Perception and risk tolerance of family farming managers

Daura Helena Jales Dantas Duarte[1], Eulita de Souza Morais[2], Elisabete Stradiotto Siqueira[3], Fábio Chaves Nobre[4] and Liana Holanda Nepomuceno Nobre[5]

ABSTRACT

Objective: to analyze the relationships between the constructs of perception and tolerance, perceived by rural property managers.

Theoretical framework: it is based on the literature through family farming and risk tolerance and uncertainties in agriculture.

Method: A survey was carried out with 137 farmers. This is a quantitative study of a described nature. The data were collected through a questionnaire and reveal that the behavior of the interviewees is restricted to actions that do not put them in situations of financial risk.

Results and conclusion: In the analysis of the means of the risk behavior factor, the results revealed that risk perception precedes risk tolerance, and the relationship between the constructs is of an inverse order, in which managers perceive more risk in a situation in which they have the least tendency to incur risks. In this context, the greater the perceived risk, the less chances the manager will have of carrying out the deal. The findings allowed us to broaden the understanding of the relationships between risk constructs within the decision-making process. In general, family farming managers show signs of the need to manage finances more efficiently and in most cases seek to improve these practices.

Implications of the research: the implications of this study for the management of family farming show that managers perceive risk situations, and are unwilling to take this risk (risk tolerance).

Originality/value: broadens the understanding of the tolerance to risk linked to the financial of families that live from family farming.

Keywords: Risk Perception, Risk Tolerance, Decision-Making Processes, Family Farming, Financial Risks.

[1] Federal Rural University of the Semi-Arid (UFERSA). Mossoró - Rio Grande do Norte, Brazil.
E-mail: daura.duarte@alunos.ufersa.edu.br
ORCID: https://orcid.org/0000-0002-2441-2697
[2] Federal Rural University of the Semi-Arid (UFERSA). Mossoró - Rio Grande do Norte, Brazil.
E-mail: eulit_@hotmail.com
ORCID: https://orcid.org/0000-0002-2741-7645
[3] Federal Rural University of the Semi-Arid (UFERSA). Mossoró - Rio Grande do Norte, Brazil.
E-mail: betebop@ufersa.edu.br
ORCID: https://orcid.org/0000-0002-9957-1393
[4] Federal Rural University of the Semi-Arid (UFERSA). Mossoró - Rio Grande do Norte, Brazil.
E-mail: fabio.nobre@ufersa.edu.br
ORCID: https://orcid.org/0000-0001-9011-4252
[5] Federal Rural University of the Semi-Arid (UFERSA). Mossoró - Rio Grande do Norte, Brazil.
E-mail: liananobre@ufersa.edu.br
ORCID: https://orcid.org/0000-0001-6756-9179

INTRODUCTION

The decision-making process is a preference of managers, as well as their responsibility, that is, such preference will provide subsidies for the formation of the vision and choices of managers in the decision-making process, thus the choice of an efficient information system is determined by the vision that managers have in positioning the company in the market and in front of the competitor (Nutt, 1986).

In this context, decisions always involve some type of risk and are made considering the characteristics and attitudes adopted by decision makers, and the process demands calibrating rationality or intuition, as it is influenced by the beliefs and values of managers (Lobão, 2012; Tversky & Kahneman, 1974; Vergara, 1991). The decision-making process occurs in all types of organizations regardless of the field of activity or size, however, they are influenced by personal values (Maccrimmon & Wehrung, 1990) and are subject to failures (Shore, 2008), as competitiveness seeks quick and satisfactory decisions for the organization (Hough & White, 2003).

In the context of decision-making in the agricultural environment, decisions are also at risk and are often not controllable, such as climatic factors, price variations caused by the market, risks related to workers' health, etc. (Sepulcri, 2006). Agriculture has very specific characteristics when compared to other sectors of the productive economy, one of which stands out the most is the magnitude and nature of the risks to which it is subjected, risks that are not often seen in sectors of industrial production (Embrapa, 2020).

According to Djanibekon *et al*. (2018), agricultural risks are sometimes related to variants, such as low production levels, and may arise not only due to poor management practices, but also due to production risks, for example, due to climate variability or limited access to some inputs, such as irrigation water. Komareki *et al*. (2020), also states that without a knowledge base to design possible risk management strategies and policies on a multiplicity of variables, farmers become vulnerable. For Salvodi and Cunha (2010), they state that all these risk possibilities impact the financial performance of organizations, therefore, understanding the behavior of family farmers in relation to risk can contribute to better management in relation to the finances and economic sustainability of their property.

