



## Research Performance of Agriculture Faculty Members: A Comparative Study at West Part of Iran

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### Abstract

Based on personal and professional characteristics, the present study compares the research performance among faculty members of agricultural colleges in west part of Iran. The statistical population of this study consisted of all faculty members in the agricultural colleges of universities of Ilam, Razi and Kurdistan at Iran, which 116 faculty members were selected as the sample using the proportionate stratified random sampling method. The main instrument in this study was questionnaire which its validity was confirmed by the panel of experts. The data was analyzed using descriptive and inferential statistics with SPSSWin20 software. Results showed that the present status of research performance among faculty members of agricultural colleges in west part of Iran was weak. Results of mean comparisons showed that there was significant difference between research performance based on age, work experience, academic degree, educational group and gender variables. Findings of this study can pave the way for formulating sound programs in higher agricultural education system to promote research performance among faculty members of agricultural colleges.

#### Keywords:

Research Performance, Personal and Professional Characteristics, Agriculture Faculty Members

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## INTRODUCTION

Scientific and technical capability in the production of knowledge and its application in practice can be considered as the most obvious indicator of development in any country (Najafipour *et al.*, 2009). As such, in the twenty-first century perspective, the promotion of academic research excellence is considered as one of the overriding goals of the university (Tien, 2007). Because, in higher education system, the research performance plays an important role in promotion, tenure and salary and also measured as the main indicator of success in universities (Blonedell, 2001; Kotrlik *et al.*, 2002; Wichian *et al.*, 2009). Due to increasing changes in response to various fields of agricultural science, the higher agricultural education system needs to maintain and enhance the research quality (FAO, 1997). FAO notes that, consistent with other research, the agricultural sciences have undergone several changes. Therefore, aligning the universities' scientific members and agricultural higher education centers with new paradigms and exchange of ideas, scientific meetings and using research findings can significantly develop agricultural higher education institutions and centers (Movahedi *et al.*, 2012). Research performance in universities and higher education institutions is a multidimensional concept that includes several indicators (Tien, 2007). Research performance is the one of the main aspects of the academic performance that plays an important role in the academic ranking of universities (Jung, 2012; Shin and Cumming, 2010). In a broad definition, research performance can include refereed publications, library and field articles, book chapters and monographies (Ransdell, 2001). In the other definitions, research performance also can covers categories such as: research reports published in national and international journals, presentations, patents, citations of articles and rewards (Zainab, 2000).

Researchers mainly measure research performance with calculating and combining the indicators derived from the sum of the number of all completed research reports, the number of published research reports and used research reports (Wichian *et al.*, 2009). In turn, most studies have used the number of categories such as,

books, articles, conferences and research projects to assess the research performance among faculty members in universities (Jung, 2012; Hedjazi and Behravan, 2011; Shin and Cummings, 2010; Wichian, 2009; Law and Chon, 2007; Zhao and Ritchie, 2006; Bowen, 2005; Sax *et al.*, 2002; Changsrising, 2002; Bouden and Cilliers, 2001; Taylor, 2001). In the present study, therefore, we also evaluate the research performance among faculty members of agricultural colleges in west part of Iran, with using most important and basic indicators of research performance, i.e., books, articles, conferences and research projects.

The importance of research on the growth and development of communities is critically important. As societies develop, they must improve its position more than anything else with deepening their research and development (Karimian *et al.*, 2011). In Iran, more than 70 percent of the research capability of researchers is concentrated in the universities and research institutions (Hosseinpour, 2011). According to statistics, the number of documents indexed in 2008 at Iran, was 13,568 cases and shows that on average, every four faculty members have produced a document (Saburi, 2009). The same ratio is 40 at Thai public universities (Wichian *et al.*, 2009). Although, in the recent years, we can observe that there has been relatively suitable growth of research activities at Iran, but on a global scale, comparative comparison of the research indicators suggest that the utility of these indicators are still not enough (Karimian *et al.*, 2011). Turkey has a considerable distance from Iran, yielded first rank, when compared to other countries in the region (Saburi, 2009). Therefore, because universities and higher education centers have required resources, specialists, research facilities and also have important mission of knowledge production, they are more responsive to current gap than other parties (Toreghi, 2005). Moreover, due to universities have important mission toward realization of the national aspirations, they are more inclined to increasingly improve their dynamic production of the science and research (Karimian *et al.*, 2011). In this regard, researchers believe that Iran, however, has the capacity, talent and important intellectual capitals and the field is ready for a huge scien-

