Policy initiatives for Improving Competencies of Agricultural Graduates for promotion of agricultural innovations

Abstract

Agricultural education and training systems still have some refinement to dofor producing workforce-ready graduates. Even after continuous upgradation once in five years through Deans committee recommendations the existing curricula in Agricultural Universities is 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. Large group of agricultural extension professionals felt that, effective training should be given on techniques to develop long-term extension program plans, techniques to establish programming priorities and techniques of need or problem assessment. The 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 on techniques to use formal information gathering, digital communication skills in extension and techniques of evaluation of extension programs on an annual basis.

Key words: Policy initiatives, training needs, agricultural innovations, agricultural graduates

Introduction

For innovation to occur, knowledge must be created, accumulated, shared, and useful to the society. Innovations can be 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 (Frank *et al.,* 2013). In a dynamic world, innovations are important to remain competitive, protect the environment, keep pace with development, and have to improve 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. Adequateand continuous investment in agricultural research and education is essential for sustained agricultural growth in

thecountry (Shetty*et al.*, 2014). 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 (Grace andMofakkarul, 2020).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.Withthis 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 promotion of agricultural innovations.
2. To identify problems and offer policy initiatives for promotion of agricultural innovations.

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 the 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 Tumkurdistricts were selected as respondents for the study by selecting 50 extension professionals from each district by applying purposive random sampling. Borich's Educational and training needs assessment model were used based on two dimensions of ability and importance and ranked based on five point continuum Likert format (1= very low to very high in range =5). For ranking and determining educational needs, weighted mean difference scores (WMDS) were calculated.

Findings of the study

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 followed by the they were involved very much in the agriculture extension work even without payment for extra working hours to complete the job and expressed that they also reach work place bit early to get things done as it clearly shown from the Table 1. The study clearly revealedthat,extension professionals are confident and perfectionists about their work but they are merely utilized for transfer of 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 (2020).

2. Perception of Agricultural extension experts on e-Learning

In this growing economy, e-learning is essential for the agricultural professionals for effective work and to perform better in the agricultural extension work. Increased use of digital media by the extension professionals at the field level will enable them to reach large number of farm families with useful agricultural technologies within a short time. The data presented in the 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 conform to the findings of Mithu and Saumen (2017). In fact many respondents are facing problems in operating the computer 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 the Table 2 may be considered seriously by the administrators.

3. Job competence of extension professionals

Job competence is the most desirable characteristics a professional is supposed to possess.Liāna*et al.* (2018) reported that, the competitiveness of an institution is influenced by 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 externalmacro 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 farming community is an essential character of any agriculture extension professional. Information with respect to perception of the extension professionals on job competency was collected by seeking their responses on different statementsand presented in the 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 carrying out filed extension work was elicited on three-point continuum scale namely very much important, important and not important and the results are presented in the Table 4. Majority of the extension professionals expressed that, there must be an integration of current advances in agricultural extension technologies into the curriculum (Jasim*et al.,* 2016). 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 conductingtechnological 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,theyalso 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 to carry out the extension programs and development activities effectively with greater confidence (Ramesh *et al.,* 2019).

6. 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 professional were elucidated from the respondents and priority scores were calculated. The lack of required number of technical and non-technical staff, political interference and promotion of politically motivated popular subsidy schemeswere major hurdles faced by the field extension workers followed by others as mentioned in Table 6. The analysis identifies that majority of professionals lack knowledge on the use of computer skills and digital communication. Therefore it is essential thatconcerned policy makers shouldrevise the contents of the curriculum to improve competencies of the extension workers 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. Hence, agricultural graduates should be taught on the courses about creativity, networking, partnership development, facilitation of development programs, coordination, agribusiness promotion, group mobilization and media management.

Conclusion

Most of the agriculture extension professionals perceived that they are confident and perfectionists about their work. Majority of professionals are willing to learn the 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 grassroot 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

References

DEEPANJANAVARSHNEY,2020, Employees' job involvement and satisfaction in a learning organization: A study in India's manufacturing sector. *Global Business and Organizational Excellence*,**39**(2):51–61.

FRANK M., VANCLAYA., WENDYRUSSELL AND JULIEKIMBER, 2013, Enhancing innovation in agriculture at the policy level: The potential contribution of Technology Assessment. *Land Use Policy*, **31**: 406-411.

GRACE INEGBEDION AND MOFAKKARUL ISLAM, 2020, Youth motivations to study agriculture in tertiary institutions. *J. Agricultural Education and Extension*, **26**(5): 497-512.

JASIM SALEH, NORSIDA MAN, AHMED LAFTA,MAJEED HADI, SALIM HASSAN, NOLILA NAWI AND BASSIM KSHASH,2016, A Review: Training Requirement of Agriculture Extension Officers in Iraq. *Asian J. Applied Sciences*. **9**: 34-40.

LIĀNA SUPE, ARTŪRS ZEPS, INGŪNA JURGELĀNE AND LEONĪDS RIBICKIS, 2018, Factors affecting the competitiveness of a higher education institution: Systematic literature overview. *Research for Rural Development,***2**:245-252.

MITHU ANJALI GAYAN AND SAUMEN DAS, 2017, Awareness and Perception Towards E-learning Among Faculty Members of Tripura University: A Case Study. 11th International CALIBER, Anna University, Chennai.

RAMESH, P. THAMMI RAJU DHUMANTARAO, REDDY, K., PANDIAN KRISHNAN,AMITBISWAS AND UMAMAHESWARI THAVASIYANDI,2019, Perception of teaching competencies by administrators, faculty and students of Indian agricultural universities: an assessment of faculty training needs.*J. Agricultural Education and Extension,***25**: 1-23.

SHETTY P. K., MANORAMA K., MURUGAN M. AND HIREMATH M. B., 2014, Innovations that Shaped IndianAgriculture-then and now.*Indian J. Science and Technology,***7**(8): 1176–1182.

Tables

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	Per cent respondents	
		Yes	No
1	Need to learn the computer and internet skills	85	15
2	Do you have sufficient working knowledge oncomputer 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

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 programpriorities	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

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 governmentalpopular 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