The Role of Government Policies Enhancing Green Agricultural Entrepreneurship in Jordan

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Abstract

Jordan is one of the Middle East developing countries that encourage green pioneering agriculture. A study was conducted in Jordan Jerash to evaluate green entrepreneurial farming and the challenges that prevent the adoption and development of green agriculture to address obstacles that prevent the green entrepreneurship activities in agriculture to sustain natural resources and provide food, the study was based on the category of and knowledgeable farmers who have an understanding of green agriculture, including traditional farmers in Jerash, samples included 248 farmers who were randomly selected during the period from March until June 2019 to identify obstacles (FA) in Jerash Governorate. The questionnaire was used to study 29 expected obstacles; Factor Analysis (FA) was used to identify the underlying grouped barriers where 25 items grouped into six factors while 4 items were removed followed by normalization and ranking to determine the extent to which barriers had an impact on the adoption of green culturing. The results showed that; barriers spread overtraining, risk orientation, Market orientation, Customer orientation, Innovation orientation, Grouping, and Green supporting supplies. However, the dominant barriers between the six groupings are dealing with training and development. The study recommended that; the government needs to play a more active role in adopting and encouraging the cultivation of green projects in Jordan.

Keywords: green, Agriculture, entrepreneurial farming, Jordan

1. Introduction

The term green revolution refers to the agricultural methods developed and the huge changes in agricultural practices, as a result of a series of research and development, technology transfer, and initiative, which accompanied the tremendous industrial development in the twentieth century, from the 1940s until the late 1970s. These initiatives included developing high-yielding varieties of grains, expanding irrigation infrastructure, applications of synthetic fertilizers, chemical and fungicides, soil composition, agricultural product analysis, and the nutritional needs of farm animals, also included the modernization of farm management methods, which led to increased agricultural production worldwide, especially in the late 1960s (Hazell, 2009). Organic farming studies the medium and long-term effects of agricultural interventions on agricultural ecosystems, aims to produce food while creating an ecological balance to avoid soil fertility and pest problems. Organic farming takes a proactive approach to tackle problems after they arise. (Miguel et.al. 2016). Due to its amazing success in producing various crops (such as wheat

and corn) and increasing the productivity per acre of land, this method began to spread throughout the world between the years 1950-1960. The green revolution brought a qualitative leap in agricultural production as a result of the use of modern methods such as pesticides, herbicides, and synthetic fertilizers, as well as new types of high-yield crops that require the use of intensive fertilization and continuous control. Improved seeds and genetically modified varieties were also used to produce highly cost-effective or disease-resistant varieties through breeding and cross-breeding processes to obtain the highest yield per unit area. It also included the development of irrigation and drainage plans and the maintenance of water canals, which is of great importance in dry areas, which usually require continuous irrigation. Mechanical machinery has also been used extensively to replace human and animal forces in various agricultural processes (Alexander, 2018). The scientist Norman Borlaug who won the Nobel Prize in 1970 and the Congressional Gold Medal in 2007 for his role in saving millions from starvation in India, Mexico, and the Middle East, has been a pioneer in the cultivation of the green revolution since 1943, where he began his work in Mexico by crossbreeding high-yielding wheat species that were resistant to agricultural pests and diseases and began to cultivate them (Wrigh, 2012). However, in 1968, an Indian farmer managed to reach a new rice variety (IR8), which is a semi-dwarf variety with a very high yield of 5 tons per hectare, equivalent to ten times the production of the existing traditional rice varieties, and he called it "miracle rice."(De Datta et. Al., 2008). This method has spread to many farms around the world with different rates of success starting from the western world and many countries in Asia and Latin America. This is because the population increases according to a geometric sequence of 1, 2, 4 ,8 16, 32 & 64, while food increases according to the Arithmetic sequence of 1, 2 ,3 ,4 ,5 & 6 (Syafaat, 2019), nevertheless, the most that are taken on the cultivation of the green revolution is the large consumption of fertilizers and chemicals, which increases the harm to humans, especially farmers, because they are in direct contact with the chemicals used. Also, many of them do not wear protective clothing when using different pesticides. Organic agriculture can play an essential role in alleviating obstacles to sustainable development (Sameh and Amjad, 2011)

