Agricultural Marketing and Commercialization Journal
6(2), 194-203, 2022, ISSN Print: 2676640X, ISSN online: 2676-7570

Analysis of Farm Management with Emphasis on Agricultural Estate

J. Nawar[1], Mohammed E. Awad [2]

Received: 02 August 2022/ Revised: 26 October 2022/ Accepted: 01 December 2022/ Published: 31 December 2022

Abstract

The risky nature of agricultural activity prompts farmers to manage and control the adverse effects of natural and economic risk factors on yield and income fluctuations by applying and testing various managerial approaches. This study aimed to analyze farming management with an emphasis on farming estates. To fulfill this objective, essential managerial skills, agricultural risk management process and its advantages, improvement in risk management decisions, farming estates, and their organizational structure were studied using the library research method. According to the literature, farming estates have attracted significant attention in recent years, as these estates are known as places where the units located in contribute to increase production and preserve the environment while providing more employment by using modern technical knowledge through production in narrow spaces, with limited water, and soilless cultivation. In farming estates, mainly in the form of greenhouse estates, the essential managerial skills, including technical, human, and perceptual skills, which are based on the mutual impacts of different components, are very important. Risk management in terms of scope, platform, competence, processes and tools, quality and consultation, language, recommendations, conflict of interests, and inappropriate use, are considered objectives in those places. Practitioners in this field consider various types of decision-making in risk management, including (i) strategic decisions, (ii) operational decisions, and (iii) administrative decisions in order to control the minimum reduction of the negative impacts of risks in agricultural activities.

Keywords: Risk management, agriculture, farming estates, greenhouse estates.

Introduction

Management is defined as a distinct process of effective and efficient utilization of human resources in planning, organizing, mobilizing facilities and resources, and directing control to accomplish organizational objectives based on the accepted value system. In other words, management can be defined as a problem-solving process of accomplishing organizational objectives optimally through the effective and efficient use of scarce resources in a changing environment (Anonymous, 2007).

The risky nature of agricultural activity urges farmers to manage and curb the adverse effects of natural and economic risk factors on yield and income fluctuations by applying and testing various managerial approaches. Adopting this risk management approach by farmers can affect the cultivation model in a region in addition to changing the cultivation model at the farm level in response to risk factors, and it is also important in the policy-making of the agricultural sector. Egypt's agriculture includes a set of different activities in a wide area. The climate and weather diversity are other characteristics of

[1] Pesticides Analysis Research Department, Central Agricultural Pesticides Laboratory, Agricultural Research Center, Dokki, Giza, Egypt
[2] Agriculture Research Station, El-Arish, North Sinai, Vegetables, Res. Dept., Horticulture, Res. Inst., Agricultural, Res. Center, Giza, Egypt.

this activity. Climatic diversity, weather conditions, proper soil conditions, and also the potential possibility of access to the required water have provided a platform that can solve part of the unemployment issue of the society through scientific planning and appropriate organization and providing suitable conditions for investment, and also increase farmers' production and income by improving productivity and a stable income (Hatirli et al., 2005).

The production of agricultural crops is one of the riskiest economic activities according to the current natural and economic conditions of Indian. Agricultural managers are forced to make decisions in such an environment, and basically, managers' decision-making for the main activity and in risky situations depends on their attitude towards risks (Raju & Kumar, 2006).

(Srdjevic et al., 2005) provided a definition for "managerial capacity" as follows: "Having excellent personal qualities and skills to deal with problems and opportunities in the right and timely manner." They categorized the managerial capacity into two categories: (a) personal aspects that include farmer's motivations (e.g., farmer's objectives and risk features), capabilities and demographic characteristics (e.g., farmer's age, education level, and farming experience); and (b) the aspects of the decision-making process that reflect the farmer's characteristics towards the implementation of decisions including planning, implementation, and control steps.

In a review of farmers' management ability, concluded that researchers mainly consider farmers' demographic characteristics as explanatory variables for the farm's economic efficiency in using frontier methods in their studies, while they ignore other personal aspects of farmers and the operational levels of farmers' decisions in the decision-making process (Srdjevic et al., 2005).

