

1 **Benefits and Challenges of Agricultural Students' International Research**
2 **Collaboration**

3
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5 **ABSTRACT**

6 International collaboration is the key element to expand the horizons of knowledge and
7 technology and to solve sustainability problems. To plan and implement this issue as
8 effectively as possible, this study analyzed the lived experiences of agricultural students about
9 the benefits and challenges of international research collaboration. This applied research used
10 a mixed-method approach in two steps. First, an interview was done with PhD-agriculture
11 students at the University of Tehran, who had published at least one article with international
12 co-authorship in an international journal. Interviews were continued with 19 participants until
13 the saturation point was reached. Interviews were transcribed and analyzed using the six stages
14 of thematic analysis of Braun and Clarke (2006) and by conducting MAXQDA software.
15 Second, a questionnaire was developed and conducted to investigate the importance of each of
16 the items from the same 19 students who participated in the interview step. In this step,
17 descriptive statistics were done by using SPSS software/ver23. Percentage, mean, and standard
18 deviation were calculated for descriptive analysis. The findings showed that the international
19 research collaboration had 24 benefit codes in the four dimensions of communication;
20 scientific-research; academic; and personal-professional. On the other hand, 17 challenge
21 codes were categorized into three groups of personal, motivational, attitudinal; managing the
22 research and publication process; and cultural, technical, and economic. Based on the means
23 of benefits and challenges of students' international research collaboration, the first ranks were
24 "academic" with Mean= 4.06 and "personal, motivational, attitudinal" with Mean= 4.28 for
25 benefits and challenges, respectively. According to the findings, building teamwork skills in
26 higher education is recommended as it can positively promote students' collaboration with
27 others for research projects. This original and innovative study has theoretical and practical
28 implications and value. The results are beneficial for universities to make decisions and plan
29 activities that enhance students' international research collaboration.

30 **Keywords:** Agricultural higher education, Co-authorship, English proficiency, International
31 research collaboration, Teamwork Skills, Visibility.

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35 INTRODUCTION

36 Different factors impact the progress of developing countries, among them the most important
37 is agriculture (Tugendhat & Alemu, 2016). In many countries, the agricultural sector causes
38 significantly to the overall growth and development of their economies, and undoubtedly,
39 agricultural development has special potential for employment (Osabohien et al, 2019).
40 Agriculture has a key role to play in achieving sustainable food security throughout the world
41 and is an essential determinant in the quest for reducing and ending poverty at all levels
42 (Osabohien et al., 2018; Osabohien et al, 2019; Anderberg, 2020; Gunnarsson and Wingborg,
43 2022). But at the same time, there are several challenges. The agriculture has to produce more
44 food on less available soil. That means it is crucial to raise the efficiency of agriculture in the
45 future decades to serve the increasing need for food and to stop hunger (Horváth, 2016). The
46 understanding of the complexity of agricultural systems in the past decades and increasing
47 emphasis on sustainable agricultural development have stimulated researchers in the field of
48 agriculture to look for research approaches to effectively link scientific advancement for more
49 benefits and consequences (Galmiche-Tejeda, 2013). So, the productivity and the effectiveness
50 of agriculture have to be raised by using and applying the novel findings of the research and
51 development activities associated with agriculture (Fekete et al., 2014).
52 Research is the foundation of development and progress across different fields, shaping
53 individuals' awareness, knowledge, and understanding of the world, driving innovation, and
54 solving complex issues and problems (Mendonca, 2009). Giving importance to research and
55 increasing research in each country causes development and progress and brings real
56 independence to that country (Hakkak et al., 2017, p. 46). So, the idea of progress without
57 paying attention to research seems far and unlikely. Today, the main criterion for determining
58 the scientific status of countries is the degree of participation in the production of science,
59 technology, and innovation and the role that the country plays in the process of global scientific
60 development (Taghizadeh Kerman et al., 2014). Accordingly, scientific research plays a critical
61 role in the field of agricultural development through knowledge generation, innovation, and
62 evidence-based solutions for emerging challenges in agriculture and for improving sustainable
63 practices and enhancing the productivity, development, and resilience of farming systems
64 (Mohamed El Mahdy, 2021).