tific leaps, but now more than ever the question is that why the growth of academic research in Iran is not enough? Researchers addressed this question from different perspectives and found that knowledge production is influenced by personal and professional characteristics (Callcut *et al.*, 2004; Castill and Cano, 2004; Smeby and Try, 2005; Ouimet, 2005; Lertputtarak, 2008; Wichian *et al.*, 2009; Jung, 2012).

Despite the importance of personal and professional characteristics in the research performance, to date, there is no study to profoundly study the effects of these characteristics on the research performance among faculty members of Iran's universities and higher education institutions. Already, it is generally accepted that in the light of an effective and efficient system of higher education, holistic development is as possible as other fields. Given the importance of the research problem and extant literature, in this study, the research performance among faculty members of agricultural colleges in west part of Iran were studied according to their personal and professional characteristics. Therefore, with focus on personal and professional characteristics, the present study aimed to compare the research performance among faculty members of agricultural colleges in west part of Iran. Also, the derived specific objectives of the study are as follow:

- 1- Investigate the faculty members' personal and professional characteristics;
- 2- Investigate the current status of research performance among faculty members;
- 3- Compare the research performance among faculty members based on their personal and professional characteristics.

## MATERIALS AND METHODS

This study categorizes in applied and descriptive-survey studies and used quantitative research paradigm. The statistical population consisted of all agricultural faculty members of universities, Ilam (31), Razi (59) and Kurdistan (47) at Iran (N=137). Using the sampling table (Patten, 2002), 116 (26 Ilam University, 51 Razi University, 39 Kurdistan University), were selected via the proportionate stratified random sampling method (n=116). The main research instrument for data collection was a question-

naire consisted of two parts, which first section includes personal and professional characteristics. Through a systematic review of the literature, in the second section, we applied four indicators (i.e., article, conference, research project and book) to measure research performance. The data concerning the research performance of faculty members in 2011 and 2012 was extracted from personal and research files in the form of a documentary study. Validity of the questionnaire was assessed through panel of expert in department of agricultural extension and education faculty members and education and psychology of university of Tehran. SPSSWin20 software was used to analyze the data in two parts of descriptive (Frequency, percentage, mean and standard deviation) and inferential (Tests of mean comparison) statistics.

## RESULTS

### Personal and professional characteristics

Based on the findings, the average age of faculty members was 40.5 years (SD=8.19) and with the age range 29 to 67 years, which most of them (45.7 %) categorized in the age stratum 39 to 48 years. Also, the average work experience of the faculty members was 10.16 years (SD= 7.47) and with the age range 1 to 30 years, which most of them (60.3%) categorized in the work experience stratum 10 years and less than 10 years. Furthermore, based on the findings, 25 percent of the faculty members (29 cases) were working in the Department of Agronomy and Plant Breeding and 2.6 percent of them (n=3) were working in the Department of Science and Food Industry. Other personal and professional characteristics of faculty members were shown in Table 1.

### Research performance

In order to assess the research performance of the faculty members, four indicators of articles, conferences, research projects, and books were used. The results of the prioritization of indicators to measure the research performance is presented in Table 2.

