs, since they are the major stakeholders at the grass-root level. Therefore, there is no "one-size-fits-all" approach recommended for effective service delivery and outcome due to different farmer needs that are affected by their geographical location, social and economic structures. Hence, rural extension programs should provide a sustainable solution by taking into account the needs of the farmers and market dynamics. At present public extension system would continue to play a prominent role in technology dissemination. The large section of small and marginal farmers and landless laborer's need to be supported by the public extension systems. Technologies required to address overall farming systems are knowledge intensive. Extension system needs to be redefined with focus on knowledge-based technologies to upgrade and improve the skills of the farmers.

As agricultural extension transforms itself into a more diversified farming systems approach from its present simplistic accent on yield

enhancement by increasing some limited inputs, farmers are required to adopt a wider range of inputs and practices and develop skills, which demands a system of market led extension with specific focus on diversification, post-harvest management and export orientation. This will present a more complex role, but simultaneously requiring a flexible approach allowing specific information to be customized for different farmer-groups.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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