For Morgan *et al*. (2015), also point out that such contributions lead the manager to better risk management and may result in a reduction in revenue variability over time, which will increase the long-term viability of the business, thus avoiding getting involved in risk factors through poorly made decisions. Thus, the present work focused on the influence of the behavioral factors of financial risk on the perceived risk and risk tolerance of managers in family farming in RN. Most of the farmers' decisions are linked to the management of their property, with two simultaneous perspectives, one linked to family sustenance and the other related to the commercialization of

surplus production, establishing parameters of action linked to the cultural and symbolic dimension (Baiardi & Alenar, 2014).

However, there is evidence that rural managers would be associated with a more conservative profile, as evidenced by Flores (2012), when they found that they faced financial risks, presenting a low level of indebtedness and conservative behavior. For the purposes of this study, risk was related to the organization's opportunities and uncertainties, demonstrating its own characteristics and thus requiring specific management or analysis (Hopkin, 2010). In this context, the question that guides this research is: ***What is the relationship between risk perception and risk tolerance in family farming in RN?*** This research aims to analyze the relationships between the constructs of risk perception and risk tolerance, perceived by the managers of rural properties of family farming in the city of Mossoró/RN. For a more specific analysis, the aspects of financial risk were listed, divided into two factors: risk perception and tolerance. Risk perception is related to the expectation of negative consequences, while risk behavior is associated, there are investments or actions with a probability of adverse implications, being influenced by individual perception in a given context in which the behavior occurs (Blais & Weber, 2006).

The study showed that the risk perception of that group of small farmers influences their work practices and the way they respond to the risk represented by decision-making, and should therefore be the object of analysis in decision-making actions related to the farmer and in the scope of risk management initiatives. From a financial planning perspective, risk tolerance plays an important role in guiding individuals to make psychologically satisfying and comfortable investments (Sivasankaran & Selvakrishnan (2023); Chandu, Reddy, Srilakshmi & Shifaly, 2022).

You (2008) considers that risk tolerance represents an individual's intention to behave. Thus, the need for educational actions aimed at passing on information and clarification to farmers regarding the risks inherent to agricultural activity and the dangers arising from the decision-making process becomes evident (Assunção, Pedrotti, Santos & Brandão, 2019).

THEORETICAL FRAMEWORK
FAMILY FARMING

According to Savoldi and Cunha (2010), family farming has an influential conduct of the family in the structure of organization of social reproduction, through the elaboration of family and individual strategies that influence the transfer of material and cultural heritage. For the Ministry of Agriculture, Livestock and Supply (2019), family farming is agricultural and livestock production carried out by small producers, generally employing labor related to the family nucleus, who have blood or marriage ties. Law 11.326, of July 24, 2006, defines that, in order to be considered family farming, it must meet the following criteria: those who practice activities in rural areas have an area

of up to four fiscal modules, labor from the family itself, family income linked to the establishment itself and management of the establishment or enterprise by the family itself.

It is worth noting that in Brazil the National Program for the Strengthening of Family Agriculture – PRONAF is one of the main sources of funding for this type of activity, thus, the importance of family farming in the organization and structuring of the agrarian space in Brazil is perceived, even if it, admittedly, does not have an appreciation with regard to public policies and the performance of the National State.

The IBGE reveals that in the twenty-first century family farming still occupies a relevant place in national agriculture since it represents 4.3 million establishments, occupies 74% of the workforce and is responsible for an important portion of food production. However, among the northeastern states, Rio Grande do Norte has the lowest number of family farmers. Even with low quantitative representativeness, in regional terms, family farming is an important sector in its agrarian structure (De Aquino, Freire & De Carvalho, 2017).

In Graph 1 regarding production in family farming, we can see that the data reveal that Brazil nuts are the only product with higher added value in which family farming has a significant participation, and even that the production of this segment is significant in the production of basic foods (De Aquino *et al*., 2020).

Graph 1 - Participation of family and non-family farming in the number of tons (in %) produced by the main crops in Rio Grande do Norte
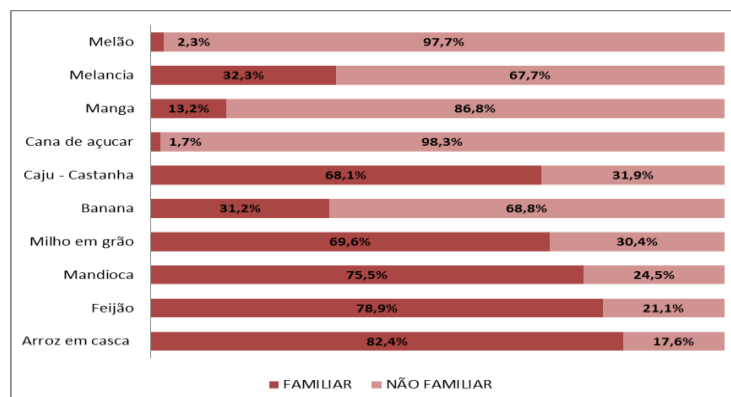
Fonte: adapted from De Aquino *et al*, (2020, p. 122).

