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Issues and Challenges Faced by Omani Farmers: Evidence from Mahadha Oasis Area

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ABSTRACT

Purpose: This study aims to Identify the issue and problems faced by Omani farmers and to Identify the best solutions to fight the issues and challenges, by explaining the importance of the agricultural sector to the Sultanate of Oman, and the interest in developing and producing modern technologies to increase and develop agricultural production.

Design/Methodology/Approach: This study is based on primary data collected from the farmers from one of the major Oasis regions of Oman i.e. Mahadha. A Questionnaire in dual language was administered for collecting the data.

Findings: The agricultural sector badly needs the support of state institutions to reduce electricity prices, choose the right fertilizers for the soil, provide the necessary irrigation water, expand the lands, introduce modern technologies, expand agricultural greenhouses, and benefit from genetic engineering. The climatic conditions in the Sultanate ensure abundant agricultural production.

Research Limitation: The data is collected only from the Mahadha area. However, the researchers relied on the close-ended questionnaire making this study based on quantitative analysis. Also, only descriptive statistics have been used to bring forward the issues and challenges faced by farmers.

Managerial Implications: The importance of this study lies in understanding the most important problems and challenges faced by Omani farms in general, which may constitute an obstacle to them. Understanding these problems and trying to find logical solutions. This study has implications for the Ministry of Agriculture.

Originality/Value: This study brings forward the ground issues from the side of the farmers in Oman. To the knowledge of the researchers, this study is the first of its kind to bring such issues to the public.

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Introduction

In the introduction chapter, several important points of the study have been clarified, such as general knowledge of the agricultural sector in Oman, the background of the study, the objectives of the study, the problems, the importance of the study, and the basic terms in this study.

Background of the Study

The agricultural sector has been considered one of the important sectors that may aim at diversifying sources of income in the Sultanate of Oman, and it may aim at the strategic development of the Sultanate. There are some possibilities that the agricultural sector may offer, such as the number of workers in the sector and the extent of the workforce in the sector. Despite the great importance of the agricultural sector in the Sultanate of Oman, it has many problems, and this made the government in the Sultanate develop many plans for the development and development of the agricultural sector.

It is good to note, that total output aggregated 4.6 million tons in 2021. According to the annual report of the Ministry of Agriculture, the agriculture sector contributed 2.5 percent to the country's Gross Domestic Product (GDP) last year.

Whereas the government seeks to develop methods that can allow and provide the opportunity for farmers to deal with the problems they faced. Thus, agriculture may need multiple and modern agricultural methods that may yield a profit and a profit. The agricultural sector may provide job opportunities for some people and provide food that the state exports to and from outside Amman, given that the agricultural sector increases the national income of the state. Therefore, it is necessary to study the agricultural sector in the Sultanate of Oman and to explore modern methods that develop the sector and high production. In addition, goals must be set so that may achieve many solutions to all the problems facing the agricultural sector.

This study consists in enumerating the most important problem and challenges facing Oman farms and tries to find solutions to them that contribute to the development of the Omani agricultural sector The area of arable land in the Sultanate of Oman is about (2.5) million hectares and it constitutes about 7% of the total area of the authority. Despite this, the Sultanate of Oman's imports of food resources were estimated in the millions. For example, according to what was published in Oman newspaper in April 2020, grain imports through The Sultanate's ports in the first quarter of that year transported 411 thousand tons from Russia, Argentina, Australia, India, and Brazil, constituting 94% of the total grain imports through the various ports. Increasing interest in the agricultural sector and contributing to finding solutions to the problems it faces will significantly reduce this percentage. The agriculture sector is expected to grow by 2.4 CAGR during 2022-2027. It is worth noting the importance of self-sufficiency in terms of food, thus, the low level of self-sufficiency in terms of vegetable and fruit production (66% and 49% respectively), there are no reports on the farmers producing food grains like wheat, rice, and pulses. The researchers feel that there might be a few underlying issues and challenges that need to be brought to the surface for discussion by the academic groups. Thus, in light of the background created above, the following research questions and objectives have been established:

Research Questions

RQ_1 What could be the main issues and problems faced by Omani farmers?