The adoption of green practices in farming is still in its infancy and facing several barriers, especially in developing countries. For example, the Director-General of "National Agricultural" highlighted the problems facing the company. Among the most important of these problems: the lack of full knowledge of the citizen in the Kingdom of the importance of the organic product compared to the inorganic product, in terms of its value for health and the environment, and increased competition between traditional (inorganic) products with organic products despite the low amount of production per unit area. In addition, owners of citizen farms in Sharjah complained about the difficulty of switching from the traditional to organic style, because the transition period that takes two years negatively affects their agricultural activity. In Saudi Arabia, the Deputy Chairman of the National Agricultural Committee revealed that organic agriculture in the Kingdom is slow-growing although due to the lack of full credibility with the consumer of the importance of the product Organic compared to the inorganic products (Ebraheem, 2014). In Jordan, the interest in organic agriculture began in 2002 with the establishment of the Organic Agriculture Division in the Horticulture and Stations Department within the Plant Production Directorate. It was found that among the obstacles of organic agriculture is the absence of a high culture on its importance and applications at farms, the failure to activate the organic farming system properly until the amendments to the organic farming system are approved, and the national plan for organic agriculture is activated. This is in addition to the excess cost on farms when converting to organic farming Because of the high cost of issuing the organic certificate (Betra, 2018).To facilitate widespread and successful adoption of green entrepreneurial farming, it is crucial to address barriers inhibiting the uptake of green entrepreneurial activities in farming for the sustainability of natural resources as well as food provision. This study focuses on uncovering barriers in the adoption and development of green farming in Jordan which is one of the developing countries in the Middle East

2. Literature review

Literature on the conversion from intensive to organic farming is scarce, numerous studies are highlighting barriers to adoption of green practices with fewer studies on conversion from intensive to organic farming (Aghelie, 2017; Mathur and Tandon, 2016; van Eyssen and Lehner, 2017), some studies indicating the grouped barriers uptake of green entrepreneurial farming. However, several studies explained the relationship between greener entrepreneurial development and human resource training. Opatha and Arulrajah (2014) found the interlink between training and development and greener entrepreneurial development. Further, (Sarkis et al., 2010) showed that orientation to training provides a human resource with the necessary knowledge helps to improve the environment which fosters cleaner production. Silajdzic et al., 2015) showed that the lack of entrepreneurial skills is one of the critical barriers

hindering the adoption of green practices. Likewise, many researchers, revealed that market, customer, and innovation orientation are deliberated to have a substantial role in the adoption of green farming practices (Dibrell et al., 2011; Menguc and Ozanne, 2005); Chan, R. Y., and Lau, 2000; Jeong et al., 2014 and McElwee, 2006).

3. Study Methodology

Barriers to green farming were identified based on the context of green agriculture in Jordan's deeply comprehensive review of other various related studies which adopting and modifying the barriers (Ali et al., 2019). The study fully reviewed by agricultural specialists and academics from Jerash University preparing the scientific questionnaire that focused on 29 barriers which divided into six groups with 25 items and four items were removed. Groups are shown in table (2) are, Group 1: Training (G11-G15), Group 2: risk orientation (G21-G24), Group 3: Market orientation (G31-G35), Group 4: Customer orientation (G41-G44), Group 5: Innovation Orientation, and Group 6 (G51-G54): Green supporting supplies-related barriers (G61-G63). The demographic variables included: Farming size (Small, medium, and Large farmers), green farming experiences were (1-5 years and 6-10 years), and unconventional farming experiences were (5 or less, 7-12, 13-18 and 19 or more). The study targeted farmers with knowledge of green farming in the Jerash district. The study sample was 260 farmers randomly selected during the period from March to June of 2019 in Jerash district in Jordan, including both conventional and green farmers. The questionnaire survey was dependent on direct Interviews with 248 farmers targeted, with a response rate of 95%. The questionnaire used a five-point Likert Scale (strongly agree, agree, neutral, disagree, and strongly disagree). The original version of the questionnaire was in Arabic language and translated to English for publication purposes. Reliability showed an Alpha Cronbach coefficient of 6.97 which is appropriate and suitable for further analyses.