In relation to livestock production, family farming in RN stands out in some aspects, as shown in Graph 2.

Graph 2 - Participation of family and non-family farming in the herds and main livestock products of Rio Grande do Norte
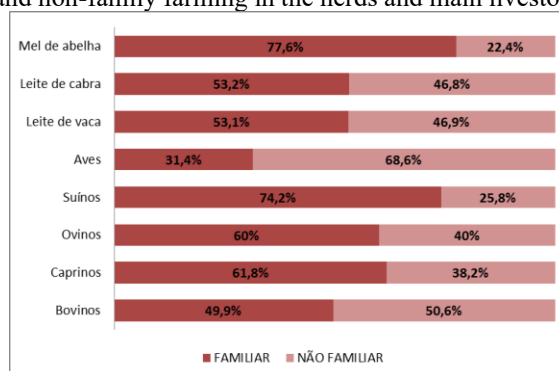
Fonte: adapted from De Aquino *et al* (2020, p. 123).

The data show a good participation of family farming in the segment of goats, sheep, pigs, cow's and goat's milk. The most relevant performance is with bee honey. De Aquino *et al.* (2020) draws attention to the numbers related to the total value of production and observes that, although the participation of family farming was significant, it generated only 29.7% of the wealth produced by agriculture in RN, and only 12 thousand employer farmers were responsible for 70.3%. These data reveal that there is an inequality in the capacity to generate wealth that somehow reveals the fragility of family farming, which faces limitations related to the scarcity of land, water, technologies, technical assistance, credit, among other assets.

Such a scenario demonstrates that family farming in RN has an important economic, environmental (due to agro-ecology) and social role, however it is necessary to create public policies that minimize its weaknesses and strengthen this segment.

PERCEPTION OF RISK

At the end of the 90s, Michell (1999) stated that the concept of risk reached maturity and established a tradition of investigation in research on aspects of consumption. For Bauer (1960), the theory of perceived risk was initially defined under two dimensions: uncertainty and the meaning of the consequences (or importance). Serving as essential input for the development of a person's risk profile, however, these terms are not interchangeable (Grable, 2017). For Bauer (1960), consumers are faced with a dilemma when trying to make a certain purchase and hesitate when they realize the risk involved in the transaction, which can cause future losses. In the findings of Johnson, Sivadas and Garbarino (2008), the individual's commitment to a particular product or brand has an inverse relationship with the perception of risk.

Seeking to develop decision strategies and means of reducing risk, which allow for relative confidence and tranquility on occasions when their information is inadequate and the consequences of their actions are in some sense significantly incalculable (Bauer, 1960). Cox and Rich (1964) clarify that, as the consumer does not feel safe in the purchase, he will seek to minimize uncertainties

as a strategy to reduce risk, preventing possible unfavorable consequences. Perceived risk has been understood as a multidimensional phenomenon and, for this reason, it is subdivided into several categories of risks or losses (Stone & Gronhaug, 1993), a phenomenon that we highlight in the sequence of this text.

RISK TOLERANCE

Attitude toward risk used to be analyzed as the exclusive domain of human rationality, i.e., the issue of attitude toward risk was seen as a primarily cognitive construct. In the financial domain, investors would be driven by cognitive risk assessments, considering the *trade-off* between market risk and reward, before they make their financial decisions.

Therefore, risk tolerance tends to favor the individual's tendency to accept negative changes that are prone to adverse outcomes, i.e., differ from expectations in terms of (Grable & Lytton 1998; Kannadhasan, 2015). Based on the definition of financial risk tolerance, it can be compared as a psychological component of decision-making under financial uncertainty. In this case, individuals would assess the appropriateness of possible outcomes and the likelihood of their occurrence. (Kahneman & Tversky, 1979).

From a financial planning perspective, risk tolerance plays an important role in guiding individuals to make psychologically satisfying and comfortable investments You (2008), considers that risk tolerance represents an individual's behavioral intent.

The authors Grable and Lytton (2001) consider that risk tolerance represents an individual's intention to behave. The first way is to view risk tolerance as a single input into a manager's overall risk profile. The lack of a standard model causes financial professionals to develop and use "self-made" methods usually limited to simple conversations about the level of good in different scenarios.

