Original article

# Methodology for risk management and prevention in an Agricultural Production Cooperative



Metodología para la gestión y prevención de riesgos en una Cooperativa de Producción Agropecuaria

Metodologia para gestão e prevenção de riscos em uma Cooperativa de Produção Agrícola

Miladys Garrido Cervera<sup>1</sup> 0000-0001-5732-7512 miladys@upr.edu.cu

Zoraimy Poo Sobrino<sup>1</sup> 0000-0002-5373-4011 2 zoraimy.poos@upr.edu.cu

Nigdalys Figueroa Sierra<sup>1</sup> D 0000-0002-8825-5707 O nigdy@upr.edu.cu

María de Jesús Ribet Cuadot¹ 🗓 0000-0003-1077-4168 @ mariadejesus@upr.edu.cu

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#### **ABSTRACT**

Risk management is of vital importance; its knowledge and execution allows controlling and minimizing the negative consequences of its occurrence, achieving economic-financial stability and comprehensive security. In Cuba, it acquires relevance due to Resolution 60 of 2011 on the Standards of the Internal Control System, because in its chapter two it includes risk management and prevention. The objective is to apply the methodology for risk management and prevention in the Agricultural Production Cooperative "Rafael Morales" adjusted to its characteristics and particularities that contribute to a better productive performance and value creation. In the diagnosis carried out, it was found, through surveys and interviews, documentary analysis and observation of the areas, that there was a lack of knowledge on the subject, which leaves it exposed to any eventuality, especially because of its exposure to natural and biological risks. With the implementation of the

<sup>&</sup>lt;sup>1</sup> University of Pinar del Río "Hermanos Saíz Montes de Oca". Faculty of Economic Sciences. Department of Accounting and Finance. Pinar del Río, Cuba.

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methodology, a better identification and evaluation of risks was obtained, mainly in the prevention and control of tobacco cultivation and other various crops. In economic terms, losses and their valuation are minimized or reduced in the event of their materialization or occurrence. It can be affirmed that the application of this methodology contributed positively to the development of the Agricultural Cooperative, both from the economic point of view, by reducing risks, and from the social point of view, by protecting the interests of the associates and the community.

**Keywords:** risk management; prevention plan; risks.

#### **RESUMEN**

La administración de los riesgos es de vital importancia, su conocimiento y ejecución permite controlar y minimizar las consecuencias negativas de su ocurrencia, lograr la estabilidad económicofinanciera y la seguridad integral. En Cuba, adquiere relevancia debido a la Resolución 60 del 2011 sobre las Normas del Sistema de Control Interno, pues en su capítulo dos incluye la gestión y prevención de riesgos. El objetivo consiste en aplicar la metodología para la gestión y prevención de riesgos en la Cooperativa de Producción Agropecuaria "Rafael Morales" ajustada a sus características y particularidades que contribuyan a un mejor rendimiento productivo y a la creación de valor. En el diagnóstico realizado, se pudo constatar, a través de las encuestas y entrevistas, el análisis documental y la observación de las áreas, que existía desconocimiento sobre el tema, lo cual lo deja expuesto ante cualquier eventualidad, sobre todo por su exposición a riesgos naturales y biológicos. Con la implementación de la metodología, se obtuvo una mejor identificación y evaluación de los riesgos, fundamentalmente en la prevención y control del cultivo del tabaco y otros cultivos varios. En lo económico, se minimizan o disminuyen las pérdidas y su valoración ante la materialización u ocurrencia de los mismos. Se puede afirmar que la aplicación de esta metodología contribuyó de forma positiva en el desarrollo de la Cooperativa Agropecuaria tanto, desde el punto de vista económico, mediante la reducción de los riesgos, como en lo social, protegiendo los intereses de los asociados y de la comunidad.

Palabras clave: gestión de riesgo; plan de prevención; riesgos.