65 In the present era, most scientific research is collaborative effort as opposed to individual
66 efforts of the past decades. In other words, collaboration is a 21st-century orientation in
67 academia; especially as research questions are larger and more complex and complicated,

68 requiring the efforts of more researchers and investigators from a broader variety of
69 perspectives and disciplines (Penniston, 2022). In academic research, collaboration usually
70 means an equal partnership between two or more academic faculty members, researchers, and
71 students involved in a research project (Delgadillo, 2016). In research collaboration,
72 researchers with diverse views and perspectives work and collaborate on interdependent
73 research tasks in order to knowledge production and achieve knowledge integration (Cooke &
74 Hilton, 2015). The world today has recognized the importance and influence of collaboration
75 in finding solutions for people, societal and global issues and problems (Bature & Atweh,
76 2019). Additionally, issues that were restricted to national borders have now become
77 international such as climate change, food security, health, environmental sustainability, etc.
78 Finding solution to these problems requires the collaborative effort of researchers from all
79 around the world. So, international research collaboration as one of the hottest topics in recent
80 years (Chen et al., 2019) is considered as one of the most important aspects of academic
81 careers (Bond et al., 2021). There is a greater need for internationally collaborative projects for
82 knowledge and technology transfer for sustainable agricultural development (Cakir &
83 McHenry, 2014). There are diverse levels of international research collaboration, which range
84 from exchanging ideas and insights, networking with international researchers, participating in
85 grant applications, and publishing paper and research findings (Wai-Chan, 2017). In today's
86 increasingly globalized world, countries and institutions can benefit from international research
87 collaboration (Marginson, 2018), which is suggested by many as an indicator of high-quality
88 research (Kim, 2006).

89 Studies on research collaboration show that international collaboration in higher education
90 presents both challenges and opportunities. Networking with others, having shared interests,
91 sharing and exploring different ideas, and learning from others are some of the most important
92 reasons for conducting international research collaboration (Bond et al., 2021). Expanding
93 access to global knowledge resources (Waham et al., 2023), sharing knowledge and skills,
94 resources and costs between institutions (Abramo et al., 2019; Niederkrotenthaler et al., 2020),
95 improving research quality (Kumar & Ratnavelu, 2016; Mali et al., 2018), enhancing research
96 productivity (Waham et al., 2023), improving university quality indices and preparing students
97 for a global workforce (Aldieri et al., 2018; Waham et al., 2023), wider networking (Yemini,
98 2019), increasing the likelihood of collaborating with multiple authors in the future (Kumar &
99 Ratnavelu, 2016) were other benefits stated by different researchers. Studies on the impact of
100 international collaboration on citations showed a positive relationship between international

101 collaboration and the number of citations (Ni & An, 2018; Abramo et al., 2019; Alamah et al.,
102 2023). Ni and An (2018) found that papers published by more than three countries received
103 more citations.

104 According to the studies on the challenges of international collaborations, Caniglia et al. (2017)
105 identified two major challenges; institutional policy challenges and intercultural challenges.
106 Confusion over authorship order (Bukvova, 2010; Bozeman et al., 2016), language barriers
107 (Wöhlert, 2020), lack of clarity on who has responsibility for the results of the collaboration
108 (Bukvova, 2010), potentially less productivity, particularly as a result of navigating differing
109 work cultures (Abramo et al., 2019; Yemini, 2019), fiscal constraints (Kogan & Teichler,
110 2007), and high costs of collaboration (Cummings & Kiesler, 2007) considered as important
111 challenges in different studies. Ensuring academic quality and standards, cultural differences,
112 funding and resource constraints, and managing complexities were also stated as challenges of
113 research collaboration (Waham et al., 2023). International partnerships in research cause
114 additional financial costs that can be related to individuals, translators, travel, and equipment
115 (Freshwater et al., 2006).