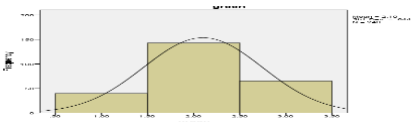
Data analyses were done using statistical software SPSS 23.0. Cronbach's alpha is used to determine the internal consistency or average correlations among the factors in the questionnaire. However, Cronbach's alpha coefficient values greater than 0.7 were considered reliable (Cortina, 1993). Factor analysis (FA) was used to identify the underlying grouped barriers in the adoption of green culturing. FA is a powerful technique for regrouping and reducing a more significant number of factors into smaller ones and more critical sets by factor scores of responses (Li et al., 2011). Kaiser-Mayer-Olkin (KMO) Bartlett's Test of Sphericity was used to determine the appropriateness of factor analysis. Factors resulted from FA were used in further statistical analysis as the relationship between several interrelated variables and the mean scores of the criticality of barriers (variables).

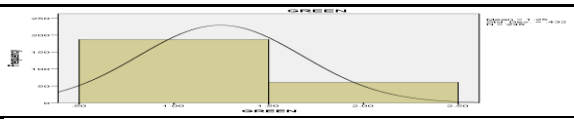
4. Results

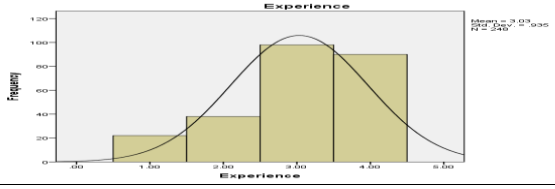
Table (1) shows categories, frequencies, and percentages of the three demographic variables included in this study: for farming size, the sample contained 40 small farmers which constitute (16.1%) of the whole sample, 143 medium farmers (57.7%), and 65 large farmers (26.2%). For green farming experience, the sample contained 152 farmers of 1-5 years of experience (61.3%) and 96 farmers of 6-10 years of experience (38.7%). For conventional farming experience, the sample contained 22 farmers of 5 or fewer years of experience (8.9), 38 farmers of 7-12 years of experience (15.3), 98 farmers of 13-18 years of experience (39.5)) and 90 farmers of 19 years of experience and more (36.3%), totaling 248 farmers (100.0%).

Table (1): Frequencies and percentages of the demographic variables included in this study

Category	Frequency	Percent%
Farming Size		
Small Farmers	40	16.1
Medium Farmers	143	57.7
Large Farmers	65	26.2
Green Farming Experience		
1-5 Years	152	61.3
6-10 Years	96	38.7
Conventionak Farming Experience		
5 Or Less	22	8.9
7-12	38	15.3
13-18	98	39.5
19 And More	90	36.3
Total	248	100.0







Factor analysis

Regarding to regrouping and reducing the 29 items in question-related to the adoption of green culturing, Factor analysis (FA), namely, Principal Component Analysis was used. Factor analysis reduced the 29 items in questions into 25 items grouped in six factors that were named by the researcher according to their subject matter as shown in table (2).

A satisfactory FA to proceed, the KMO value should be greater than the threshold of 0.50(Field, 2013). In addition, Bartlett's test of Sphericity was used to reveal the presence of correlations between underlying variables (Chan et al., 2010). However, Kaiser-Meyer-Olkin Measure of Sampling Adequacy was.675, and Bartlett's Test of Sphericity was significant with Approx. Chi-Square 2282.661, df=406 and Sig. =.000 which means that FA results are satisfactory to proceed (Norusis, 2008), however, four items were removed as their loadings were below 0.5. These items are Lack of opportunity focus, Lack of credit for green farming, Higher cost of production, and Lack of sustainable knowledge development and training activities where only 25 items remained valid for analysis. These 25 items were grouped into six factors which are: Grouping 1: Training-related barriers(G11-G15), Grouping 2: risk orientation-related barriers(G21-G24), Grouping 3: Market orientation-related barriers(G31-G35), Grouping 4: Customer orientation-related barriers(G41-G44), Grouping 5: Innovation orientation-related barriers and Grouping(G51-G54), 6: Green supporting supplies-related barriers(G61-G63).

