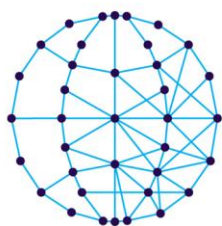


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Integrated use of management tools in family agriculture: the case of coopeagro– MARAGOGI – ALAGOAS - BRAZIL

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Abstract

This main objective of this work is to format an integrated management model for family farms, and at the same time, support the development of a productive diversification planning for the Cooperative of Small Farmers Arranged—COOPEAGRO, Maragogi municipality, Brazil. Therefore, it carried out a diagnosis of the production units of the cooperative members and collected productive, social, economic and environmental data, which, after its systematization, was used to prepare a strategic plan for the cooperative. Several management tools were used such as SWOT analysis, the 5W2H and PDCA. The work was carried out from July to November 2014 and the results were satisfactory, showing that these tools are applicable to any agricultural enterprise, regardless of size.

Key - words: Family Farming, Management, Planning, Diversification.

Résumé

Le principal objectif de ce travail est de créer un modèle de gestion intégrée destiné aux fermes familiales et d'offrir un appui au développement d'un plan de diversification de la production pour la coopérative de petites exploitations agricoles COOPEAGRO de la municipalité de Maragogi au Brésil. Ainsi, il repose sur un diagnostic des unités de production des membres coopérateurs et une collecte de données de production, sociales, économiques et environnementales, qui, une fois systématisées, ont servi à préparer un plan stratégique pour la coopérative. Plusieurs outils de gestion ont été employés tels que l'analyse SWOT, les 5W2H (qui, que, pourquoi, quand, comment, combien) et le modèle PDCA (planification – mise en pratique – contrôle – action). Le travail s'est déroulé de juillet à novembre 2014 et les résultats se sont avérés satisfaisants, montrant que ces outils sont valables pour toute entreprise peu importe sa taille.

Resumen

El principal objetivo de este trabajo es crear un modelo de gestión integrada para las granjas familiares y brindar apoyo al desarrollo de un plan de diversificación de la producción para la cooperativa de pequeñas explotaciones agrícolas COOPEAGRO, perteneciente a la municipalidad de Maragogi en Brasil. De esta manera, se desarrolló un diagnóstico de las unidades de producción de los miembros cooperadores y una recolección de datos de producción, sociales, económicos y ecológicos, que, una vez sistematizados, sirvieron para la preparación de un plan estratégico para la cooperativa. Se emplearon diversas herramientas de gestión, como el análisis FODA, la técnica 5W2H (¿qué?, ¿por qué?, ¿cuándo?, ¿dónde?, ¿quién?, ¿cómo? y ¿cuánto?) y el ciclo PDCA (siglas inglesas para: planear, hacer, controlar y actuar). El trabajo se realizó entre julio y noviembre de 2014 y se recogieron resultados satisfactorios, lo que demuestra que estas herramientas son válidas para todo tipo de empresa, independientemente de su tamaño.

Introduction

The management of a farm, which includes data collection, information generation, decision-making and actions that stem from these decisions is not satisfactorily addressed in national and international literature. The existing work in this area is almost always restricted to the financial and economic aspects of rural development management (costs, finance and accounting). Traditionally, the issue of management on the farm, especially in smaller farms, is addressed in a very compartmentalized way. So, when there are models available, they are often to control costs in dairy production or program bovine livestock production. Are incipient efforts devoted to other management tools, such as product definition criteria and the production process beyond the short-term view of the contribution margins, quality management systems, planning system and production control systems logistics management, among others? In addition, technology diffusion mechanisms are not widespread, or adequate enough to enable the producer in the implementation or to make the techniques available. With rare exceptions, the incorporation of management practices and the full integration of rural production into the needs of industrial processing or distribution processes are far from usual. Notions such as planning and production control, quality management and waste reduction, logistics, development of appropriate packaging and other techniques are generally still seen as limited and biased in relation to their importance in the face of current production activities. The lack of attention and awareness of the farmer in addition to a significant part of the technicians responsible for rural technical assistance in the country has contributed to the survival of the mistaken idea that a good farmer is one who takes care of the tasks carried out on the property. Any other activity indirectly linked to agricultural work would signify a waste of time for the farmer. This view reflects even the very characterization of family farmers and the weight they attach to tasks in the field at the expense of management functions.