RQ_2 What are the best solutions to fight the issues and challenges faced by Omani farmers?

Objective of the Study

- To identify the issue and problems faced by Omani Farmers.
- To identify the best solutions to fight the issues and challenges.

Problem Statement

The Omani agricultural sector faces the problem of the lack of food in sufficient quantity and quality in Omani farms to meet the needs of the community members in terms of their access to basic, safe, and nutritious food that

is widely consumed, such as rice and wheat, as the responsible authorities provide these foods through imports instead of local cultivation, for example, the Sultanate of Oman imports wheat from Russia, as its first supplier.

Significance of the Study

The importance of this study lies in understanding the most important problems and challenges faced by Omani farms in general, which may constitute an obstacle to them. Understanding these problems and trying to find logical solutions to them is part of our role as Omani citizens. Only the latter, but from a long time ago, as it occupies a space of natural resources on which the Sultanate of Oman depends heavily for its national income in light of its tendency to find alternative sources of oil, as citizens tend to grow crops of all kinds to increase national income and advance the wheel of development, so this study will help us a lot in finding solutions to potential problems, and researching and investigating obstacles resulting from any damage and shortage.

Literature Review

The agricultural sector is considered one of the important activities in increasing the economy and income through diversifying and exporting sources (Panchasara et al., 2021). The agricultural sector includes both agriculture and related activities that include livestock and animal husbandry (Neethirajan & Kemp, 2021). However, for this study, the meaning of agricultural activities will focus on the growing and harvesting of crops and vegetable items. In this study, the focus will be on the agricultural sector, which contributes to increasing employment opportunities, as it enjoys advantages such as food diversity, environmental treatment and purity, However, it faces many problems, the most important of which is the lack of food and quality in Omani farms, as individuals consume large quantities of rice and wheat, which are imported by the competent authorities from other countries such as Russia, Also, the low quantities of water, the geographical distribution of agricultural lands and the monopoly of the market are among the most important problems, in addition to the large cost of equipment, It is worth noting that the government began drawing up plans for this sector for further development in the future and reducing the occurrence of problems, while the total production reached 3.2 million tons in 2021, according to the report of the Ministry of Agriculture and Fisheries, As the agricultural sector contributed 2.5% to the GDP, (Badi, 2022). The government is also seeking to develop methods to deal with the problems faced by workers in this sector. For this reason, this sector should be studied and modern methods that help in developing global productivity should be explored.

Agriculture Sector in GCC

From increasing population growth in the Gulf states the goal of self-sufficiency shifted to food security which was identified on a broader scale, given severe resource constraints as GCC governments sought to outsource agricultural production by purchasing land abroad and on imports and increasing focus on Dry farming.

Agriculture does not represent an important economic component for the GCC countries, except for Oman and Saudi Arabia, due to the geographical location and arid climate of this region, as summer temperatures are often warm. It sometimes exceeds 50 degrees Celsius in some locations, and the relative humidity is also high, resulting in sensitive soils that are susceptible to salinization, wind, and water erosion, as well as deterioration, In the Arabian Peninsula, more than 95% of the total land area is affected by some type of desertification, of which 44% is severe to very severe; More than 60% of desertification is caused by wind and water erosion (Erskine et al., 2004).

Despite this, the GCC countries worked to grow crops capable of adapting to their climate, such as palm trees, which produced 1.9 million tons in 2003, Which represents 28% of the global production, and for Oman, the number of its trees is estimated at 7 million trees that are accepted in the market all over the world, (Erskine et al., 2004). In addition to mango trees, lemons, tomatoes, and recently wheat has been cultivated.