Based on the findings presented in Table 2, among the four indicators of measuring research performance, conference is located at top priority, while book is last priority. Overall, the av-

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Table1: Descriptive statistics of respondents regarding their personal and professional characteristics

Variable	Category	Frequency	Percent (%)
<b>Gender</b>	Male	108	93.1
	Female	8	6.9
<b>Marital status</b>	Married	96	82.8
	Single	20	17.2
<b>Academic degree</b>	Assistant	102	87.9
	Associate	8	6.9
	Professor	6	5.2
<b>University</b>	Ilam	26	22.4
	Razi	51	44.0
	Kurdistan	39	33.6

erage research performance of faculty members was 2.71 (lower than mean=5.28) with a coefficient of variation of 1.87. These findings suggest that the research performance among faculty members of agricultural colleges in west part of Iran is weak.

### Comparison of the research performance based on personal and professional characteristics

In order to compare the research performance of faculty members based on age, work experience, university, academic degree and educational group variables, we applied Kruskal - Wallis test (Table 3). As findings show, there is significant difference in the research performance of faculty members based on age, work experience, academic degree and educational group. According to ranking mean, faculty members who located in the age class of 59 years and more, have more research performance than other faculty members. Faculty members with work experience class of 11 to 20 years, show higher research performance than other faculty members. Faculty members, who possess an academic degree of associate professor, are more likely to show research performance than other faculty members. Finally, faculty members who

were working in the department of agricultural extension and education, have more research performance than other their counterparts.

To compare the research performance of faculty members based on gender, marital status, and using sabbatical variables, we applied Mann-Whitney Test (Table 4). Surprisingly, our findings indicate that there is no significant difference in the research performance of faculty members based on their marital status and using sabbatical. However, there was significant difference between faculty members on their gender with higher performance of male faculty members than their counterparts.

Finally, we include graduate university as independent variable into independent t-test in order to compare the research performance of faculty members (Table 5). The results presented in Table 5, indicate that there is no significant difference in the research performance of faculty members based on the grouping variable of graduate university.

## DISCUSSION

Faculty members of Iranian higher agricultural education system have crucial role of accelerating the development process through knowledge

Table 2: Prioritization of indicators assessing research performance professional characteristics

Indicators	Mean	C.V.	Min	Max	Priority
<b>Article</b>	2.37	2.22	0.00	13.50	2
<b>Conference</b>	6.32	4.60	0.00	19.00	1
<b>Research project</b>	1.65	1.56	0.00	9.00	3
<b>Book</b>	0.43	0.60	0.00	3.00	4
<b>Research performance (Total)</b>	2.71	1.87	0.50	10.56	-



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Table 3: Comparison of research performance of respondents related to their personal and professional characteristics

Independent variable	Category	Frequency	Ranking Mean	Kruskal-Wallis Test	Significant Level
Age	up to 38	49	47.58	13.628**	0.003
	39-48	53	62.00		
	49-58	7	80.00		
	more than 59	7	86.93		
Work experience	up to 10	70	51.25	8.266*	0.016
	11-20	35	70.13		
	more than 21	11	67.64		
University	Ilam	26	66.35	2.761	0.251
	Razi	51	59.23		
	Kurdistan	39	52.32		
Academic degree	Assistant	102	54.62	11.491**	0.003
	Associate	8	90.31		
	Professor	6	82.08		
Educational group	Agri. Extension	7	92.71	27.268**	0.001
	Agronomy	29	69.48		
	Plant Protection	11	68.18		
	Irrigation	13	49.58		
	Animal Science	23	64.26		
	Agri. Mechanics	8	41.75		
	Soil Science	10	61.30		
	Horticulture	7	12.14		
	Agri. Economics	5	53.00		
	Food Science	3	50.33		

\*\* P < 0.05 , \* P < 0.10

production and its transfer to their clients. Therefore, understanding the factors that affect the academic success and performance are critically important. In this regard, the present study conducted to compare the research performance among faculty members of agricultural colleges in west part of Iran, based on their personal and professional characteristics. Findings of this study could increase our understanding of the personal and professional factors affecting the research performance and would help planners of universities to develop coherent programs for promoting research performance.