For Carr (2014), for example, it showed that a client's perception of risk and need for risk, in addition to risk tolerance, were the most important characteristics that shape an individual's profile. Nobre and Grable (2015), for example, observed that an individual's willingness to take financial risks is influenced by their risk perception, risk need, and risk profile which they defined as being composed of risk capacity, risk preference, and risk composure. When viewed in this way, a manager may be willing to take risks when presented with a financial decision, but not be willing to take risks in another situation (Grable, 2017).

RISKS AND UNCERTAINTIES IN AGRICULTURE

Risks and uncertainties are the basis of any decision-making structure in agriculture. When knowledge is imperfect, you can define risks and know the probabilities of possible outcomes, and when those probabilities are unknown, there is uncertainty Frey *et al.* (2017). It is difficult to imagine

an environment in which risks and uncertainties are more important than the agricultural sector (Aimin, 2010). In turn, the decision-making process is characterized by its complexity, which eventually inserts uncertainties and risk factors, even if it is complex in nature (Nelson, 1997).

The authors Ondersteijn, Giesen and Huirne (2003) state that farmers who practice strategic management in their businesses are more successful than those who do not, even though the farmer is the manager and at the same time belongs to the workforce. The authors also state that farmers analyze the strengths and weaknesses of their businesses, that is, they assess the risks related to the activity they propose.

Still from this perspective, Nelson (1997) pointed out that uncertainty refers to a situation in which the consequences include many possible outcomes, regardless of convenience. Corroborating the premises presented by Nelson (1997), Aimin (2010) and Rosa *et al.* (2018) highlight, in Chart 1, the types of risks linked to agriculture.

Table 1 – terms and definitions of the types of risks in agriculture

Terms	Definitions
Uncontrollable elements	Climate, insect pests, and diseases that play a key role in agricultural production.
Uncertainties and Market Risks	Decisions about what and how much to produce have to be made well in advance, since the market price for production is usually not known at the time these decisions occur. Market uncertainty is more relevant because of the inherent volatility of agricultural markets.
Family risk	It corresponds to the loss of work of family members because of illness or accident.
Political uncertainties and risks	Economic policies have an impact on all sectors through their effects on things, such as taxes, interest rates, exchange rates, regulation, provision of public goods.

Source: adapted from Aimin (2010) and Rosa *et al.* (2018).

Thus, understanding the origin and specificity of certain types of risks leads to the development of a strategy for their management, in the case of agricultural production, the objective of risk management should be to improve or maintain the yield of agricultural production and its financial and organizational stability within the framework of the traditionally distinct stages of identification, risk assessment and response.

METHODOLOGICAL PROCEDURES
CHARACTERIZATION OF THE RESEARCH

This research is characterized as a descriptive and explanatory study, since it seeks to understand the behavior and several factors and elements that influence a given phenomenon. According to Oliveira (2002), research of this nature seeks to cover the correlation between the variables, giving rise to the explanation of the cause-and-effect relationship of the phenomena.

A field study was carried out, based on a *survey*, from the questionnaires applied to family farming managers. 137 family farmers from the State of Rio Grande do Norte, with more than 2 years of activity in the field, participated in the research.

The concept used to characterize farmers was the one proposed by FAO/INCRA (1994, p. 04) as described below:

- The management of the production unit and the investments made in it are made by individuals who maintain blood or marriage ties among themselves;

- Most of the work is also provided by family members;

- The ownership of the means of production (although not always of the land) belongs to the family and it is within it that it is transmitted in the event of the death or retirement of those responsible for the productive unit.

The distribution of the sample collected is restricted to family farming managers in the state of Rio Grande do Norte, as shown in Chart 2:

Chart 2 – locations and numbers of interviewees

LOCATIONS AND NUMBERS OF RESPONDENTS			
Municipalities belonging to the Apodi region	**31**	**Municipalities belonging to the Mossoró region**	**22**
Apodi	25	FOR Paulo Freire Mossoró	2
Sítio Carpina/Apodi	2	Favela Settlement	4
Closed Downtown II	1	Jurema Settlement	1
Closed Downtown I	3	Casqueira I	3
Municipalities belonging to the Serra do Mel region	**57**	Serra Mossoró	4
Vila Ceará	15	Oziel/Maísa Farm	1
Vila Minas Gerais	1	Mulugunzim	4
Vila Goiás	15	Maísa	1
Vila Alagoas	21	Bom Jesus	1
Vila Sergipe/Serra do Mel	5	Alagoinha Recanto da Esperança	2
Municipality of Natal	**1**	**Municipality of Açu**	**2**
Municipalities belonging to the region of Baraúna	**2**	**Municipality of Upanema - 4S São Manoel II**	**20**
Riacho Grande	1	**Municipality of Pedro Avelino**	**1**
Saint Anthony	1	**Municipality of Jandaíra**	**1**
TOTAL			**137**

Source: Management and Culture Questionnaire (2019)

DATA COLLECTION AND DATA ANALYSIS INSTRUMENT

The research instrument used to analyze the two dimensions of risk was the scale created by Weber, Blais and Betz (2002), adapted and validated in Brazil by Paulino (2009). The original scale, consisting of 40 items, covers five dimensions: financial decisions, health/safety, legal/ethical, social, and recreational. However, in this study, the authors used the items referring to financial risk, composed of five questions, used for the dimensions of risk perception and behavior.