Agriculture Sector in Oman

The terrain and climate in the Sultanate of Oman affect agriculture in the Sultanate of Oman, as the climate and lack of water affect agriculture in the Sultanate of Oman. The agricultural land areas in the Sultanate of

Oman amounted to 1.6 million, 5.2% of them are arable and 80% are small land holdings. Whereas, arable land may cover arable land in the Sultanate of Oman by 29.4% (Jayasuriya et al., 2017). Thus, the Sultanate may be interested in developing and producing modern technologies to increase and develop agricultural production in the Sultanate of Oman, It is worth noting that agricultural production in Oman consists mainly of dates and limited types of fruits and vegetables, such as bananas, whose production reached 18,447 tons and papaya, which reached 5,840 tons in 2020 (Mordor Intelligence, 2023) and it has also worked to increase its production of barley, corn, and wheat in recent years.

The farms in Oman almost faced the same problems as low amounts of water, geographical distribution the agricultural land, and market monopoly, as some farmers face the high equipment cost and a lack of infrastructure on their farms. All these problems and others led to a lack of food quality and quantity and cultivation of various crops, which prompted Oman to import basic crops such as rice, wheat, and different types of vegetables from broad countries.

Farming Business in Oman

The Sultanate of Oman may depend on imports from other countries, and the imports of fruits and vegetables amounted to about (60%), as the Sultanate must fill the Sultanate's need for food security, as they focused on the availability of food security and high efficiency in production and not focusing on the marketing aspect of agriculture (Khan et al., 2022). Therefore, this aspect of the agricultural business was studied in the Sultanate of Oman to solve problems and meet needs. It is known that agriculture in all developing rural countries may face many difficulties as well as agricultural problems, as agricultural businesses in those countries face many obstacles in terms of lack of available information as well as the difficulty of reaching the upper limit in the markets. To overcome agricultural contracts in the markets, and solve the problem of agricultural access to markets, we must think about how to solve the problem in terms of meeting farmers' needs. As when providing all needs sustains agribusiness. Because contracts are categorized as short-term, they may be over one season only, with payments being made at the same time as receipts. Also, the sale and processing process may be a partnership. There is the second type of contract, which is informal contracts, as they have little experience and there are large areas of farms, in addition to that they may own a large number of banknotes, amounting to about (23%) of their land (Ruqishi et al., 2020). On the other hand, there are contracts called multilateral contracts, as the workers in them are elderly, their level of education is low, and their income is also low. Therefore, the traits must be positive for the farmers to be involved in the agricultural work. This is in the interest of society and rural farmers through agribusiness in the Sultanate of Oman, as it provides them with sufficient income and income to develop their small farms and enter the agricultural business into the markets, such as the development of technology and information, and they also have the motivation to increase production and their entry into the markets

Agripreneurship

Agricultural entrepreneurship, working on a new agricultural commercial project or expanding an existing project and its application in a specific area, is based on the spirit of initiative, innovation, and creativity in the light of work changes. In recent year the concept of social entrepreneurship, Self Help Group, Green Procurement, etc has come directly or indirectly the agripreneurship (Khan et al., 2021, 2022; Khan & Gurung, 2019; Khan & Magd, 2023; Sharma et al., 2023). It is usually noted that many farmers possess the qualities of creativity and innovation in the field of agriculture, but lack expertise and access to services, people, or markets, so rural advisory services were established to support agricultural entrepreneurs, which provides farmers with information and training on various skills, This comes within efforts to develop agricultural entrepreneurship, as it is a way to revitalize agriculture and make projects more attractive and profitable, and is also able to contribute to social and economic development such as improving nutrition, health, and food security, creating job opportunities, generating income

and reducing poverty, according to what was published (Bairwa et al., 2014).

It is worth noting that agricultural entrepreneurial thought, which is often owned by young people, is very important for facing the challenges of food security and youth unemployment but also important for addressing the issues facing older farmers (Addo, 2018). They also have the ability to understand and pioneer the use of technology and digital intelligence in the agri-food sector, for example, the use of new agricultural systems such as pivot, vertical, hydroponic, and digital farming, such as the use of accurate water-saving irrigation systems. And the presence of smart tractors that know where they are in the fields and can drive themselves in sowing and harvesting operations, and agricultural entrepreneurship has an important role in the future of digital agriculture, which has become of great interest for food sustainability.