(Yilmaz et al., 2009) also found that the impact of demographic aspects on farm economic outcomes is not clear, as sometimes this impact exists and sometimes it does not. However, in cases where this impact exists, different impacts are found in different studies.

(Battese et al., 1996) calculated the technical, allocative, and economic efficiency among rice farmers in Nakhon-Nayok, Thailand. The results of his research did not show a significant difference in the technical efficiency inside and outside the region. Among the various investigated factors, having education in agriculture outside the region had a positive effect on economic efficiency. Income distribution within the region compared to farmers outside the region had a positive effect on economic efficiency. Among the various studied factors, having an education in agriculture outside the region had a positive effect on economic efficiency. Income distribution within the region compared to farmers outside the region had a positive effect on economic efficiency.

Accordingly, this study aims to analyze farming management with an emphasis on farming estates.

Research Methodology

This study is a theoretical, purposefully fundamental, and methodologically library

research. The required data were collected by reviewing books and articles in the research area, and they were then analyzed.

Essential managerial skills

a. ***Technical skill*:** This skill, which is the result of experience, education, and the level of equipment, appears in the use of knowledge, methods, and techniques of equipment required to perform a specialized task, and the quality of work indicates the level of technical skill of the manager.
b. ***Human skill*:** This includes the ability to work with and by others. In this skill, the manager must be able to work, communicate, understand attitudes, and motivate others to achieve harmony and productivity.
c. ***Perceptual/conceptual skills*:** These refer to the ability to understand the interdependencies and mutual impacts of different components of an organization. This skill requires the manager to consider the organization as a whole. Through this capability, the manager identifies the relationships between different factors of an organization and makes the appropriate decision based on the best interests of the whole organization (Sharifi, 2008).

In the management cabinet, the manager should combine three areas of knowledge:

- Global Business
- International studies
- Acquisition of intercultural skills

Global Business

The objective is not to create expertise in any business environment in the world but it is to understand how specific global dimensions affect the performance of each functional aspect of the organization.

International studies

Its objective is to determine the international economic-political principles and the key dimensions of social-institutional and political-economic changes. Analytical tools are provided to people to understand the key parameters of any new environment in which work needs to be performed and to anticipate the routes in which their business model may be affected by such differences.

Intercultural skill

This competency is developed by creating a culturally diverse environment, engaging participants in transparent intercultural training, and requiring second language learning. Language is not only a management skill in itself, but it is a powerful procedure to develop intercultural awareness and build a foundation for higher levels of intercultural proficiency (Charnes, 1978).

Risk management

With the required ethical and behavioral standards developed to have a professional approach to providing risk management, it can be expected to encourage and promote mutual trust between the involved parties. The development and description of trust are suggested in risk management, which covers

the following areas: work area, platform, competence, processes and tools, quality and consultant, language, recommendations, conflict of interest, inappropriate use, and objectives.

a. Work area:

This is accountability to the customer. Although the field of risk management is responsible for providing a description regarding the probability of the effectiveness of the proposed work area, if the risk management professionals are not sure of the effectiveness of their proposed solution or worry about their client's reaction, they should inform him about this issue.

b. Platform:

Risk management must describe the understanding of the platform in which they work and describe the boundaries in their recommendations.

c. Competence:

They should be aware of their main capability limitations and remain within them, and they should inform their clients about areas outside of their main capabilities. In addition, they should ask for further investigation when they have fundamental doubts about their proposed suggestions.

d. Processes and tools:

They take responsibility for the appropriateness and efficiency of the tools and processes used or recommended to their clients.

e. Quality of recommendation:

They are responsible for the quality of their recommendations and must be aware of any limitations in the user processes or tools, as well as the possible consequences of the quality and reliability of their recommendations.

f. Conflict of interest:

The objective of risk management for clients must be fully in line with their objectives, recommendations that aim to defend or promote the interests of the business or colleagues of the professional are not appropriate, and risk management professionals protect their client's personal information.

g. Objectives

The organization and its stakeholders have intertwined objectives that include strategic business objectives, operational safety projects, etc. Risk management professionals must ensure that their recommendations are relevant to risks that affect the intended objectives (Frija et al., 2009).