Findings showed that the age, as a personal factor, has a major role in the research performance of faculty members. Older faculty members were more likely to show higher levels of research performance. This finding is corresponds with previous studies, such as [Callcut et al., \(2004\)](#), [Castill and Cano \(2004\)](#) and [Smeby and Try \(2005\)](#). Hence, as our findings show, we argue that one of the reasons for the poor research performance among faculty members of agricul-

tural colleges in west part of Iran is the effect of age on the research performance. Therefore, this study encourages planners of Iranian agricultural higher education system to develop a systematic program in which younger faculty members can benefit from the experiences of older faculty members.

Results showed that the work experience, also, plays an important role in the research performance of faculty members, so that faculty members with more work experience have more research performance than their counterparts. This finding can be dovetailed with of the studies such as, [Callcut et al., \(2004\)](#), [Castill and Cano \(2004\)](#) and [Jung \(2012\)](#). Hence, we can state that one of the other reasons for the poor performance among faculty members of agricultural colleges in west part of Iran is their weak work experience and, in this regard, we suggest that the participatory culture should be encouraged, in which, all experienced and less experienced faculty members will have more opportunities to work together and use and exchange their expe-

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Table 4. Comparison of research performance of respondents related to their gender, marital status, and using sabbatical.

Independent variable	Category	Frequency	Ranking Mean	Kruskal-Wallis Test	Significant Level
<b>Gender</b>	Male	108	61.08	153.000***	0.002
	Female	8	23.63		
<b>Marital status</b>	Married	96	60.14	803.000	0.251
	Single	20	50.65		
<b>Using studying opportunities</b>	Yes	17	69.56	653.500	0.142
	No	99	56.60		

\*\* P < 0.01.

Table 5. Comparison of research performance of respondents related to their graduate university.

Independent Variable	Category	Frequency	Mean	SD	t	Significant level
<b>Graduate University</b>	Interior	77	9.96	7.416	-1.685	0.095
	Abroad	39	12.44	7.610		

\*\* P < 0.01.

riences.

Our findings indicated that the academic degree, as a professional factor, can significantly contribute to research performance. Faculty members with an academic degree of associate professor were as being more research performance than their counterparts. This finding is consistent with [Smeby and Try \(2005\)](#). Hence, given that most faculty members among agricultural colleges in west part of Iran were placed in assistant professor degree, we can say that one of the factors contributing to their poor performance is low academic degree (Assistant) in the majority of them. In this regard, having professor academic degree could be the most important incentive for faculty members with academic degree of associate professor in order to proceed to further promotions, however, faculty members with academic degree of assistant professor have a great distance from those faculty members, already, possesses an academic degree of professor, and, in turn, have no incentive to conduct research in order to be upgraded. Therefore, the planners of Iranian agricultural higher education system can take measures such as increase in salary and welfare facilities, if we would expect that assistant faculty members should be more active in the field of research and knowledge production.

Results showed that the educational group of

faculty members can have a major role in their research performance. Faculty members who were working in the department of agricultural extension and education show more research performance than their counterparts. This finding could be due to the nature of farming fields and the conditions and facilities for research that they are primarily needed. Accordingly, researchers who are working in the field of agricultural extension and education are more active and productive in poor laboratory facilities, due to they are often interested to the farming conditions of social, cultural and economic, and are mainly applied a non-experimental design. Therefore, it is recommended that planners of agricultural higher education system can improve the research performance of all faculty members with providing research equipment and facilities required for the knowledge production.

Finally, our results showed that the gender can significantly affect in the research performance, in that, male faculty members were more likely to show higher research performance than their counterparts, which is congruent with findings of [Castill and Cano \(2004\)](#), [Jung \(2012\)](#) and [Ouimet \(2005\)](#). This finding may be because of the female faculty members at Iran have been faced with two major obstacles for scientific work in universities, i.e., being as busy because of probably much work in the home and other

motivational and cultural restrictions for work in social environments. Therefore, we suggest that planners of Iranian agricultural higher education system take necessary actions to eliminate the motivational and cultural barriers affecting the participation of female's faculty members in academic research activities.

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