Need for Development of the Agriculture Sector

In the Sultanate of Oman, there is a need to develop the agricultural sector, according to the annual report of the Ministry of Agriculture and Fisheries, production has reached the agricultural sector reached 3.2 million tons last year (2021), and the data also indicated an increase in the value of exports and imports. The total exports amounted to about 305 million Omani riyals, compared to the total imports amounting to about 991 million OMR. This data shows that the total imports exceed the total exports many times over, and here. We conclude that the Sultanate of Oman needs to develop its agricultural sector, reduce the proportions of imports of crops, work towards food sufficiency from local agriculture, and plan to increase the proportions of exports in the future. The issue like new technology anxiety and acceptance of technology is found to be major issue across sectors (Khan et al., 2022; Khan & Magd, 2021, 2023; Sharma et al., 2023). All the sectors need to be well equipped and harnessed with modern technology and should utilize Artificial Intelligence and other digital practices (Khan et al., 2022; Kamal et al., 2022; Khan & Magd, 2023). It is worth noting that the agricultural production in Oman is constantly growing in the crop of dates and limited types of fruits and vegetables such as bananas and papayas. It has worked to increase its production of barley, corn, and wheat in recent years; However, the domestic demand remains constant for many types of fruits, vegetables, grains, and rice, which the Sultanate of Oman mainly meets through imports. For example, according to the data of the Food and Agriculture Organization of the United Nations (FAO) for the year 2020, the Sultanate of Oman tops the list of Arab countries importing Russian wheat. and Ukraine, as wheat imports from the two countries constitute approximately 70 percent of the Sultanate's total wheat needs (Duggal & Haddad, 2022).

Innovative Practices in Agriculture Farming

There is a serious need to emphasize innovative practices in Oman in particular (Khan et al., 2022). These reasons include the increasing population and the transformation of most areas into urban areas, natural resources may deteriorate and affect the sustainability of our food and agricultural systems, so began researching ways in which food is produced, processed, distributed, and consumed in a fully sustainable manner and contributes to healthy and affordable diets, It helps the world achieve food security and the Sustainable Development Goals (SDGs), even by a small percentage (Khan et al., 2020). Here comes the role of agricultural innovation, which is a process by which individuals and organizations introduce new or existing products and processes, and methods of organization for use for the first time to increase efficiency, competitiveness, resistance to potential risks, and environmental sustainability and thus contribute to food security, nutrition, and economic development, According to the Food and Agriculture Organization of the United Nations (FAO, 2018).

In our opinion there are some effective agricultural innovations, such as vertical farming, which is a potential solution to increase agricultural production, It is the practice of growing food as well as herbs (medicinal plants) in vertically stacked layers as well as vertically inclined surfaces, and provides several

techniques such as artificial control of light, and environmental control such as temperature and humidity, the advantage of this type of cultivation is that it can be carried out anywhere, even in the city center, because it takes place in structures such as skyscrapers, warehouses, or any building that can be closed on all sides (Khan et al., 2020). The need to promote agriculture was felt especially after the pandemic Covid 19, where the need to achieve food security was felt globally (Bocar et al., 2022; Khan et al., 2021). The obstacles and intention to start a new business needs to be analyzed for any business (Khan et al., 2019; Singh et al., 2020).