116 In universities and higher education institutions, teaching and research missions form the core
117 functions that contribute as a key measure in evaluating the quality of universities and their
118 performance and contribution to society (Liu et al., 2022; Parr, 2022). It is expected from the
119 agricultural higher education system that, while performing their educational and research
120 missions, they move towards the production and dissemination of new knowledge and
121 technologies in the agricultural sector (Pouratashi & Zamani, 2020; Karimi Etemad et al.,
122 2022). So, international collaboration in higher education has become necessary for universities
123 seeking to foster cultural exchange, enhance academic excellence, and address global
124 challenges (Waham et al., 2023).

125 Like many countries, Iran has paid attention to the need for internationalization of higher
126 education, and universities and higher education institutions emphasize and implement various
127 measures towards internationalization, among them are international research collaborations.
128 Hence, research collaborations, both within and between higher education institutions, are
129 becoming increasingly vital in light of progressively complex problems (Bond et al., 2021). In
130 general, international research collaboration is an efficient and valuable process and can serve
131 as an opportunity to benefit. But at the same time, it can be complex and challenging. Since
132 international academic research collaboration is linked with many benefits, it is one of the
133 researchable issues in universities. However, there is limited research on the experiences of

134 individuals with international academic research collaboration. Accordingly, and given the
135 need for an in-depth investigation of higher education internationalization programs on the one
136 hand, and the lack of a study on the international academic research collaboration of
137 agricultural students on the other, the present study aids in fulfilling the gap in the literature.
138 Accordingly, this study intends to provide answers to the following research questions by
139 focusing on the research on agricultural higher education in Iran: (a) What are the benefits of
140 international research collaboration? (b) What are the challenges of international research
141 collaboration?

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143 MATERIALS AND METHODS

144 This research was a descriptive, non-experimental, and applied study that used a mixed-method
145 approach to properly answer the research questions. In different stages of this research such as
146 collection and analysis of data, the ethical standards were observed and effort was made to
147 ensure the accuracy to obtain verifiable and valid results.

148 First, a qualitative approach was conducted, using interviews and thematic content analysis.
149 Thematic analysis, which is a proper method to identify and analyze different patterns in the
150 data, was used to achieve an understanding of patterns of meanings from data on the lived
151 experiences of individuals. The interviews were conducted through a telephone conversation
152 and the average time of each interview was about 45 minutes. Before conducting the
153 interviews, the interview protocol was provided to the participants and they were assured that
154 the interviews would remain completely confidential and the conversations would be analyzed
155 only for the purpose of the research and without mentioning any personal information of the
156 participants.

157 The participants of this study comprised PhD-agriculture students at the University of Tehran,
158 who had published at least one article with international co-authorship in an international
159 journal. The selection of participants was purposeful of PhD-students who had experiences
160 related to the subject of the research and with diversity from departments of horticulture, soil
161 science, agricultural extension and education, food science and technology, irrigation and
162 reclamation engineering, and agricultural management and development. In qualitative
163 research, the number of participants is not predetermined and a fixed number of participants is
164 not defined from the beginning. So, after the data becomes repetitive and reaches the point of
165 saturation, the researcher comes to the conclusion that interviews and data collection are

166 enough. In this way, the process of conducting interviews continued until the saturation point
167 was reached and 19 students were interviewed.

168 After collecting the data, the interviews were transcribed and coding was used to analyze the
169 collected information, with the stages of thematic analysis introduced by Braun and Clarke
170 (2006) in the six stages including familiarization, codes formulation, themes generation, review
171 of themes, naming and defining themes, and formation and writing the report. Accordingly, the
172 texts of transcribed interviews were studied several times and the coding was determined in the
173 form of words and concepts. MAXQDA software, which is a powerful tool for analyzing
174 qualitative data to obtain accurate results from data analysis, was used to analyze the collected
175 information and to identify the concepts and dimensions in the data. In order to check the
176 accuracy and validity of the data, the criteria of reliability, transferability, and verifiability were
177 used.