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#### **RESUMO**

A gestão de risco é de vital importância; seu conhecimento e execução permite que se possa controlar e reduzir ao mínimo as consequências negativas de sua incidência, alcançar estabilidade econômicofinanceira e segurança integral. Em Cuba, assume pertinência devido à Resolução 60 de 2011 sobre as Normas do Sistema de Controle Interno, já que seu capítulo dois abrange a gestão e prevenção de riscos. O objetivo principal é aplicar a metodologia de gestão e prevenção de riscos na Cooperativa de Produção Agrícola "Rafael Morales", ajustada às suas características e particularidades que contribuam para um melhor desempenho produtivo e criação de valor. No diagnóstico realizado, constatou-se, através de pesquisas e entrevistas, análise documentária e observação das áreas, que houve falta de conhecimento sobre o assunto, o que o deixa exposto a qualquer hipótese, especialmente por causa de sua exposição a riscos naturais e biológicos. Com a implementação da metodologia, foi obtida uma melhor identificação e avaliação dos riscos, principalmente na prevenção e controle do cultivo do tabaco e de várias outras culturas. Em termos econômicos, as perdas e sua valorização são minimizadas ou reduzidas no caso de sua materialização ou ocorrência. Pode-se afirmar que a aplicação desta metodologia tem contribuído positivamente para o desenvolvimento da Cooperativa Agrícola, tanto economicamente, reduzindo riscos, quanto socialmente, protegendo os interesses dos membros e da comunidade.

Palavras-chave: gestão de riscos; plano de prevenção de riscos; riscos.

### INTRODUCTION

Enterprises are constantly exposed to risks that may affect the fulfillment of their mission and institutional objectives. Therefore, Risk Management provides the enterprise with the necessary means to identify the risks that may arise, measure their magnitude and define how to respond to them in a way that does not affect the interests, assets and liability of the organization.

"Risk is the impact and probability that a threat (or of a series of events/threats) may adversely affect the achievement of objectives" (Galaz & Ruiz Urquiza, 2015).

The definition of a risk is not a mechanistic analysis of a given situation. A risk is a potential loss produced by dangerous and uncertain events, linked to existing vulnerabilities (Soler González et al., 2018).

Risk has been widely discussed by different authors in different contexts and in general they all converge in common elements such as: the fact of the probability of occurrence of an event or occurrence, which has the particularity of being uncertain but possible, and the impact it may have on the achievement of objectives.

Risk management is a subject that has been addressed by specialists and researchers, where each discipline involved approaches risk and risk management from its own point of view, especially when interpreting risk through the categories of uncertainty, probabilities, alternatives, losses, hazards, among others.

In year 2004, the Committee of Sponsoring Organizations of the Tread way Commission (COSO) introduced the word "event" to designate an occurrence that may happen in the future with certain consequences. In this way, it states that events can have a negative impact, a positive impact or both. Events with a negative impact represent risks that may prevent the creation of value or erode existing value. Events with positive impact may offset negative impacts or represent opportunities. Opportunities are the possibility of an event occurring and positively influencing the achievement of objectives, supporting the creation or protection of value.

The Treadway Commission defines Enterprise Risk Management as: "(...) a process affected by the board, management and staff of an entity, applied in setting strategy throughout the organization, designed to identify potential events that may affect the entity and manage the risk to be within the established risk profile that provides reasonable assurance in achieving the organization's objectives" (Casares & Lizarzaburu, 2016).

"The process of risk management involves the systematic application of policies, procedures and practices to the activities of communicating and consulting, setting the context and assessing, treating, treating, monitoring, reviewing, recording and reporting risk" (ISO, 2018).

The standard "ISO 31000:2018. Risk Management. Guidelines" is a fundamental standard in Risk Management. It is an international standard that establishes guidelines so that any type of organization, whatever its sector and size, can consider risk as a value-generating element. And it is a value generator because it helps to achieve objectives through risk-based thinking for decision making.

Today there are two lines of thought: "Unmanaged risks represent a potential loss of value" and "Managed risks represent a potential creation of value".

"Enterprise risk management is not a function or a department. It is the culture, capabilities and practices that organizations integrate with the strategy definition process and apply when putting it into practice, with the purpose of managing risk when creating, preserving and materializing value" (Instituto de Auditores Internos de España, 2017).

Enterprise risk management can be used by organizations of any size. If an organization has a mission, strategy and objectives - and the need to make decisions that take full account of risk - it can apply enterprise risk management.