Types of decision-making in risk management

There are various types of decisions, including critical, once-for-all, and ad hoc, which may have an immediate or delayed effect. Management faces three main categories: strategic, operational, and administrative. This classification is useful for different types of decisions.

1) Strategic decision:

Such decisions are long-term and determine the relationship between the organization and the specific environment in terms of product and market. These decisions formulate the main objectives of the organization and include major policy statements. These decisions are not repetitive and routine, but they are usually complex, i.e., many variables

must be considered before making the final choice.

2) Operational decision:

These decisions are short-term and resolve issues such as production quantity and inventory orientation. Here, fewer variables are involved in the decision-making process, and decisions are repetitive and routine. Operational decisions are usually preferred over other divisions because they deal with large volumes, and their results will be determined in the short term.

3) Administrative decision:

These decisions are made due to the contradictions between strategic and operational issues and are affected by these issues. They necessarily deal with creating the structure of the organization, i.e., the lines of authority and communication, and the administration used in this sense is more limited than its common meaning (Diaz et al., 2004).

6. Agricultural risk management

Risk management is a comprehensive process that must be performed at all strategic, operational, and planning levels in such a way that different levels of risk management support each other. Risk management is an active and dynamic approach that responds to *ifs* and includes two components of risk reduction and control. The purpose of risk reduction is to minimize the risk of an adverse event, while the purpose of risk control is to collect data to determine whether the implemented initiatives have effectively minimized the risk of an adverse event or not (Hatirli et al., 2005).

These activities are usually defined by the complexities, the interrelationships between the components, and the risks available in their management. A wide range of different risk management programs has been proposed in order to reduce the negative effects of risks in farming activities. Risk management is the use of various methods, tools, and policies to reduce the negative effects of various types of risks. Risk management refers to the use of various methods, tools, and policies to reduce the negative effects of various types of risks, and the use of these tools can result in a change in the possible distribution of the final outcomes of farmers' activities (Raju & Kumar, 2006).

Risk management advantages

- The probability of accomplishment of objectives increases.
- Harmful and destructive cases do not occur or happen less often.
- Profitability will be higher.

The risk management process is not to avoid and eliminate risk, but the elements of risk management seek to maximize opportunities and minimize side effects by using scientific teachings (Hatirli et al., 2005; Gholami & Dehyouri, 2018).

An adequate level of assurance regarding the correctness of administrative business activities is provided following good risk management. This assurance extends from the working group level to middle management, to senior management, and finally to the entire organization.

Therefore, they commonly prefer plans that have an acceptable level of reliability to provide their livelihood, even if this choice requires giving up some income.

The improvement Levels in risk management decisions

Data, information, facts, and knowledge increase the improvement level in decision-making. Effective risk assessment requires investigation and evaluation of the consequences of its effect on the decision-making process. The decision-making process allows the decision-maker to assess various previous strategies for any decision.

1. All possible approaches were considered, and the probable consequences of each approach were evaluated.
2. The results of each approach were discussed based on monetary return or net profit compared to assets over time.
3. The quality of optimal strategies depends on the quality of judgment. Decision-making should identify and test the sensitivity of the optimal strategy according to the determinants (Farrell, 1957).

According to the studies conducted by (Erdal et al., 2007), (Cunha & De Moura Oliveira, 2003), and (Thanassoulis, 2000), the following results can be concluded:

1. Agricultural activities, particularly in developing countries, are usually categorized among risky activities.
2. Farmers mainly show risk-averse behavior.

Farming estate

The farming estate in the new cities refers to a place with units that use modern technical knowledge through production in narrow environments with limited water and hydroponic soilless cultivations to soften the air in the city limits, help preserve the environment, and create productive employment for agricultural graduates.

Headquarters for the establishment of farming estates

This headquarters will be established for a limited period to launch and develop farming estates next to the new cities of the Ministry of Housing and Urban Development and also within the legal limits of cities where agricultural activities are possible.

The activities of the headquarters for the establishment of farming estates will continue until forming the production organizations in the mentioned farming estates and the membership of more than 50% of the producers (Srdjevic et al., 2005; Arfaee et al., 2021).