178 For the second step of data collection and in order to study the importance of each of the items
179 from the views of the same 19 students who participated in the previous step, a quantitative
180 approach was conducted. A questionnaire in which items were extracted from the data of the
181 first step was developed for gathering data. The respondents were asked to express their views
182 about the importance of each item on a Likert scale from 1 to 5. Face validity of the
183 questionnaire was confirmed by a panel of experts consisting of faculty members. After that,
184 data were analyzed descriptively, including Percentage, mean, and standard deviation, using
185 SPSS (Statistical Package for Social Science, Chicago, IL)/Windows version 23.

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187 RESULTS

188 Step 1: Qualitative findings

189 The participants were asked to express their experiences of international research collaboration
190 with foreign partners and to identify the benefits of the collaboration. The findings showed the
191 extraction of 24 codes in the form of four categories: (a) communication, (b) scientific,
192 research, (c) academic, and (d) personal-professional. The findings are shown in Table (1).

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Table 1. Extracted categories of benefits of international research collaboration.

Core category	Category	Code	Sample of statements
Benefits of international research collaboration	Communication	Networking with experts	<ul style="list-style-type: none"> - Academic research is becoming more international. The joint research project that I did, made my networking wider and I was in contact with several other professors and researchers who were active in my field of interest and expertise. We will soon submit a joint proposal to receive an international grant. - Well, science is an international endeavor. So, collaboration with a person who is aware of current issues in a foreign context and university helps to expand research ideas international perspectives, and research knowledge. - In recent years, there has been a lot of dialogue about the internationalization of higher education, and this issue is important. Well, when I publish an article with the name of a professor from whom I take advice; it is valuable for me and the brand of my university to be highlighted and known. - Citation to articles is considered one of the indicators in some university ranking systems. When we publish quality research work with the name of a prominent professor, it not only increases the brand and visibility of the person; it also increases the reputation and scientific standing of the university. - A paper I published with a team of foreign colleagues in a prestigious high-impact journal was highlighted in my resume and was noticed in the academic interview at the university. - International collaboration on research helped me understand and experience other people's cultures.
		Create professional connections with peers in other countries.	
		Forming multidisciplinary and specialized teams to conduct research	
	Scientific, research	Exploring new ideas for research	
		Publishing the research findings at the international level	
		Increasing the number of students' articles in international Journals	
	Academic	Accelerating the research process	
		Improving the quality of research	
		Creating synergy and broadening research experiences	
Personal-professional	Active participation in the internationalization of higher education		
	Enhancing reputation of the university		
	Sharing costs and resources between participating universities		
	Strengthening the research performance of the university		
	Help to improve one's scientific status		
	Negotiation for acquisition the postdoctoral position		
Opportunity to learn and update experiences			
The formation of complementary capabilities and skills			
Strengthening students' cultural skills			
Increasing visibility			
Sharing different ideas			
Increasing the number of citations			

200 One another question asked participants was about the challenges of international academic
 201 research collaboration according to their experiences of research collaboration. As can be seen
 202 from Table (2), the 17 codes were categorized in the form of three groups including (a)
 203 personal, motivational, attitudinal, (b) managing the research and publication process, and (c)
 204 cultural, technical, and economic.

Table 2. Extracted categories of challenges of international research collaboration.

Core category	Category	Code	Sample of statements
Challenges of international research collaboration	Personal, motivational, attitudinal	Limited English proficiency	- It is very difficult and time-consuming to find a foreign colleague who has worked in my research field and is interested in the joint activity. I emailed and reminded a professor more than 5 times and asked him to help me in writing a part of an article. But I did not receive any answer.
		Long time to find a foreign professor/partner and get a positive response to the request	
	Weakness in establishing multicultural interaction and communication		
Managing the research and publication process	Personal, motivational, attitudinal	Wrong choice of research partner	- We conducted joint research with the collaboration of 4 people, and since we had not discussed the order of names from the beginning when submitting the article, the name of the first professor was included and we had a disagreement about the order of the other three. This factor caused us to somehow lose our motivation for further collaboration.
		Negative mental records from some previous joint collaborations	
		Lack of sufficient motivation to conduct joint international research	
Cultural, technical, economic	Managing the research and publication process	Ignorance of international joint research activities in the university	- I met a PhD student in another country who was doing research in my research field and had published an article. We talked about a topic to do a joint scientific activity. That student benefited from the financial support of his professor, but I had to pay the research costs personally and the university did not have any financial support for this scientific activity from me.
		Lack of trust to provide data and information to others	
		Time and research management	
Cultural, technical, economic	Managing the research and publication process	Work overload	
		Confusion on authorship order	
		Responsibility of results	
Cultural, technical, economic	Managing the research and publication process	Technology issues	
		Funding	
		Different time zones and geographical distance	
Cultural, technical, economic	Managing the research and publication process	Cultural difference	
		University policy	