Table (2): Results of Principal Component Analysis

Items	1	2	3	4	5	6
G12 The absence of governmental promoting programs.	.809					
G15 The Absence of private sector role regarding green farming.	.698					
G14 The non-availability of public programs regarding green training and development (worships..etc.).	.683					
G13 The non-availability of public extension services for green farming.	.669					
G11 The absence of legislations that organize the green agricultural evolution.	.651					
G22 Belated marketing activities regarding green agriculture.		.869				
G24 The absence of plans for unforeseen events.		.813				
G23 The absence of risk considering behavior.		.753				
G21 Decrease in the level of initiative works related to green agriculture.		.700				
G33 The absence of E-marketing skills.			.814			
G32 The absence of considering contract marketing system.			.758			
G34 The absence of communication with the audience.			.744			
G31 The absence of responsibility for markets.			.666			
G35 Absence of the ability to acquire knowledge skills regarding green agriculture			.522			
G43 The unavailability to offer delivery services for customers.				.849		
G44 Misunderstanding values of the customer.				.757		
G41 Absence of communication with audience.				.753		
G42 The unavailability of green goods in suitable prices.				.544		
G52 The absence of farmers 'awareness regarding research and development					.772	
G53 The absence of managing continuous knowledge development.					.768	
G51 Ability of technology adoption.					.642	
G54 Decrease in infrastructure knowledge.					.625	
G62 The absence of knowledge development support.						.853
G63 Lack of variance in business activity.						.706
G61 Belated response behavior.						.700
Eigenvalue	13.967	3.135	2.541	2.262	1.745	1.514
Variance (%)	13.679	10.810	8.761	7.802	6.016	5.222
Cumulative variance (%)…..total variance explained=52.290%	13.679	24.489	33.250	41.051	47.067	52.290
KMO and Bartlett's Test Kaiser-Meyer-Olkin Measure of Sampling Adequacy.675 Bartlett's Test of Sphericity Approx. Chi-Square 282.661	Df 406, Sig..000 Extraction Method: Principal Component Analysis					

Reliability

FA was followed by testing the reliability or the internal consistency of the answers collected for all the groups and the items. Alpha Cronbach coefficient was calculated for the 25items, as shown in table (3), and was found to be appropriate and suitable for further analyses.

Table (3): Reliability Statistics

	Cronbach's Alpha	N of Items
G1	0.76	6
G2	.816	4
G3	.762	5
G4	.766	4
G5	.697	3
G6	.728	3
Gall	.734	25

Mean and score ranking

Ranking of factor's criticality or importance, mean score ranking was used as a quantitative technique (Chan et al., 2010). Table (4) shows each item with its Mean score, Std. Deviation, Normalization, and ranking from top to bottom, from high to low.