In Cuba, risk management has made great progress in the prevention of natural events, especially in the case of hurricanes with a high probability and impact, especially in the western region.

In the case of risk management, in the development of a given economic activity, it reaches a greater boom in general with the approval of Resolution 297 of 2003 on Internal Control, which was repealed in 2011 by Resolution 60 currently in force, which indicates the process of risk management and prevention. This process is extensive to all entities and organizations in the country. Risk is defined as "... the uncertainty of the occurrence of an event that could affect or benefit the achievement of the organization's objectives and goals. Risk can be measured in terms of favorable or unfavorable consequences and probability of occurrence" (Contraloría General de la República, 2011).

The development of Risk Management is based on the aforementioned resolution, specifically in its Risk Management and Prevention component, which establishes the basis for the identification and analysis of the risks faced by bodies, agencies, organizations and other entities in order to achieve their objectives. The component is structured in the following standards:

- Risk identification and change detection
- Determination of control objectives
- Risk prevention

In spite of what has been established, there are organizations that, due to the lack of knowledge and highly qualified personnel, have lagged behind in Risk Management, as is the case of the Agricultural

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Cooperatives that today play an important role in the Cuban economy and in the process of economic reorganization.

According to Labrador Machín (2020): "(...) cooperatives have their own or external managerial powers, which allow them to create favorable conditions and thus reach an optimal level of efficiency and efficacy, since they are better prepared to take advantage of the benefits provided by decentralization and integration of economic management, as far as agricultural cooperatives are concerned".

These entities will be contributing to local development from the territories, in their social, economic and environmental aspects according to the development strategy until 2030, in relation to an inclusive, sustainable and intelligent growth, which enjoys high levels of employment, productivity and economic, social and territorial cohesion (Acosta Morales, 2020).

Within the framework of social production, aimed at achieving productive levels that contribute to overcoming the current economic crisis, the agricultural sector plays a preponderant role and, consequently, cooperativism. The success of this sector depends, to a great extent, on the solution of the needs of food products for the population and raw materials for the industry, the increase of exportable funds and the assurance of the food base with the required quality (Labrador Machín et al., 2020).

Cooperatives, as well as enterprises, face today important challenges when identifying risks, confusing these with the causes or manifestations, by not determining their level of relevance. The number of risks is very high and their evaluation and treatment is dispersed, generally they do not evaluate probability and impact, but in doing so they confuse what has already occurred with probability, making it very complex to determine the impact of occurrence, especially with those risks that are more probable, but have never materialized; likewise, they do not relate them to the established objectives, which undoubtedly hinders risk management and the generation of value.

Based on the diagnosis made in the Agricultural Production Cooperative (CPA in Spanish) "Rafael Morales", the experience and results of the authors in previous research, it was decided to adjust the methodology proposed in the article: Risk management and prevention in cooperatives: a working tool for its elimination or reduction (Ribet Cuadot et al., 2015).

The general objective is as follows: To apply the methodology for risk management and prevention in the Agricultural Production Cooperative "Rafael Morales", adjusted to its characteristics and particularities that contribute to a better productive performance and value creation.

### **MATERIALS AND METHODS**

The materialistic-dialectical method is used as a general method to explain the behavior of risk management and prevention, as well as the historical-cultural analysis of this object.

Theoretical methods: Historical-logical method: To analyze the evolution, study, understanding and determination of the most significant particularities, regularities and tendencies of risk management and prevention in other contexts and in Cuba.

Empirical methods: The observation method was applied to the production process of the different crops by activities and procedures used in the rest of the areas of the cooperative, including facilities, equipment, means of transportation, furniture, and warehouses.

For the measurement method, the following techniques were used: interviews, surveys and documentary review, among others. Surveys were applied to all members of the cooperative and farmers in the community, interviews with members of the Board of Directors and brigade leaders, and the documentary analysis made it possible to evaluate all regulations and provisions in force on safety systems, prevention plans, and worker protection, among others.

# **RESULTS AND DISCUSSION**

In order to achieve the objective, each of the steps established in the methodology used are shown, adjusted to the characteristics and particularities of the "Rafael Morales" Agricultural Production Cooperative.