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 206 **Step 2: Quantitative findings**

207 Participants' views on the benefits of international academic research collaboration are shown
 208 in Table (3). Due to the participants' views, amongst the items in the communication category,
 209 the mean of “networking with experts” was 4.18, indicating that this item was at a relatively

210 very high level of importance. The mean of “publishing the research findings at the
 211 international level”, “active participation in the internationalization of higher education”, and
 212 “increasing the number of citations” were 4.12, 4.37, and 4.68, respectively; showing the great
 213 value of the aforementioned items in the other benefit categories.

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Table 3. Mean and standard deviation related to the codes of benefits of international research collaboration.

Core category	Category	Code	M	SD	Rank
Benefits of international research collaboration	Communication	Networking with experts	4.18	.54	1
		Create professional connections with peers in other countries	3.87	.80	2
		Forming multidisciplinary and specialized teams to conduct research	3.62	1.14	3
			3.89		
Scientific, research		Exploring new ideas for research	4.00	.81	4
		Publishing the research findings at the international level	4.12	.80	1
		Increasing the number of students' articles in international Journals	4.06	.85	3
		Accelerating the research process	3.68	.94	5
		Improving the quality of research	4.06	.77	2
		Creating synergy and broadening of research experiences	3.50	1.03	6
					3.90
academic		Active participation in the internationalization of higher education	4.37	.83	1
		Enhancing reputation of the university	4.06	.53	3
		Sharing costs and resources between participating universities	3.62	.88	4
		Strengthening the research performance of the university	4.18	.83	2
					4.06
Personal-professional		Help to improve one's scientific status	4.25	.77	3
		Negotiation for acquisition of the postdoctoral position	4.00	1.09	5
		Opportunity to learn and update experiences	3.56	.89	6
		The formation of complementary capabilities and skills	3.43	.81	8
		Strengthening students' cultural skills	3.50	.87	7
		Increasing visibility	4.43	1.09	2
		Sharing different ideas	4.12	.80	4
		Increasing the number of citations	4.68	.47	1
			4.00		

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216 Due to the students' views on the challenges of international research collaboration (Table 4),
 217 in the category of “personal, motivational, attitudinal” the first rank was related to “lack of
 218 sufficient motivation to conduct joint international research” (M=4.62). In the categories of
 219 “managing the research and publication process” and “cultural, technical, economic” the first
 220 ranks were related to “confusion on authorship order” (M= 4.62) and “funding” (M= 4.56),
 221 respectively.

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Table 4. Mean and standard deviation related to the codes of challenges of international research collaboration.

Core category	Category	Code	M	SD	Rank	
Challenges of international research collaboration	Personal, motivational, attitudinal	Limited English proficiency	4.50	.51	2	
		Long time to find a foreign professor/partner and get a positive response to the request	4.37	.73	5	
		Weakness in establishing multicultural interaction and communication	3.87	.95	7	
		Wrong choice of research partner	4.18	.67	6	
		Negative mental records from some previous joint collaborations	3.81	.98	8	
		Lack of sufficient motivation to conduct joint international research	4.62	.71	1	
		Ignorance of international joint research activities in the university	4.43	.62	4	
		Lack of trust to provide data and information to others	4.43	.50	3	
				4.28		
		Managing the research and publication process		Time and research management	3.68	.79
Work overload	4.12			.51	3	
Confusion on authorship order	4.62			.62	1	
Responsibility of results	4.43			.81	2	
		4.21				
Cultural, technical, economic		Technology issues	4.12	.57	2	
		Funding	4.56	.25	1	
		Different time zones and geographical distance	3.81	.79	4	
		Cultural difference	3.43	.51	5	
		3.87	.62	3		
		3.96				