Table (4): descriptive statistics of the answers

Items	Mean	Std. Deviation	Normalization	Ranking
G61 Belated response behavior.	4.48	0.61	1.00	1.00
G62 The absence of knowledge development support.	4.46	0.62	0.96	2.00
G23 The absence of risk considering behavior.	4.44	0.63	0.93	3.00
G24 The absence of plans for unforeseen events.	4.42	0.62	0.89	4.00
G22 Belated marketing activities regarding green agriculture.	4.39	0.67	0.83	5.00
G44 Misunderstanding values of the customer.	4.39	0.63	0.83	6.00
G42 The unavailability of green goods in suitable prices.	4.31	0.60	0.68	7.00
G21 Decrease in the level of initiative works related to green agriculture.	4.27	0.74	0.60	8.00
G41 Absence of communication with audience.	4.26	0.66	0.59	9.00
G51 Ability of technology adoption.	4.26	0.61	0.59	10.00
G43 The unavailability to offer delivery services for customers.	4.24	0.70	0.55	11.00
G12 The absence of governmental promoting programs.	4.23	0.78	0.54	12.00
G63 Lack of variance in business activity.	4.22	0.67	0.51	13.00
G13 The non-availability of public extension services for green farming.	4.20	0.74	0.47	14.00
G32 The absence of considering contract marketing system.	4.19	0.75	0.46	15.00
G33 The absence of E-marketing skills.	4.19	0.67	0.45	16.00
G14 The non-availability of public programs regarding green training and development	4.17	0.83	0.41	17.00
G34 The absence of communication with the audience.	4.17	0.75	0.41	18.00
G52 The absence of farmers ‘awareness regarding research and development	4.15	0.76	0.38	19.00
G11 The absence of legislations that organize the green agricultural evolution.	4.11	0.73	0.31	20.00
G54 Decrease in infrastructure knowledge.	4.09	0.73	0.27	21.00
G31 The absence of responsibility for markets.	4.03	0.75	0.16	22.00
G53 The absence of managing continuous knowledge development.	4.02	0.78	0.13	23.00
G35 Absence of the ability to acquire knowledge skills regarding green agriculture	3.98	0.77	0.06	24.00
G15 The Absence of private sector role regarding green farming.	3.95	0.69	0.00	25.00
Normalized value (mean - minimum mean)/(maximum mean - minimum mean).				

Group 1: Training-related barriers

The group represents training-related barriers through government in the promotion of green entrepreneurial farming in Jordan. It represents five critical barriers: G11 Lack of legislation to promote green entrepreneurial farming development, G12 Lack of green promotion by government, G13 Lack of public sector extension services for green farming, G14 Lack of public sector workshops for green training and development, and G15 Lack of private sector initiatives for green farming. This group is the most dominant group among all six groups by explaining the highest variance 13.679 % as shown in Table (5)

In this group, G12 the absence of governmental promoting programs ranked first in this group and the 12th among all other factors, with a mean score of 4.23 and high LSD of 0.78, and normalization value of 0.54 which means that it is a critical factor. G13 the non-availability of public extension services for green farming ranked secondly in the group and 14th among all other factors with a mean score of 4.20 and LSD of 0.74 and a normalization value of 0.47 which means that it is a critical factor. G14, the non-availability of public programs regarding green training and development ranked third in the group and the 17th among all other factors with a mean score of 4.17 and LSD of

0.83 with a normalization value of 0.41wich means that it is critical as well. G11, the absence of legislation that organizes the green agricultural evolution ranked fourth in the group and the 20th among all other factors with a mean score of 4.11 and LSD of 0.73 and a normalization value of 0.31 which means that it is critical as well. G15 the Absence of private sector role regarding green farming ranked fifth in the group and the last among all other factors with a mean score of 3.95 and LSD of 0.69 and a normalization value of 0.00 which means that it is not critical.

Group 2: Risk Orientation-related barriers

This group represents risk orientation-related barriers challenging green farming in Jordan. It represents four critical barriers: G21 Poor risk level, G22 Lack of market access, G23 Lack of risk management, and G24 Lack of ability to overcome unexpected events. This group is the most dominant group among all six groups by explaining the highest variance 24.489 as shown in Table 5, G23 the absence of risk considering behavior ranked first in this group and the third among all other factors, with a mean score of 4.44 and a high LSD of 0.63, and a normalization value of 0.93 which means that it is a critical factor. G24, the absence of plans for unforeseen events ranked second in the group and 4th among all other factors with a mean score of 4.42 and LSD of 0.62 and a normalization value of 0.83 which means that it is a critical factor. G22 related to marketing activities regarding green ranked third in the group and 5th among all other factors with a mean score of 4.39 and LSD of 0.67 and a normalization value of 0.83 which means that it is a critical factor. G21 decreased in the level of initiative works related to green agriculture ranked 4th in the group and the 8th among all other factors with a mean score of 4.27 and LSD of 0.74 with a normalization value of 0.60 which means that it is critical as well.