The results of the implementation of the methodology are detailed below:

# Step I. Establishment and training of a working group for risk identification, analysis and assessment

The working group is established, which is formed by the President, the Economist, two brigade chiefs, two partners, all members of the Board of Directors, as well as the President and the organizer of the National Association of Small Farmers in the cooperative and the President of the Commission of Control and Control of the CPA. All this by decision and approval of the General Assembly.

# Step II. Establish context

The CPA has an important group of strengths identified in its Development Plan, such as:

- Stability of the Board of Directors and its preparation
- Stability in the workforce
- · Sense of unity among members
- Development of computerization
- The work force is distributed in brigades with a linkage of man to area and final results
- Varieties with high productive potential in tobacco and miscellaneous crops
- It has facilities for social and recreational development and member services
- Salary levels are favorable, they receive an advance every month and at the end of the period the salary is the sum of the advance and the profit
- Their financial relationships are good, and the bank provides them with a credit facility every year
- It has a Control and Audit Commission as a counterpart for the implementation of internal control
- Possibility of contracting supplies and services with all individuals and legal entities
- Assured destination for all productions
- Approve and establish the plan of the economy in correspondence with the state demand and the services that guarantee each of the productions

However, a group of internal and external factors were identified and are described below:

#### **Internal factors**

- Shortage of tractors and farm implements
- Shortage of irrigation motors
- · The planned soil conservation and improvement program is not being complied with
- Insufficient training in accordance with the demands of the associates
- They do not have qualified personnel for livestock development
- Inadequate technologies for livestock development and input shortages
- The area demanded for animal feed has not been covered

#### **External factors**

- Behavior of climatic variables
- Appearance of pests and diseases
- Its main suppliers are the Empresa de Tabaco de Pinar del Río and the Empresa de Suministros
  Agropecuarios in its different units, Transportation, Supply and Repair of Equipment, which is
  not favorable for the cooperative because on many occasions the resources do not arrive on
  time, including spare parts, fuels, pesticides and working means, among others
- Damage from stray animals in crops

It was also determined that, since the strategic and specific objectives are not defined in the cooperative, all these factors directly and indirectly affect the achievement of the 47 tons of strung dark tobacco, as established in the contract with Acopio y Beneficio del Tabaco, sole client of this crop and which represents the State, and because it is the crop that provides the greatest annual income and also considers the plan established for the rest of the crops and activities.

This step determines the need to first establish the risks by activities in order to, in the end, draw up the CPA's risk prevention and management plan taking into account the level of risk and the priority of its attention.

# Step III. Diagnosis and identification of risks by areas

To identify the risks, the following key areas were identified: Management, Economy, Warehouse, Production.

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The identification process begins first in the areas of management, economy and warehouse in a single table as shown in Table 1, because these identified risks can occur in any of the areas.

Table 1 - Identification of Risks in the areas of management, economy, warehouse and production

No.	Identified Risks	Areas	Impacting				
			objective				
1	Diversion of material and financial	Management, Economics and					
	resources	Warehousing					
2	Non-compliance with contracts	Management and Economics					
3	Shortages in the warehouse	Warehouse	Achieve a				
4	Intoxication and accidents	Warehouse	sustainable and				
5	Deterioration or aging of stored	Warehouse	sustainable				
	products	Wateriouse	development of				
6	Billing noncompliance	Management and Economics	the production				
7	Loss of accounting information	Economy	system through the fulfillment				
8	Embezzlement	Management and Economics	of the plan to				
9	Loss of inventories due to the	Management, Economics and	produce 47				
	occurrence of natural disasters	Warehousing	tons of tobacco,				
	Losses of tobacco houses or other		5 tons of				
10	fixed assets due to the occurrence	Production	miscellaneous				
	of natural disasters		crops and 5500				
	Commission of errors in the		liters of milk.				
11	settlement of advance payments	Economics, Management					
	and profits of partners						
12	Traffic accidents	Management, Warehouse and Production					
13	Occupational diseases (Loss of	Economy, Warehouse					
15	vision and spinal problems)	Leonomy, warehouse					

Source: Elaborated by the authors

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Subsequently, for the productive areas, an adjustment is made to the table since the identification will be made based on the different phases through which each crop passes.