The technological intervention in the field of agriculture (Sharma et al., 2023; Singh et al., 2019) has introduced several innovations that contribute to increasing agricultural production, which is likely to become the future in the agricultural field, which is digital agriculture, which is considered " Consistent application of the methods of precision agriculture and smart farming, internal and external networking of the farm and use of web-based data platforms together with Big Data analyses", according to a paper by Direct Line Group. That is, it will provide detailed information about the agricultural plot, including information about soil, weather, and crop growth patterns. It also gives a vision of the appropriate geographical area to prevent losses and improve the productivity of each plot of land on the farm, this type of farming can be done by installing "smart" devices that are connected to a network as part of IoT (Internet of Things) when the devices transmit data over a network, they become "smart devices" and become part of the Internet of Things (IoT). IoT in agriculture includes the use of sensors, drones, robots, and cameras (Cropin, 2022).

Problems Faced by the Agricultural Sector in the Sultanate of Oman

The government may be aware of the challenges facing agricultural lands in the Sultanate of Oman, as these challenges have reasons for their occurrence and cause a lot of foodstuffs to be imported from outside Oman (Khan et al., 2022). Here, the government, in turn, must seek to solve the challenges facing agriculture, and these may include challenges that may affect agricultural lands in the Sultanate of Oman, which are scarce and sensitive to the environment and water suitable for farms, so the Sultanate of Oman must seek progress and strive to reduce these challenges (Al Salmi et al., 2020).

Water

The Omani agricultural sector is facing a major challenge due to the lack of groundwater and the salinity of the water. Agricultural practices common to intensive farming can be serious causes of deterioration of water and soil quality, depending on the interaction between the physical vulnerability of agricultural land and the agricultural behaviors of farmers. Water scarcity is an important reality, and limited water resources are by far the main constraint to the expansion of agricultural production in Oman. Apart from the Dhofar Mountains, which have a monsoon tropical climate, the rest of the country is characterized by a subtropical desert climate (Al-Azri et al., 2010).

To reduce groundwater shortage and water salinity, the government supports the use of modern irrigation systems instead of using traditional irrigation systems to reduce water exploitation as well as increase groundwater levels and increase production. There are also modern types of irrigation, such as sprinkler irrigation, which is used for fodder, as well as fountain irrigation, which is used for permanent crops such as trees. Another type is drip irrigation, as it is usually used for legumes and vegetables (Al-Azri et al., 2010).

Land

Agricultural lands in Oman face many problems and challenges, and among the most important problems they face are soil salinity, lack of agricultural land, urban expansion, and thus lack of production, and due to erosion, desertification, and erosion, soil salinity is the largest. The problem of agricultural land in Oman. The causes of soil salinity are the water used with a very high level of salinity due to the interference of sea water in irrigation. Also, the areas where the seas are found have few agriculture and crops due to the salinity of the soil. An example of this is North and South Al Batinah. There are challenges and there must

be solutions. One of the most important solutions is to protect the soil from deviations, by building a protective wall in the farms that are located on the banks of the valleys (Al-Azri et al., 2010).

Climate

The Sultanate of Oman is in a semi-arid region, the weather is warm and sunny in winter and very hot in summer with varying degrees of humidity. Therefore, water is scarce in Oman due to the lack of rainfall, irregularity, and unreliability. Farm owners cannot grow diverse crops and increase productivity due to the climate.

The use of greenhouses or shaded houses has become important for Omani farmers to overcome harsh ambient conditions and thus provide a microclimate with a controlled environment suitable for growing certain crops and increasing productivity. With these houses, the farmer can better control the amount of water used, the internal cooling system, crop pests, and diseases, and reduce labor demand (Al-Azri et al., 2010).

Storage

Storage is one of the problems that the agricultural sector may need, as there must be many warehouses, which in turn save crops from loss or damage. Since there are not many warehouses in the Sultanate of Oman for crops, and because there is a warehouse in Muscat, this will lead to crop damage due to.

There are many solutions. First, crops must be cooled when transported from farmland to warehouses, because higher temperatures reduce the amount of water in crops. Secondly, the packaging, as the plastic allows for ventilation and impedes the infiltration of water vapor into the crops. And thirdly, drying treatment, as it heals wounds and forms a crust that reduces water loss, in addition to waxing vegetables, fruits, and citrus fruits, for their resistance to losing the water they contain (Al-Azri et al., 2010).