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224 Based on the means of each of the categories related to benefits and challenges of conducting
 225 a successful international research collaboration, the first rank on benefits of international
 226 research collaboration was related to the “academic” variable (M=4.06). The other ranks
 227 related to personal-professional (M=4.00), scientific, research (M=3.90), and communication
 228 (M=3.89), respectively. Regarding the challenges, the first rank was related to the “personal,
 229 motivational, attitudinal” variable (M=4.28). The other ranks were managing the research and
 230 publication process (M=4.21) and cultural, technical, economic (M=3.96), respectively.

231

232 DISCUSSION

233 In the age of global science, higher education plays a significant role in the social, cultural, and
 234 economic development of a country (Fitriani & Muljono, 2019). On the other hand, according
 235 to the fact that agriculture has a very important role in the life of humankind; improving
 236 sustainable agricultural management and achieving the goals of agricultural and rural
 237 development requires the comprehensive attention of universities and academics to conduct
 238 problem-oriented research. International research collaboration is a specification of rapidly
 239 changing research systems and a key element of a university's research reputation. So, research

240 is becoming ever more international, and international collaboration in higher education
241 research has increased rapidly in the last two decades (Avdeev, 2019). Accordingly, this paper
242 emphasized the importance of enhancing international research collaboration and sought to
243 analyze the lived experience of PhD-agriculture students of international academic research
244 collaboration. As Freshwater et al. (2006) stated, international research is challenging, but at
245 the same time, it has significant and remarkable outcomes. The findings of this study indicated
246 that the research collaboration was potentially a valuable activity that had benefits in the
247 dimensions of communication; scientific-research; academic; and personal-professional. The
248 findings are consistent with previous studies (Mali et al., 2018; Aldieri et al., 2018; Abramo et
249 al., 2019; Yemini, 2019; Bond et al., 2021). As Altbach & Knight (2007) suggested, it is more
250 important than ever to be engaged in advantageous collaborative international academic
251 research. Although positive achievements can be expected from international research
252 collaboration, which brings growth and skill empowerment to students; challenges and
253 obstacles have been reported by participants, which can be categorized into the three groups of
254 personal, motivational, attitudinal; managing the research and publication process; and
255 cultural, technical, economic. The findings are consistent with previous studies (Bozeman et
256 al., 2016; Yemini, 2019; Abramo et al., 2019; Wöhlert, 2020).

257 The findings revealed that personal-motivational-attitudinal was the biggest challenge in
258 conducting successful international research collaboration. Students have a collection of
259 strengths and weaknesses regarding research collaboration. The most important strength of
260 students is benefiting from specialized knowledge and skills, which can be an effective factor
261 for expanding scientific and research connections and conducting international research with
262 foreign researchers and professors. In contrast, a weak point, is the limited English proficiency
263 of some students, which was also prominent in the findings of this study. Since a significant
264 number of international scientific productions are published in English, students' mastery and
265 proficiency in English help them to communicate with foreign colleagues in a better way. In
266 Wöhlert's (2020) study, language barriers were mentioned as one of the important barriers to
267 international scientific cooperation. Language differences make several barriers. For example,
268 a lack of clarity of the meaning of words can lead to misunderstandings, not only among the
269 research team but also among audiences and participants (Freshwater et al., 2006). Therefore,
270 it is necessary for universities to increase students' awareness and skills so that they can benefit
271 from more positive outcomes.

272 International collaboration in higher education is an important effort and endeavor that needs
273 careful planning and serious institutional commitment (Waham et al., 2023). The challenges of
274 international research ask for smart and creative problem-solving and participants' commitment
275 to the overall purpose of the research project. Research collaboration requires a positive
276 research culture to succeed (Gilmour, 2023). Effective collaborative teams bring significant
277 outcomes, more than what could be done by individuals independently. So, the culture of
278 teamwork, participation, and scientific collaboration among students should be taken into
279 consideration by university professors and managers. Holding training workshops and
280 encouraging teamwork in research projects by professors can positively promote this culture
281 among students.