Group 3: Market Orientation-related barriers

The group represents Market orientation-related barriers in Jordan. It represents five critical barriers: G31, Lack of responsiveness to market signals, G32, Lack of market contracting, G33 Lack of E-Commerce use, G34, Lack of communication with customers, and G35, Lack of market intelligence. This group is the most dominant group among all six groups by explaining the highest variance 33.250 as shown in Table 5, G32 the absence of considering contract marketing system ranked 1st in the group and the 15th among all other factors with a mean score of 4.19 and LSD of 0.75 with a normalization value of 0.46 which means that; it is not critical.G33, the absence of E-marketing skills ranked 2nd in the group and the 16th among all other factors with a mean score of 4.19 and LSD of 0.67 with a normalization value of 0.45 which means that it is not critical as well.G34, the absence of communication with the audience ranked 2nd in the group and the 18th among all other factors with a mean score of 4.17 and LSD of 0.75 with a normalization value of 0.41 which means that; it is not critical as well.G31, the absence of responsibility for markets ranked 3rd in the group and the 22nd among all other factors with a mean score of 4.03 and LSD of 0.75 with a normalization value of 0.16 which means that it is not critical as well. G35, absence of the farmer's ability to acquire knowledge skills regarding green agriculture, ranked 4th in the group and the 24th among all other factors with a mean score of 3.98 and LSD of 0.77 with a normalization value of 0.06 which means that it is not critical.

Group 4: Customer Orientation-related barriers

This group represents Customer orientation-related barriers in Jordan. It represents four critical barriers: G41, lack of responsiveness toward customers, G42, lack of green commodities demand due to premium price, G43, lack of delivering customer values, and G44, lack of understanding customer value. This group is the most dominant group among all six groups by explaining the highest variance 41.051 as shown in Table 5
G44, misunderstanding values of the customer ranked 1st in the group and the 6th among all other factors with a mean score of 4.39 and LSD of 0.63 with a normalization value of 0.83 which means that; it is critical.G21, decrease in the level of initiative works related to green agriculture ranked 2nd in the group and the 8th among all other factors with a mean score of 4.27 and LSD of 0.74 with a normalization value of 0.60 which means that it is

critical.G41, absence of communication with audience ranked 3rd in the group and the 9th among all other factors with a mean score of 4.26 and LSD of 0.66 with a normalization value of 0.59 which means that; it is critical. G43, the unavailability to offer delivery services for customers ranked 4th in the group and the 11th among all other factors with a mean score of 4.24 and LSD of 0.70 with a normalization value of 0.55 which means that it is critical as well.

Group 5: Innovation Orientation-related barriers

The group represents innovation orientation-related barriers in Jordan. It represents four critical barriers: G51, lack of technological adoption, G52, lack of research and development by farmers, G53, lack of stimulating knowledge development, and G54, lack of overarching knowledge infrastructure. This group is the most dominant group among all six groups by explaining the highest variance 47.067 as shown in Table 5, G51, the ability of technology adoption ranked 1st in the group and the 10th among all other factors with a mean score of 4.26 and LSD of 0.61 with a normalization value of 0.59 which means that it is critical.G52, the absence of farmers awareness regarding research and development ranked 2nd in the group and the 19th among all other factors had a mean score of 4.15 and LSD of 0.76 with a normalization value of 0.38 which means that it is not critical.G54, decrease in infrastructure knowledge ranked 3rd in the group and the 21st among all other factors with a mean score of 4.09 and LSD of 0.73 with a normalization value of 0.27 which means that it is not critical. G53, the absence of managing continuous knowledge development ranked 3rd in the group and the 23rd among all other factors with a mean score of 4.02 and LSD of 0.78 with a normalization value of 0.13 which means that it is not critical.