The CPA is currently engaged in several crops and other activities related to livestock. To validate this part, the tobacco crop has been selected, which can be seen in table 2, where the example of seedbed activities is shown.

Table 2 - Identification of Risks in Dark Tobacco cultivation

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	•	Lack of protection against sun
		exposure from sun exposure of
		postures
	•	Transfer delays

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Source: Elaborated by the authors

In table 2, the case of the activities related to the seedbed and the risks associated with them can be seen, likewise similar tables were elaborated for the work of the crop in the field from planting to harvesting and then a third table is included with the identification of risks in the activities of stringing and curing of tobacco that culminates with the packaging of tobacco for collection (sale). Through the different stages of tobacco cultivation, 15 risks were identified that contribute to the partial or total noncompliance of the 47 tons of dark tobacco strung.

# Step IV. Risk assessment based on the determination of the frequency of occurrence and calculation of the possible impact to establish relevance

For the evaluation, the determination of the frequency of occurrence will be taken into account, i.e., the systematicity in which the risks may occur or manifest themselves in each area, assigning a scale of high, medium or low with a value of 3, 2 and 1 respectively. In assessing the frequency, the following are considered:

- A low frequency when it occurs only under exceptional circumstances or is unlikely to occur
- An average frequency is when it may occur at some point in time
- A high frequency is when it is likely to occur on most occasions or is expected to occur on all
  occasions

The impact will also be determined as the effect that the materialization of the risk may have from an economic, social or environmental point of view, considering a scale of mild, moderate and severe with the assignment of values of 5, 10 and 15 respectively. In the impact assessment, the following are considered:

 A slight impact when its occurrence implies an economic loss, loss of service or loss of the cooperative's image with minimal effects and/or slight damages with infringement

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- A moderate impact when its occurrence implies an economic loss of the service or of the cooperative's image with significant effects, with repeated infractions
- A serious impact when its occurrence implies an economic loss of the service or of the cooperative's image with important effects, with prolonged infractions and generalized and/or massive damages with persistent severe damages

For this analysis, two tables are made, one for the evaluation of the general risks of Economy, Management, Warehouse and Production and another table for the more specific risks of dark tobacco production. As a result of this assessment, the following results were derived.

Regarding the determination of frequency, that is, the level of systematicity in which risks occur in the areas of economy, management, warehouse and production, 42% of the risks are unlikely to occur, 50% occur at any time and 8% of the risks are expected to occur most of the time, which is equivalent to a risk, intoxication and accidents, due to the fact that the person in charge of handling toxic substances does not have the necessary means of protection. As for the impact, it can be said that they are divided between moderate and serious because they are risks that involve economic loss and widespread damage. These issues determine that most of the risks in these areas are in the moderate risk zone, since financial transfer of risk and the establishment of reduction measures for improvement are required. All of the above can be seen in the table 3.

Table 3 - Evaluation

No.	Identified risks	Ranking	Frequency	Impact		Ris	sk			
			requestoy			Т	М	IM	IN	Priority
			(1- 2- 3)	(5- 10- 15)						
1	Diversion of material and financial resources	Internal	1	15			x			III
2	Non-compliance with contracts	Internal	2	10			Х			III
3	Shortages in the warehouse	Internal	2	10			X			III
4	Intoxication and accidents	Internal	3	15					Х	I
5	Deterioration or aging of stored products	Internal	1	5		x				V

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6	Billing noncompliance	Internal	2	10		Х		III
7	Loss of accounting information	Internal	2	10		X		III
8	Embezzlement	Internal	1	10	X			IV
9	Loss of inventories due to the occurrence of natural disasters	External	1	15		x		III
	Losses of tobacco houses or other fixed assets due to the occurrence of natural disasters	External	1	15		x		III
11	Commission of errors in the settlement of advance payments and profits of partners	Internal	2	10		x		III
12	Traffic accidents	Internal	2	15			Х	II
13	Occupational diseases (Loss of vision and spinal problems)	Internal	2	10		x		III

Source: Elaborated by the authors

The definition of the **risk zone** allows the risk assessment to be carried out and its priority and treatment to be determined, as shown:

**Acceptable risk zone (A):** No additional mitigation or financial transfer measures are required. Total assumption or retention is recommended, i.e. the risk is at a level that can be accepted with the budget, without the need to take control measures other than those already in place. It has a fifth place in the priorities.