282 283 Conclusions

284 This study examined agricultural students' lived experiences and views on the benefits and
285 challenges of international research collaboration. So, this study adds to the current body of
286 knowledge and literature in the field of international research collaboration and
287 internationalization of higher education.

288 This study has theoretical and practical implications. At the theoretical level, the findings add
289 to the existing literature on international research collaboration. At the practical level, the
290 results are beneficial for universities to make decision and plan activities that enhance
291 agricultural students' international research collaboration.

292 Along with many benefits, this study has its limitations. This research measured the benefits
293 and challenges of agricultural students' international research collaboration from the views of
294 a limited sample. It would be helpful to examine the importance of the extracted items with a
295 large statistical sample of agricultural students from different universities. Conducting such
296 studies, along with examining and assessing similarities and differences between the views of
297 different groups of respondents, is recommended for future studies.

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مزایا و چالش های همکاری پژوهشی بین المللی دانشجویان کشاورزی

مهتاب پورآتشی

چکیده

413 همکاری بین المللی عنصر کلیدی برای گسترش افق دانش و فناوری و حل مشکلات پایداری است. برای برنامه ریزی و
414 اجرای هرچه مؤثرتر این موضوع، این مطالعه تجربیات زیسته دانشجویان کشاورزی را در مورد مزایا و چالش های
415 همکاری تحقیقاتی بین المللی مورد تجزیه و تحلیل قرار داد. این پژوهش کاربردی از رویکرد ترکیبی در دو مرحله
416 استفاده کرد. ابتدا مصاحبه ای با دانشجویان دکتری کشاورزی دانشگاه تهران که حداقل یک مقاله با تالیف مشترک بین
417 المللی در یک مجله بین المللی منتشر کرده بودند، انجام شد. مصاحبه با 19 شرکت کننده تا رسیدن به نقطه اشباع ادامه
418 یافت. مصاحبه ها با استفاده از شش مرحله تحلیل موضوعی براون و کلارک (2006) و با اجرای نرم افزار
419 MAXQDA رونویسی و تحلیل شدند. دوم، پرسشنامه ای برای بررسی اهمیت هر یک از موارد از همان 19 دانش
420 آموزی که در مرحله مصاحبه شرکت کردند، تهیه و اجرا شد. در این مرحله آمار توصیفی با استفاده از نرم افزار
421 SPSS/ver23 انجام شد. درصد، میانگین و انحراف معیار برای تجزیه و تحلیل توصیفی محاسبه شد. یافته ها نشان داد
422 که همکاری پژوهشی بین المللی دارای 24 کد مزیت در چهار بعد ارتباطی، علمی-پژوهشی، دانشگاهی، و شخصی-
423 حرفه ای است. از سوی دیگر، 17 کد چالش در سه گروه شخصی، انگیزشی، نگرشی؛ مدیریت فرآیند تحقیق و انتشار؛
424 و فرهنگی، فنی و اقتصادی دسته بندی شدند. بر اساس میانگین مزایا و چالش های همکاری پژوهشی بین المللی دانشجویان،
425 رتبه های اول «آکادمیک» با میانگین 4/06 و «شخصی، انگیزشی، نگرشی» با میانگین 4/28 به ترتیب برای مزایا و
426 چالش ها به دست آمد. بر اساس یافته ها، ایجاد مهارت های کار گروهی در آموزش عالی توصیه می شود، زیرا می تواند به
427 طور مثبت همکاری دانشجویان را با دیگران برای پروژه های تحقیقاتی ارتقا دهد. این مطالعه اصیل و نوآورانه دارای
428 مفاهیم و ارزش نظری و عملی است. نتایج برای دانشگاه ها برای تصمیم گیری و برنامه ریزی فعالیت هایی مفید است که
429 همکاری تحقیقاتی بین المللی دانشجویان را افزایش می دهد.