Group 6: Green Supporting of Supplies-related barriers

This group represents green supporting supplies-related barriers in Jordan. It represents three critical barriers: G61, lack of pro-active behavior, G62, lack of encouraging knowledge development, and G63, lack of diversity in business activity. This group is the most dominant group among all six groups by explaining the highest variance 52.290, Table 5. G61, related response behavior ranked 1st in the group and the 1st among all other factors with a mean score of 4.48 and LSD of 0.61 with a normalization value of 1.00 which means that it is the most critical.G62, the absence of knowledge development support ranked 2nd in the group and the 2nd among all other factors with a mean score of 4.46 and LSD of 0.62 with a normalization value of 0.96 which means that it is critical.G63, lack of variance in business activity ranked 3rd in the group and the 13th among all other factors with a mean score of 4.22 and LSD of 0.67 with a normalization value of 0.51 which means that it is critical.

5. Discussion

Group 1:

Government legislations are imperative in the promotion of green farming for achieving sustainable development (Mota et al., 2015). This means that; the absence of government legislation for green production favors conventional farmers in getting a higher market share. There is an increased concern and interest towards greener production and environmental sustainability legislation in Jordan. Responding to these increasing pressures, various actions and efforts have been undertaken to reduce or decouple the impact on the environment from supply chains in the agriculture and industrial sector in developed and some of the developing economies (Edraki et al., 2014). It seems that the formulation and imposition of legislation for the promotion of green farming are not yet in practice in Jordan. lack of green farming promotion, many research studies (Bell, 2002) have explained the linkage between green development and the adoption of green practices by farmers. Unfortunately, currently, the promotion of green practices is not the priority of the government in Jordan. For Lack of public sector extension and workshop services. This seems to be hindering the adoption of green practices in farming. Extension services have been a significant source of knowledge and technology transfer, improving farmers' capabilities and creating a favorable environment

for the adoption of green practices (Anderson and Feder, 2004). Likewise, the lack of private sector initiatives for green farming is the fourth critical barrier in the adoption of green practices in farming. This is because the private sector is a key stakeholder in Jordan and has emerged at a mammoth pace, contributing substantially in each sector of Jordan. More importantly, the emergence of the private sector can play a significant role in the development of green entrepreneurial farming in the country, as the private sector has created miracles among several other sectors (e.g., telecommunication, mass transit, and banking) in the country.

Group 2:

In essence, having good risk skills is a prerequisite to ensure the sustenance, growth, and development of any business activity. Entrepreneurship has been recognized around the globe as a remedy to achieve sustainability and can shape the green future in the agriculture and industrial sector through its innovative power (Hall et al., 2010). This issue can be resolved via improving farmer's entrepreneurial skills through short entrepreneurial courses, workshops, and farmer field school programs, as such endeavors have evidence of their immense contributions to enhance entrepreneurial skills, globally. Lack of speed to market indicates that currently, the farmers are not market-oriented and do not engage in the production process according to the market demand. Therefore, this leads to widening the gap in the adoption of green practices. Market orientation ensures innovation and adoption of new ventures, practices, and techniques to support nascent activities and greener adoption (Noble et al., 2002). Likewise, the adoption of new ventures is coupled with risk and uncertainty. Thus, there is a need to encourage market orientation through some appealing policy measures to motivate farmers the adoption of green practices. Lack of ability to overcome unexpected events requires to accept that unexpected things can happen and to be able to have control over any of the unexpected events that regularly occur while being prepared for the unexpected.

Group 3:

Market signals encourage farmers to adopt green practices to get a higher market share. Quickly responding to market signals is crucial to hold a better position in the market and this might trigger the adoption of green practices in farming as the market is responding toward green demand. In terms of lack of forwarding market, Usually, farmers engage in forwarding market contracts to overcome the future price uncertainties and market shocks to get a stable, profitable price for their produce (Harwood et al., 1999). This issue can be resolved by encouraging public-private partnerships in green entrepreneurial farming (Hall, 2006). Lack of e-commerce use in agriculture will limit farmer's access to new markets and the ability to adopt of green practices. E-commerce has recently contributed to uplift poor rural farmers in China. It has sparked entrepreneurship among rural farmers through rural participatory workshops. Online marketing and selling have provided farmers with another approach to modernize agriculture and reshape their living standards (Li et al., 2007). To overcome this poor access to e-commerce farmer's participatory training can be used to boost the adoption of green. For communications, farmers and other rural dwellers are made to become aware of their customers through effective communication with extension officers and communication among the farmers themselves. Market intelligence is whatever relevant to market trends for accurate and confident decision-making to determine market opportunity and penetration.