**Tolerable risk zone (T):** Improvements are encouraged with normal mitigation measures and, in some cases, partial or total retention. A cost-benefit analysis should be carried out to decide whether to reduce the risk, assume it or share it. It has a fourth place in the priorities.

**Moderate risk zone (M):** Financial risk transfer is required. A minimal partial retention can be created or reduction measures can be established for improvement, measures must be taken to bring the risks to the acceptable or tolerable zone. It has a third place in the priorities.

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**Major Risk Zone (MR):** Intensive elimination or reduction measures are required, a minimal partial retention can be created or strict reduction measures can be established for improvement, eliminate the causes that generate the risk to the extent possible, otherwise, prevention controls should be implemented to avoid the probability of occurrence of the risk, protection to reduce the impact or share or transfer the risk if possible through insurance policies or other options that are available. It has a second place in the priorities.

**Unacceptable risk zone (IN):** Intensive elimination or reduction measures are required and, in some cases, the suppression of the operation that generates it, in addition to the well-established financial transfer of the risk. It is recommended that the entity design contingency plans to protect itself in the event of its occurrence, eliminating the causes that generate the risk as far as possible. Otherwise, prevention controls should be implemented to avoid the probability of occurrence of the risk, protection to reduce the impact or share or transfer the risk if possible through insurance policies or other options that are available. It has the first place in the priorities.

For the dark tobacco production area, a table was prepared with the 15 identified risks, and the same procedure was followed to evaluate their frequency and impact. The level of systematicity with which the risks occur is 38% for unlikely, with an average probability of 53% of the risks and it is expected that in most cases the appearance of pests will occur because it is a factor that depends on the timely arrival of chemicals for spraying. The impact continues to be moderate and slight, except for the risks of not obtaining the required yield per unit area and poor quality of the harvest, which is considered serious because it directly affects the achievement of the cooperative's fundamental goal. In general, most of the risks are in the tolerable zone, as they could improve if measures are taken to reduce them.

The table also shows the classification of risks into internal and external, where the external risks are those associated with competition, regulatory changes, changes in customer habits, technological changes, changes in legality, among others, and the internal risks are operational problems, resource management, organizational structure, existing controls, processes and procedures, availability of financial resources, the entity's financial situation, the way in which members or those hired by the cooperative are linked to the interests of the directors, the level of human talent, motivation and salary levels.

# **Step V. Determination of control objectives**

Based on the results, the working group defined the following as the basic activities to be carried out for risk prevention and management:

- Monthly analysis meeting: This meeting coincides with the Board of Directors meeting and aims to analyze each month the management and progress of the Risk Prevention and Management Plan in order to correct accident and/or loss analysis, control compliance with corrective measures, training needs, reorientation, congratulations, attention, etc.
- Safety inspections: This is an operational activity carried out by the members of the work group in a systematic and permanent way, with the purpose of detecting, analyzing and controlling the built-in risks that may affect the operation, compromising the results. The main purpose of the inspection is to verify or inspect the working conditions of the members, equipment, machinery, tools, environment, etc., that may cause losses
- Safety observations: This is an operational activity that is carried out systematically to verify that the tasks are being performed according to the procedures in force. It is carried out by the designated member of the working group. The main purpose of the observation is to verify or observe in the field the behavior and attitude of the partners towards safety
- **Personal or group contacts**: These are small meetings (mornings) that are designated to the members of the work group with the partners in a specific area to discuss a specific topic, related to the operation or procedure to be followed and the safety of the same. The main purpose is to congratulate, correct or confirm work procedures and motivate
- Accident investigation: This is a preventive activity aimed at determining the causes of accidents and taking action so that they do not recur in the future. In order to control the risks that caused the loss of the cooperative, it is essential that the accident investigation be disseminated as a comprehensive discussion. The main purpose of this is that the analysis of the accident allows the control of the risks by the personnel who were not involved in the accident

Subsequently, based on everything analyzed, risk maps are prepared for each of the areas and, as a final result, a risk prevention and management plan is prepared, as established in Resolution 60 of 2011 in Cuba, which is still in force.