Organizational structure of farming estates

The organizational structure of farming estates in two options will be as follows:

1. *First option*

- The first option is designed and adjusted as a centralized organization, in which in each farming estate subset of new cities, the desired production factors (water, land, etc.) are available to the applicants (individuals or natural-legal entities) who have the ability and experience to work in compliance with the current rules and regulations under the supervision of the headquarters to implement the prepared plans up to the stage of preparation of the farming estates, their segmentation in the form of production units.
- After the investigation of the abovementioned case, the natural or legal people, if they wish, can proceed with the supervision of the headquarters to set up production units based on the regulations that will be announced later.

In the first option, following the aforementioned steps, the entire area of each farming estate is provided to one or more production firms with the required and sufficient experience, expertise, and qualification in the form of a lease with the condition of ownership and the mentioned firm(s) will be allowed to initiate and produce in the relevant units, directly or with the participation of other natural or legal people, in the form of executive regulations that will be announced through the headquarters.

- The use of agricultural experts and practitioners is mandatory in the implementation of paragraph 3.
- It is inevitable to create a firm union of farming estates to facilitate the provision of services, e.g., building production halls and breeding settings, power supply, and the provision of sorting, packaging, marketing, internal and external sales, and other required items.

2. *Second option*

- The second option is to design and regulate as a decentralized organization. In this option, the establishment headquarters of farming estates will be organized as the first option.
- In the second option, each construction company in new cities will take action to prepare the desired land within the farming estate owned by that company. Appropriate executive organizations to accomplish this objective will be defined in coordination with the establishment headquarters of farming estates. In this option, the prepared pieces of land will be provided to a natural or legal person or people directly through new cities' construction companies.
- Producers' union is formed to provide technical services and required support in each farming estate, which will create a regional or central union.

In both options, the activities of the headquarters will continue until the step of establishing the union and the membership of more than 50% of the cooperatives; then, the continuation of the relevant activity will be solely the responsibility of the mentioned unions. This union was designed in such a way that, regardless of whether it is

centralized or decentralized, planning and providing technical and commercial services through the central union can be provided to all producers.

The limitations of authorities and responsibilities will be defined in the form of executive regulations.

Advantages and disadvantages of both first and second options

A: The first option:

Advantages:

- Minimal direct government intervention in the selection of people and elements of the subset of farming estates; i.e., the main investor of the farming estate will select people and provide production factors according to the criteria set by the headquarters and will be responsible for its success or failure according to the nature of the work.
- In this option, the headquarters will be faced with at least people or groups that have the ability and competence to do the work, and the mentioned people (investors) will guarantee the success of the project according to their experience.
- The possibility of monitoring and evaluating the work will be more for the start-up headquarters due to the small number of people on the contract. In addition, the selected people or partners will definitely be those who have experience and capability.

Disadvantages:

- In this option, it is expected that the recruitment of new graduates will be less compared to the second option due to the nature of the investment method.
- Experts and investors in the agricultural sector may execute construction activities for a longer period of time due to the inconsonance of civil and agricultural works, which will be an effective economic justification for the plan.

B: The second option

Advantages:

- High speed in project execution and reduction of construction time.
- Emergence of new creativities is due to the number of investors and cooperative management.
- Wide range of employment for new university graduates.

Disadvantages:

- In this option, the applicants do not basically have high experience, expertise, and the possibility of investment, and it will certainly bring other side effects in terms of social issues.
- Weak culture of cooperation and collaboration.
- Several references of investors and the need to resolve all related issues by company managers will cause managers to deviate from their big, main plans.