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The risk perception scale is structured on a 5-point *Likert* scale (1 - No risk and 10 - Extreme Risk), and the Risk Behavior scale also used a 5-point *Likert-type* scale (1 - Very Unlikely and 10 - Very Likely). The scale of risk and intention of risk behavior was organized as follows, as shown in Table 1:

Table 1 – risk scale and intention of risk behavior

BEHAVIORAL VARIABLES		
Spending large amount of money on lotteries	How much **risk** do you perceive?	How **Likely Are** You to Accomplish?
Being someone's guarantor		
Spending Money Impulsively, Without Thinking About the Consequences		
Investing in a business that has a high possibility of not working out		
Lending to a friend/family member most of your salary or monthly income		

Source: Management and Culture Questionnaire (2019)

In the column – How much perceived risk? - Indicate how much risk you perceive in the situations mentioned, being 1 for no perceived risk and 10 for perceived extreme risk. In the column – How likely are you to perform? - Indicate the probability that you will perform the activity or behavior, with 1 for no perceived probable risk and 10 for perceived probable extreme risk.

The data were statistically analyzed using the *IBM SPSS Estatistics 24.0 ©* software, where initially for the treatment and organization of the data, a tabulation was elaborated in electronic spreadsheets. Second, descriptive statistical analyses of risk perception and tolerance factors were performed in order to identify the means and deviations from standards, respectively. Third, the reliability test, Cronbach's alpha, was used to identify the reliability of the risk perception and risk tolerance scale. This test refers to the internal consistency and reliability of the scale data, in which the result can be greater than 0.90, which indicates that the data are free of bias. For Hair (2019), this bias occurs when the process of missing data causes certain data to be missing from the tabulation, leading to incorrect results. According to Hair *et al.* (2019), in exploratory studies, values above 0.60 and up to 0.70 are acceptable.

Fourthly and finally, Pearson's correlation analysis was performed in order to evidence the existence of correlations and associations (Figueiredo Filho & Silva Júnior; 2009) between the dimensions of risk perception and tolerance, in view of the financial risk behaviors perceived by the property managers.

ANALYSIS AND DISCUSSION OF THE RESULTS
RESPONDENT PROFILE

Most of the respondents are male, have been on the property for more than ten years, access to land was through agrarian reform, most of the properties have more than 12 hectares. They produce fruits, vegetables, vegetables and animal husbandry. They participate in the association (62%), but a portion of the respondents do not participate (38%). Decisions about what to produce, what to buy, are made by the owner, even if the position of the rest of the family is different, the owner's premise is the one that prevails.

The gains from production are enough to support the family for 53% of the interviewees. They do not assume themselves as entrepreneurs and consider that the property is an inheritance for their children. Where daughters are interested in working on the property (62%), and the study of the sons divides this position, because for 53% the training will allow them to continue in rural activities, and for 47% of the interviewees, it should be a possibility for them to leave the rural area. However, for 64%, formal education will not help in improving rural property.

Most of the farmers interviewed do not identify with working in the field, but they justify that even so, this is their only alternative for survival, and that they do not aspire to any other profession than that of rural worker. Regarding agribusiness, 59% of the farmers interviewed do not consider themselves part of it. Even so, 56% of respondents understand that prices are defined by the market, and therefore do not follow production costs. The definition of what to produce divides the position of the interviewees on this aspect, where 53% disagree that the consumer is the one who defines what to produce.

Regarding production, 65% of rural producers clarify to their consumers about the benefits of family farming, where most of them (63%) prefer to sell to the final consumer. There is no dependence on the government or on a cooperative/association for the commercialization of products.

Still on production, 54% is primarily destined for family consumption. However, for 71% of the respondents, the priority of the destination of production is commercialization, establishing an inconsistency in the statements. On the other hand, when they affirm that the main objective of production is profit, we understand that the commercialization trend prevails, although the theme of environmental preservation prevails as a productive practice.