Market

Distribution and marketing are among the challenges that farmers face, as the Sultanate of Oman relies on one central market in Muscat Governorate that feeds all governorates, which makes the distance between farms and the market far, and poor storage, packaging, and transportation. Food reduces product shelf life and increases waste. Establishing a central market for agricultural products includes developing an air-conditioned and shaded market for vegetables and fruits, as it includes wholesale outlets and retail stores (Al-Azri et al., 2010; Singh et al., 2020).

Conceptual Framework of the Study

Based on the literature review, the five components i.e., climate, water, land, storage, and market were found to be five areas to be explored to determine the issues and challenges faced by the farmers. This aspect of an agricultural business is studied to solve pro-

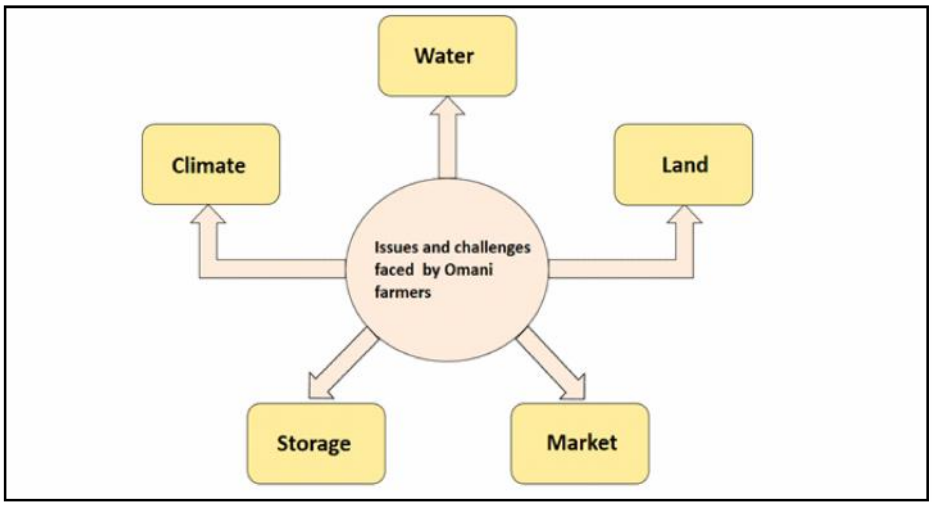

Figure 1: Research's Framework

blems and meet needs. And we mentioned agricultural entrepreneurship. Whereas working on a new agricultural commercial project or expanding an existing project and applying it in a specific field, many farmers possess the qualities of creativity and innovation in the field of agriculture, but they lack experience, so rural advisory services were established to support agricultural entrepreneurs. Also, the need to develop the agricultural sector. There is a need to develop the agricultural sector. According to the annual report of the Ministry of Agriculture and Fisheries, production reached 3.2 million tons in the year 2021. and innovative practices in agriculture Natural resources may deteriorate and affect the sustainability of our food and agricultural systems, so we started researching ways to produce, process, distribute and consume food sustainably just as it contributes to healthy diets and helps the world achieve food security and the Sustainable Development Goals.

Research Methodology

This study follows a descriptive research design to find out people's opinions about the agricultural sector in the Sultanate of Oman. For this purpose, approximately 100 farmers dealing with the farming of grains, fruits, and vegetables were approached. The type of questionnaire given to the farmers will contain both i.e., open-ended and close-ended questions, thus this study will follow both qualitative and quantitative analysis. The sampling technique used is the purposive sampling technique. Out of the total farmers approached the researchers were able to gather 70 responses. As the study requires the researchers to administer research on the relevant population of the farmers, this study is conducted on the farmers of "Mahadha" - an agricultural town near the city of Al-Buraimi. However, the findings of this study are expected to be representative of northern Oman considering the geographical and demographic similarity of the region in terms of climate, water availability, language, and religion.