Conclusion

Agriculture is an activity full of risks in which all kinds of major natural, social, and economic risks come together and provide a fragile and vulnerable set for the producers of this sector, resulting in the instability of their income. Water scarcity is the most important factor limiting the economic development of the country. Population growth and limited extractable water pose a major challenge to the agricultural sector, which must produce more agricultural products with less water use to ensure food security. Nowadays, the agricultural sector is significantly dependent on energy use to respond to the ever-increasing food demands for the growing population of the planet and to provide adequate and proper food. Given the finite natural resources and the adverse effects of improper use of various energy sources on human health and the environment, it is vital to assess energy use patterns and consider risk management in the agricultural sector. The objective of the agricultural crop producer is determined by environmental, geographical, and economic conditions. Although this objective may not be simply to maximize profit, the agricultural crop producer produces in pursuit of a specific objective, which is always ideal to accomplish as high as possible. Increasing efficiency and productivity in the agricultural sector can not only meet domestic demands but also satisfy people and the industrial sector demands, and its surplus is also exported. Along with the introduction of new technologies, there is a tendency to increase the cultivated area, economize agricultural crops, and increase productivity. This will lead to the economic development of the country and improve the condition of farmers in order to earn more profit. All the issues in the agricultural sector show the requirement for management involvement. Farming estates have today attracted significant attention, as these estates are known as places with units that contribute to increasing production and preserving the environment while providing more employment by using modern technical knowledge through production in narrow spaces with limited water and soilless cultivation. In farming estates, mainly in the form of greenhouse estates, the basic managerial skills, including technical, human, and perceptual skills, which are based on the mutual impacts of various components, are very significant. Risk management in terms of scope, platform, competence, processes and tools, quality and consultation, language, recommendations, conflict of interests, and inappropriate utilization are considered objectives in those places. Practitioners in this field consider various types of decision-making in risk management, including (i) strategic decisions, (ii) operational decisions, and (iii) administrative decisions to minimize and reduce the negative impacts of risks in agricultural activities.

References

- Anonymous F. (2007). Annual Agricultural Statistics. Ministry of Jihade Articulture. Retrieved June, 12(1): 16-27.
- Arfaee, M., dehyouri, S., & zand, A. (2021). Designing Thermal Map of Organizational Intelligence on Managerial Styles of Managers (Green Space Organization of Tehran). Agricultural Marketing and Commercialization Journal, *5*(2), 1-13.

- Battese GE. & Malik SJ. & Gill MA. (1996). an investigation of technical inefficiency of production of wheat farmers in four districts of Pakistan. Journal of Agricultural Economics, 47(1): 37-49.
- Charnes A. (1978). Measuring the efficiency of decion making units. European Journal of operational research, 2(1): 429-441.
- Cunha JB. & De Moura Oliveira JP. (2003). Optimal management of greenhouse environments. In EFITA Conference, 2: 559-564.
- Diaz JAR. & Poyato EC. & Lugue RL. (2004). Application of data envelopment analysis to studies of irrigation efficiency in Andalusia. J. Irrig. Drain. Eng. Am. Soc. Civ. Eng, 130(3): 175-183.
- Erdal G. & Esengun K. & Erdal H. & Gunduz O. (2007), Energy use and Economical analysis of sugar beet production in Tokat province of Turkey. Energy, 32(1): 35-41.
- Frija A. & Chebil A. & Speelman S. & Buysse J. & Van Huylenbroeck G. (2009). Water use and technical efficiencies in horticultural green houses in Tunisia. AGWAT, 28(1): 1-8.
- Farrell MJ. (1957). the measurement of productive efficiency. J. R. Stat. Soc. Ser. A. 120 (III), 1: 253-281.
- Gholami, G., & Dehyouri, S. (2018). Evaluating the effect of managerial and economic factors on broiler poultry production in Qom province. *Agricultural Marketing and Commercialization Journal*, *2*(2), 7-17.
- Hatirli SA. & Ozkan B. & Fert K. (2005). An econometric analysis of energy inuptoutput in Turkish agriculture. Renewable and Sustainable Energy Reviews, 9(1): 608-623.
- Raju KS. & Kumar DN. (2006). Ranking irrigation planning alternatives using data envelopment analysis. Water. Resour. Manage. 20(1): 553-566.
- Srdjevic B. & Medeiros YDP. & Portro RLL. (2005). Data envelopment analysis of reservoir system performance. Comput. Oper. Res., 32(1): 3209-3226.
- Thanassoulis E. (2000), DEA and its use in the regulation of water companies. Eur. J. Oper. Res., 127(1): 1-13.
- Yilmaz B. & Yurduse M. & Harmancioglu N. (2009). The Assessment of irrigation efficiency in Buyuk Menderes basin. Water. Resour. Manage. 23(1): 1081-1095.