# Advantages and impacts of the application of the methodology

Among the advantages of its implementation, the following stand out:

- Ensures a systematic approach to the management and prevention of risks that affect the achievement of the cooperative's objectives and goals
- The diagnosis and subsequent preparation of the risk map for each of the areas is a working tool that guarantees continuous improvement
- Crop risks are identified, assessed and addressed for each of the phases through which they
- The Risk Prevention Plan, established in Resolution No. 60 of 2011, is obtained as a final model
- Facilitates continuous monitoring and review

# Economic, social and environmental impact

- In economic terms, losses that may occur in the cooperative are minimized or reduced and their valuation before their materialization or occurrence allows for the creation of value
- Socially, it allows the cooperative to strengthen its responsibility towards its members and the community where it is located
- From an environmental point of view, it allows to identify environmental risks and their effects on both the cooperative and society

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# **REFERENCES**

- Acosta Morales, Y. (2020). Cooperativas agropecuarias. Un factor indispensable para la soberanía alimentaria en Cuba. *Deusto Estudios Cooperativos*, (15), 145-163. https://doi.org/10.18543/dec-15-2020pp145-163
- Casares, I., & Lizarzaburu, E. (2016). *Introducción a la Gestión Integral de Riesgos Empresariales.*Enfoque: ISO 31000. Platinum. https://repositorio.upn.edu.pe/handle/11537/29019
- Contraloría General de la República. (2011). Resolución 60 Normas del Sistema de Control Interno.

  Gaceta Oficial de la República de Cuba, Edición Extraordinaria No. 13.

  https://www.gacetaoficial.gob.cu/es/resolucion-60-de-2011-de-contraloria-general-de-la-republica
- Galaz, Y., & Ruiz Urquiza, S. C. (2015). *COSO. Evaluación de riesgo*. Deloitte. https://www.yumpu.com/es/document/read/62160693/evaluacion-riesgos-coso
- Instituto de Auditores Internos de España. (2017). *Gestión del riesgo empresarial. Integrando*estrategia y desempeño. COSO (Committee of Sponsoring Organizations of the Treadway

  Commission). https://auditoresinternos.es/uploads/media\_items/coso-2018-esp.original.pdf
- ISO. (2018). *Gestión del Riesgo. Directrices* (ISO 31000:2018). Organización Internacional de Normalización. https://www.iso.org/standard/43170.html
- Labrador Machín, O. (2020). Gestión y responsabilidad social cooperativa: Su indisoluble unidad de la actualidad. *Cooperativismo y Desarrollo*, 8(2), 160-165. https://coodes.upr.edu.cu/index.php/coodes/article/view/342
- Labrador Machín, O., Mirabal González, Y., & Torres Paez, C. C. (2020). Potencialidades del cooperativismo agropecuario en función de la soberanía alimentaria y educación nutricional. Cooperativismo y Desarrollo, 8(3), 587-602. https://coodes.upr.edu.cu/index.php/coodes/article/view/401
- Ribet Cuadot, M. de J., Figueroa Sierra, N., Hernández Ribet, Y., & Artidiello Acosta, A. (2015). La gestión y prevención de riesgos en las cooperativas: Un instrumento de trabajo para su

risk management and prevention in an Agricultural Production Cooperative" p. 24-43

Available at: https://coodes.upr.edu.cu/index.php/coodes/article/view/467

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eliminación o reducción. *Cooperativismo y Desarrollo*, *3*(1), 1-12. https://coodes.upr.edu.cu/index.php/coodes/article/view/90

Soler González, R., Varela Lorenzo, P., Oñate Andino, A., & Naranjo Silva, E. (2018). La gestión de riesgo: El ausente recurrente de la administración de empresas. CIENCIA UNEMI, 11(26), 51-62. https://doi.org/10.29076/issn.2528-7737vol11iss26.2018pp51-62p

#### Conflict of interest:

Authors declare not to have any conflict of interest.

#### **Authors' contribution:**

All authors reviewed the writing of the manuscript and approve the version finally submitted.



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