Results and Discussion

This section discussed the results and analysis. The main purpose of this survey is to collect information that can provide you with data and, solutions for this study and to discuss the issues and challenges faced by Omani farmers: An overview of the agricultural sector in Oman. 70 responses were gathered from different categories, and descriptive analysis was employed.

Demographic Information

Table 1: Respondent's Role

Respondent's Profile	Percent
Farmer	24.0
Farm owner	29.0
Supplier	8.0
Retailer	6.0
Other	33.0
N=70	

The majority of the participants i.e., 33% from Other, 20% were Farm owners, 17% were Farmers and 6% were from a Supplier; and the lowest response was 4% from retail stores. The most interesting response was from other areas.

Table 2: Size of Agricultural Land

Size of Land	Percent
Less than 50 acres	34.0
50-150 acres	19.0
150-250 acres	24.0
250-350 acres	12.0
More than 350 acres	11.0
N= 70	

As shown in Table 2, 24% of the respondents have farmland with an area less than 50 acres, 17% with an area of 150-250 acres, 13% with an area of 50-150 acres, 8% with an area of 250-350 acres and 8% with an area of more than 350 acres; So the lowest response by 8% was parallel between an area of 250-350 acres and more than 350 acres, and the most interesting response was 24% an area less than 50 acres.

Table 3: Main Crop of the Farm

Main Crop	Percent
Vegetables	21.0
Palm	47.0
Wheat	3.0
Feed	16.0
Other crops	13.0
N= 70	

As shown in the table above, 47% of the respondents grow date palms, 15% vegetables, 11% feed, 9% other crops, and 2% wheat. So the lowest 2% response was wheat, and the most interesting response was 33% from date palm cultivation.

Descriptive Statistics (Water)

Despite being an Oasis area water still is a concern for most of the farmlands in Oman, roughly 50% (including neutral) of the respondents raised the issue of water scarcity. At the same time, 28% of people still feel that the old method of irrigation is better. For most of the respondents' water is a bigger concern than soil. Also, the issues like cost of pumping groundwater and the need to increase the efficiency of water use were felt in the agricultural sector.

Descriptive Statistics (Land)

The issue of Land (mainly soil) was discussed, with regards to the Mahadha Area, the land was found to be fertile and farm ready. However, being an Oasis area the sterili-zation of the soil is needed before planting the crops. The need for fertilizers is also found to be less.

Descriptive Statistics (Climate)

As per the statistics presented in Table 6, the geographical location is suitable for agriculture throughout the year. However, issues like sand storms and floods are also normal routines. Greenhouses have come up as an effective solution for the farmers though.

Descriptive Statistics (Storage)

Table 4: Water availability and Sufficiency

Questions	S Disagree	Disagree	Neutral	Agree	S Agree
Sufficient amounts of water reach the farms	7%	7%	40%	34%	12%
Farms in Mahadha consume a large amount of water	4%	7%	32%	47%	10%
Pumping groundwater is expensive	7%	14%	37%	42%	0
Irrigation in the old ways is better than irrigation in modern ways	6%	22%	27%	13%	2%
Water is a more important concern than soil	4%	13%	40%	34%	9%
Awareness must be raised to increase the efficiency of water use in the agricultural sector	3%	7%	23%	50%	17%

Table 5: Land and its Utilization

Questions	S Disagree	Disagree	Neutral	Agree	S Agree
The agricultural land in Mahadha is fertile	6%	11%	36%	41%	6%
Fertilization of the soil is needed before planting crops	21%	40%	27%	9%	3%
Sterilization of the soil is needed before planting crops	4%	7%	33%	42%	14%

Table 6: Climatic Conditions

Questions	S Disagree	Disagree	Neutral	Agree	S Agree
Dealing with Sand storms and other natural calamity is routine in Mahadha	3%	10%	49%	31%	7%
The issue of Floods is pervasive in Mahadha	7%	16%	43%	31%	3%
Weather in Mahadha allows for the cultivation of seasonal crops throughout the year	4%	17%	44%	32%	3%
Greenhouses provide a suitable environment for crops	6%	11%	29%	44%	10%