RISK PERCEPTION AND TOLERANCE

Five items related to the questionnaire designed to assess the level of perception and risk tolerance of family farming managers in Rio Grande do Norte were analyzed. The table below presents the general values related to the descriptive analysis of the variables regarding the perception of the interviewees.

Table 2 - descriptive analysis of the variables regarding risk perception and tolerance

VARIABLES BEHAVIORAL	RISK PERCEPTION		TO RISK	
	AVERAGE	STANDARD DEVIATION	AVERAGE	STANDARD DEVIATION
Spending large amount of money on lotteries	8,25	2,86	1,81	2,03
Being someone's guarantor	8,85	2,49	2,9	2,69
Spending Money Impulsively, Without Thinking About the Consequences	8,89	2,48	1,63	1,66
Investing in a business that has big ones that don't work out	8,39	2,63	2,23	2,36
Lending to a friend/family member most of your salary or monthly income	7,85	2,82	4,8	3,15
Perception Factor	8,44		2,67	

Source: Management and Culture Questionnaire (2019)

Taking into account that the risk perception scale varies between 1 and 10 points, on an ascending scale, in which 1 represents no perceived risk and 10 represents extreme perceived risk, it is verified in general terms that family farming managers living in the interior of Rio Grande do Norte, perceive a high risk in the discriminated actions. In this sense, the risk perception factor with a value of (8.44) presents evidence that family farming managers developed a slightly higher risk perception in relation to the financial risk behavior variables. The results found confirm that there are significant differences where the (sig. 0.000), between the managers' answers and in all the variables investigated, as well as in the risk perception factor point to this interpretation.

However, for some variables, the mean values are close enough that their location on the *Likert scale* does not indicate large differences in perception among the participants. For example, the variable "Being someone's guarantor" with an average of 8.85, despite the statistical significance indicating that, on average, managers consider this perception to be very risky. On the other hand, the variable that presented the lowest average was "Lending to a friend/family member most of their salary or monthly income" (with an average of 7.85), which reveals that the interviewees understand that lending money to a friend/family member is an action with the lowest risk among the others that were questioned. Thus, according to Halfeld, Alfeld & Torres, (2001), in behavioral finance, man is not totally rational, he is a normal being who often acts irrationally, because he is influenced by emotions and errors that lead him to interpret a certain situation differently, according to the context and the way it is analyzed.

Regarding Risk Tolerance, it is perceived that managers will hardly develop any of the behaviors, as the variable "Lending to a friend/family member most of your salary or monthly

income" is highlighted by managers (average 4.80), as the alternative with the highest probability of being performed. While the variable "Spending money impulsively, without thinking about the consequences" with (average 1.63), is revealed by managers with the least tendency to be developed.

A result similar to that of this study is evidenced by Grable and Lytton (1998), who also identified the largest share of answers based on the same alternatives, showing that the interviewees are averse to high risks. Ozaki (2007) states that in any sector of economic activity there are risks that vary to a lesser or greater degree. Therefore, in the agricultural sector, in addition to market risk, there are other factors that make the activity risky, one of the main factors is that agricultural activity is completely dependent on weather conditions, and that the farmer has no control over this factor. Such uncertainties can justify the conservative behavior of the farmer in relation to finances, since the difficulties related to the agrarian environment do not offer him security for expenses in uncertain situations and have government support to deal with such unforeseen events.

In risky situations, risk is (only one) significant aspect of the available options. In addition, risk represents an interaction between the alternative and the decision-maker at risk, that is, it is a subjective construct, since loss has different meanings for different people, as well as the perception of its probability of occurrence (Yates & Stone, 1992). In order to develop the strategic objectives and suggest measures to guide family farmers in their learning and organizational growth, it was sought to evaluate through a questionnaire, seeking through indicators to measure the perception of financial risks and how tolerable they are in the face of the dimensions explained, and this is the proposal of using *Cronbach*'s alpha coefficient, express, by means of a factor, the degree of reliability of the answers resulting from a questionnaire.

According to Hair Jr. *et al.* (2019), for a factor to present satisfactory internal consistency, it must have *Cronbach's alpha* greater than 0.60, below this value the internal consistency of the scale used is considered low. On the other hand, the maximum expected value is 0.90; above this value, it can be considered that there is redundancy or duplication, that is, several items are measuring exactly the same element of a construct; therefore, redundant items should be eliminated. The estimate of the internal reliability of the construct and its descriptive statistics are shown in Table 3.