Group 4:

Customer orientation, recognition of customer values is fundamental; it is a prerequisite for a firm to get aware of the customer's taste and preferences before going for production activity (Kahn, 2001). Responsiveness towards them enables producer's higher efficiency in the adoption of new practices, technological innovations, and flexibility in decision making, resulting in increased margins and market share (Jones and Rowley, 2011). Lack of green commodities demand due to premium price is confronting the adoption of green practices in farming. Higher cost of production, lower yield, and monopolistic behavior of seller will cause a premium price of green commodities resulting in lower demand (Black, 1976). Therefore, this barrier can be resolved via the introduction of alternate least cost practices, new breeds and verities of crops, and enhancing the size and scale of production. Lack of delivering customer values is closely associated with a lack of responsiveness towards customers. As farmers are not responding to customer values, they might not take an interest in the adoption of green entrepreneurial farming. Establishing customer value is important as customers will never buy something unless liked or needed

Group 5:

Overarching knowledge infrastructure is necessary practices for new venturing, innovation, cost reduction, and knowledge development (Morgan and Murdoch, 2000). Therefore, with a lower knowledge base, farmers might be reluctant to adopt entrepreneurial green farming. Encouraging knowledge development is a key factor in the successful adoption of new venturing, innovative thinking, and creating new endeavors (Ozorhon and Karahan, 2016). This is crucial to achieving higher organizational performance, and rapid growth and development (Morgan and Murdoch, 2000). Technology is basic to make effective resource use, cost optimization, successful orientation to new ventures and to accelerate commercial scale endeavors (Gans and Stern, 2003). Therefore, without technological adoption, it is impossible to get engaged in greener activities. Agricultural research and development encompass an extremely broad range of activities and potential innovations. First, higher yield seeds allow the production of larger quantities of agricultural output at a lower cost, bolstering the income of farmers.

Group 6:

Taking charge, launches new initiatives, generates constructive change, and leads proactively i.e. works for constructive reform encouraging knowledge development participate in sustainable agriculture. This ensures the efficient production of safe, high-quality agricultural products, in a way that protects and improves the natural environment, the social and economic conditions of farmers, their employees, and local communities, and safeguards the health. Crop diversity which is fundamental to agricultural growth can produce varieties that resist pests and diseases and are drought-tolerant, providing more protection against crop failure and better insulating poor farmers from risk.

6. Conclusions

Green practices in agriculture are still in their infancy stage and face many barriers. To facilitate the widespread and successful adoption of green project cultivation, it is necessary to address these barriers in detail. The results of the ranking analysis revealed that 13 barriers out of 25 barriers were critical barriers to green agriculture's adoption of trade initiatives; it was G61 Belated response behavior, G62 The absence of knowledge development support, and G23 The absence of risk considering behavior that ranked first among the three most important barriers, respectively. The results showed that the dominant barriers between the six groupings were those related to training and development.

7. Recommendations

Results indicated that; the government needs to play a more active role in adopting and encouraging the cultivation of green projects in Jordan. Therefore, this study recommends faster response behavior, knowledge development support, risk considering behavior, planning for unforeseen events, faster marketing activities, better understanding, and communication with the customer, paying attention to suitable pricing increasing the level of initiative works related to green agriculture encouraging technology adoption, more governmental promoting programs that include public extension services for green farming.

8. Implications

The results of this study are important and beneficial to the private and public sector as a whole and stakeholders and those interested in adopting and strengthening the Global Environment Facility to achieve ultimately more sustainable agriculture.

9. Limitations

The study achieved its goals, future studies may evaluate the limitations and circumstances and the various methods applicable to overcoming these barriers to help promote green agriculture and adopt it widely. The limitations are; data were collected from both traditional and green farmers, the study did not include farmer's contract, nor academics, specialists, decision-makers, and farm labor. The study was limited to one governorate in Jordan, which encourages future studies to expand more broadly generalizing the results.

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