Table 7: Storage of Agricultural Products is Needed for the Crops in Mahadha

Questions	S Disagree	Disagree	Neutral	Agree	S Agree
Storage of agricultural products is needed for the crops in Mahadha	11%	14%	43%	29%	3%
A proper public storage place is available	9%	23%	41%	26%	1%
I have sufficient storage facility of my own	6%	24%	34%	33%	3%

Table 8: I have Good Access to the Market for the Sale of My Agricultural Produce

Questions	S Disagree	Disagree	Neutral	Agree	S Agree
I have good access to the Market for the sale of My agricultural produce	11%	14%	43%	29%	3%
The markets in Oman offer me a standard price	9%	21%	37%	33%	0%
I have the opportunity to bargain and negotiate depending on the market demand and supply factors	4%	17%	39%	39%	1%
The Duties and Taxes are reasonable on the agri-cultural	4%	20%	37%	37%	2%

Descriptive Statistics (Market)

As visible from Table 8, for most of the statements, the orientation of the respondents is on the agreement side, however, the accessibility to the market is identified as a major issue

Conclusion and Recommendations

Conclusion

Water conservation, efficient usage, and water supply were found to be one of the major issues. The farmers and associated people are not interested to get along with the newer technologies for the growth and development of the agriculture sector. Soil usage was found to be good, however, besides the inefficiency of agricultural development, farmers are unaware of the adverse effects on soil and crops due to the use of fertilizers and harmful chemicals. They do not know the right types of pesticides to address these problems and are ignorant of water scarcity in an Oasis region. Fertilizer standards set for each crop, lack some basic elements in the in the agricultural sector. And it hinders its development and progress and, the achievement of high production rates. And solutions to these problems could produce beneficial outcomes for the agricultural sector and achieve self-sufficiency in many agricultural products and grains. Countries will import huge amounts for consumption purposes and to compensate for local shortages. The agricultural sector badly needs the support of state institutions to reduce electricity prices, choose the right fertilizers for the soil, provide the necessary irrigation water, expand the lands, introduce modern technologies, expand agricultural greenhouses, and benefit from genetic engineering. The climatic conditions in the Sultanate ensure abundant agricultural production.

Recommendation

The recommendations include giving priority to the agricultural sector, which allocates the maximum available resources from the national budget to the agricultural sector and increases the allocations for agricultural science research in proportion to its role. It works to increase the incentives provided to sectors and the national economy and investment in the agricultural sector.

- Providing land, water, fertilizers, etc., preventing seasonal bottlenecks, and expanding agricultural greenhouses that produce crops with good specifications throughout the year by exporting and processing most of the production.

- To develop the Omani economy, besides encouraging the establishment of complementary industries for agricultural products, it is necessary to establish stock exchange branches in all states of the Sultanate, especially agricultural states, and establish laboratory spaces to inspect agricultural products before export. crops.
- The need to apply logistics concepts to Omani agriculture to organize the supply of agricultural products to reduce the cost of final products, improve quality and competitiveness in the world market, and avoid price fluctuations. Agricultural logistics is represented by three areas: agricultural logistics, pre-harvest logistics, and post-harvest logistics.
- Strive to identify and provide available capacity in agriculture that can be relied upon to meet food demand. seeds, fertilizers, and pesticides).
- Developing a development strategy capable of eliminating or reducing the problems perceived by the agricultural sector and mitigating the negative effects of successive reforms, ensuring that the strategic sector plays a major role in increasing dependence on food and diversifying exports outside the se

Future Scope of the Study

This study gives a basic idea about the opinion of farmers in the Mahadha region of Oman. To make this study more efficient and effective, more geographical areas need to be included for data collection with an increased sample size. A higher level of analysis is also recommended for future research.

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