Table 3 – construct reliability, risk perception and tolerance

Reability Statistics		
	Risk Perception	**Risk Tolerance**
Cronbach's Alpha	0,875	0.560
Cronbach's Alpha bases on Standadized Items	0, 880	0,585
N. of Items	5	5

Source: Management and Culture Questionnaire (2019)

It can be observed, in Table 3, that the reliability of the risk perception scale obtained *Cronbach*'s alpha of 0.8, thus achieving adequate internal consistency, the same did not occur in risk

tolerance where it obtained 0.5 reliability in relation to the scale. Table 4 shows the behavioral variables and their respective Cronbach's alphas. Thus, it was noticed that the item "Lending to a friend/family member part of your salary or monthly income" had a high degree of variability in relation to the other data. So, it was decided to eliminate him.

Table 4 – Construct reliability for item variance

BEHAVIORAL VARIABLES	RISK PERCEPTION Cronbach's Alpha IF item Deleted	RISK TOLERANCE Cronbach's Alpha IF item Deleted
Spending large amount of money on lotteries	0, 845	0, 554
Being someone's guarantor	0, 826	0, 431
Spending Money Impulsively, Without Thinking About the Consequences	0, 824	0, 556
Investing in a business that has great Possibilities of not working out	0, 842	0, 550
Lending to a friend/family member most of your salary or monthly income	0,898	

Source: Management and Culture Questionnaire (2019)

Table 5 shows a comparison involving all items and then the removal of the item "Lending to a friend/family member most of your salary or monthly income", evidencing the impact on *Cronbach*'s alpha. The removal of this item shows an improvement in *Cronbach's alpha* in the remaining items, i.e., the consistency and reliability of the construct improves.

Table 5 - degree of reliability increased after removal of the tolerance item

TENS	Item Total	Alpha if you exclude	Item Total	Alpha it.excluído
Spending large amount of money on Lotteries	0,314	0,511	0,348	0,554
Being someone's guarantor	0,429	0,433	0,494	0,431
Spending money impulsively, without thinking about the consequences	0,328	0,513	0,359	0,556
Investing in a business that has a high chance of not working out	0,403	0,457	0,358	0,55
Lending to a friend/family member most of your salary or monthly income	0,208	0,601	*	*

Source: Management and Culture Questionnaire (2019)

In this work, we also sought to analyze the association between the factors of Perception and Risk Tolerance. Thus, in order to identify the strength and direction of the association between the

factors that impact risk perception and tolerance, the correlation test was calculated using *Pearson's correlation coefficient* (Hair Jr. *et. al.,* 2019). Table 6 presents the correlation coefficients for each factor of Perception and Risk Tolerance.

Table 06 - Pearson's correlation of risk perception and risk tolerance

CORRELATIONS					
BEHAVIORAL VARIABLES	**Mr.**	**N**	**Risk Perception**	**Risk Tolerance**	**Results**
Spending large amount of money on lotteries	0,024	137	- 0,19*	- 0,19*	Weak Negative Correlation
Being someone's guarantor	0,006	137	- 0,23**	- 0,23**	Weak Negative Correlation
Spending money impulsively, without thinking about the consequences	0,002	137	- 0,26**	- 0,26**	Weak Negative Correlation
Investing in a business that has a high chance of not working out	0	137	- 0,52**	- 0,52**	Moderate Negative Correlation
Lending to a friend/family member most of your salary or monthly income	0	137	- 0,52**	- 0,35**	Weak Negative Correlation

*significant correlation at 0.05
**Significant correlation at 0.01
Source: Management and Culture Questionnaire (2019)

Based on the value of *Pearson*'s linear correlation found between the constructs of risk perception and tolerance, in the face of financial risk behaviors. It can be concluded that all variables presented statistically significant coefficients, with a weak negative correlation, presented by the modeling of structural equations. With the exception of the item "Investing in a business that has a high chance of not working", which obtained a moderate negative correlation, in which the level of significance is less than 0.05, with a correlation of -0.522. According to Sahm (2012) and Grable, Joo and Park (2009), these data indicate the degree to which people feel comfortable in relation to risk/return. They also understand risk tolerance as "the level of volatility that people can tolerate," or even the willingness to take risks (Grable, 2017). The influence of these elements on the decision-making process depends on the way managers interpret the environment, that is, the influence of the external environment depends on the way information is collected and processed.

Simon, Houghton and Aquino (2000) found an inverse and significant relationship between risk perception and willingness to invest. As verified through correlation, and presented in Table 06. It is clear that the factors of perception and risk tolerance are inversely proportional when correlated with each other, that is, they are negative associations at the level of perception, which confirms a tendency of managers to be averse to risk when the possibilities present terms of potential losses.

Table 7: Person correlation coefficient

		Risk Perception	Risk Tolerance
Risk Perception	Pearson Correlation	1	-, 368**
	Sig. (2-tailed)	, 000	
Risk Tolerance	N	137	137
	Pearson Correlation	-, 368**	1
	Sig. (2-tailed)	, 000	
	N	137	137

**Significant correlation at 0.01 level (2-caldas)
Source: Management and Culture Questionnaire (2019)

In Table 7, Pearson's correlation coefficient between Risk Tolerance and Risk Perception is equal to -0.368, and is weak and negative, where it is presented as an indirect but significant effect (Sig. 0.000).

Grable and Rabbani (2014) point out that, although risk tolerance does not change much in different fields, it is natural that, at some point in life, people behave differently from their standards and act contrary to risk acceptance. Since this association is inversely proportional (interpreted by the negative sign of the coefficients), managers perceive a lower risk tolerance when they identify risks in their decisions, and is therefore effective in the indirect selection of risk tolerance, which is with greater perception. The recognition of risk, as it is an individual activity, is influenced by the characteristics of the decision-maker (Sjoberg, 2000; Rooij *et.al*, 2011).

The results obtained in this research corroborate the propositions of Nobre and Grable (2015), where these authors observed that an individual's willingness to take financial risks is influenced by their risk perception, risk need, and risk profile — which they defined as being composed of risk capacity, risk preference, and risk composure. When viewed this way, a manager may be willing to take risks when presented with a financial decision, but is not willing to take risks in another situation.

FINAL CONSIDERATIONS

Risk behavior is of paramount importance for the economic development of a country, on the other hand, risk perception retracts attitudes that may be highly observable, and that protect individuals from compromising their financial health. In view of this, the study sought to analyze the relationships between the constructs of risk perception and risk tolerance, perceived by managers of rural properties in family farming. For this, it was based on an investigation with 137 rural producers in the municipality of the city of Mossoró/RN.

Regarding financial risk behavior, "Spending money impulsively, without thinking about the consequences", with an average of 8.89, was observed by managers as the riskiest variable. While "Lending to a friend/family member most of the income from your salary or monthly income", with an average of 4.80, was considered the behavior most likely to be performed by rural managers. The

results achieved pointed to a high reliability coefficient, which indicates that the research instrument is considered reliable, because the internal consistency, obtained through *Cronbach*'s alpha, presented a degree of 0.8 with 5 variables for risk perception.

In the results of the associations between the factors, it was possible to conclude that, in view of the *Pearson* correlations analyzed, the financial behavior of the variable "Investing in a business that has a high probability of not working", obtained a correlation with statistical significance of moderate negative magnitude, when the level of significance is less than 0.05, to a correlation of -0.522, indicating that rural managers consider it as an act that must be well thought out and calculated, to prevent this risk from becoming a failure.

Finally, in the correlation analyses between risk perception and risk tolerance, they presented weak and negative correlation coefficients, but significant (-0.368), which affirm the predicted relationship between the constructs. Therefore, when the manager realizes that a decision is riskier, he is less likely to take that risk, that is, his tolerance decreases. Shefrin (2002) argues that the perception of agents is highly influenced by the way problems are presented and structured. Corroborating the data, Grable, Joo and Park (2009) state that when one item is evaluated as satisfactory, the other tends to be unsatisfactory.

The implications of this study for the management of family farming show that managers perceive risk situations, and have a low willingness to take this risk (risk tolerance). This factor may be indicative that managers are risk-averse in investing their resources in the family business, because as their resources are limited, they try to invest in what they perceive to be as safe as possible and with that, intuitively, they reduce the risk of loss.

The study shows evidence that the managers' relationships with their families/friends, and the variable referring to lending money, showed a high risk perception, but lower than the other items analyzed, and also, a low degree of risk tolerance, but higher than the other items. This may indicate that managers observe in family relationships and with friends a channel of mutual financial help, considering that community life is above competitive business relationships.

The interpretation of rural managers in the face of risk situations indicates that other factors, in addition to those mentioned in the survey, can change the decision to apply scarce resources in their business. This is linked to the subjectivity of the judgment of the choice process in risk situations, directly influencing their perception and respectively how much they tolerate this behavior (Slovic, 1991).

This research was successful in achieving its proposed objectives. For a better understanding of the decision-making process in risk situations, it is suggested for future research to include a qualitative stage, in order to evaluate the criteria that the respondents indicate through decision-making, or even decision contexts related to investments in real assets. It is also necessary to carry

out more in-depth studies between the perception and behavior of risk related to debt levels in decision-making.

It is also suggested that future research be deepened in the existing context of the great path of behavioral finance, especially in its sets of theorists, where these are not compatible and do not have sufficient significance to replace the current model of finance applied to forms of production and popular organization, where these demand new models of analysis.

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