The study by Pavarina et al (2003) examined the administrative activities (planning, organization, direction and control) and the strategic and operational activities (finance, marketing, human resources and production) of 132 farmers of the Cooperative Tritícola Joint High Jacuí (Cotrijal) in Rio Grande do Sul and showed significant differences of opinion between farmers and technicians with regard to the performance of administrative activities in a rural enterprise. The study identifies the lack of harmony between technicians and producers regarding the importance and implementation of activities related to organization and planning. The results of this explain how management techniques, by weakness in many cases, compromise the result of production technologies for these activities carried out by farmers. Scholars of family farming are unanimous in noting the low managerial efficiency of these enterprises. In a study of agricultural producers in the state of Goiás, Rezende and Zylbersztajn found that the aspects related to production (technical assistance, the level of officials and mechanization) are generally considered to be part of the operational routine of rural properties. They found that the routine use of management tools (commercial and financial aspects, results sheets, etc.) was the exception in all the analyzed properties, although it was much more common in the large producers than small. Moreover, it is noteworthy that the management tools mentioned were all related to financial and economic aspects; none of them involved information management and markets.

Even with producers who have a high degree of productive technification, there is a poor use of appropriate management techniques. In a study conducted in the region of Araraquara and São Carlos, in São Paulo that looked at 33 properties with an average area of 16.50 hectares, Queiroz and Battle (2003) also reveal the fragility of the management of small family farms. Even if they cannot compete in scale, these producers can still explore activities where the scale of

production is not essential attribute of competitiveness. Examples of these activities include the intercropping of vegetables and milk, poultry and vegetables, as well as corn and vegetables or just vegetables. Research has shown long-term experience in the activity (an average of approximately 15 years). This is a relevant factor, since it is known that agricultural activities (and in particular, family activities) are strongly influenced by cultural factors and the heritability of business and knowledge about the activity which leads to a phenomenon called path dependence. The data collected by the survey indicate that the producers analyzed do not use the proper tools for modern management practices. Significant use by producers of collection, registration, control and application of information relating to productive activities was not found and it was observed that they had little access to credit and large markets. Facing the mentioned data, we must recognize that very little has been done regarding the development and implementation of management techniques addressing the particularities of family farming and the ways in which it can be inserted sustainably and competitively into the market.

This article aims to present an integrated management model for family farming, through work in the Cooperative of Small Farmers Arranged (COOPEAGRO) in the city of Maragogi, on the northern coast of Alagoas. The same claims about the lack of research on the topic and the lack of training of technical assistants, which drastically reduce the access of farmers to modern management tools, is a major obstacle to the competitiveness of this important segment of national agriculture.

Reality of the Region

Located on the state's northern coast, lying 125 km from Maceio, the city of Maragogi is known for being one of the most beautiful beaches of Brazil. With a total area of 334,046 square kilometers and an estimated population of 28,749 inhabitants, its economy is based on tourism, fishing and agriculture. The beauty of its beaches makes it one of the main tourist centers in the region.

The Coopeagro

The COOPEAGRO was founded in September 2003 with the support of Italian NGOs and is aimed at the productive, social, economic and environmental strengthening of the northern coast of Alagoas and the south of Pernambuco. According to the company, it is composed of 125 members and 14 employees, who mainly process fruit for the production of pulp and market honey, propolis, pastries, fresh fruits, and juices. Most of its production is sold in hostels, hotels, grocery stores and restaurants, and the remainder is sold to municipalities through the National School Meal Program (PNAE), the National Supply Company (CONAB), and the Food Acquisition Program (PAA).

It has a great physical and transport infrastructure, with a pulp production plant with several cold rooms for storage, a juice factory (which still is not working), a honey processing house, space for selling fruit and other products in natura, refrigerated trucks, passenger cars, motorcycles, etc. Despite all this structure, the cooperative is going through a time of financial difficulties, caused mainly by the lack of administrative management. This has directly affected the relationship of the cooperative with its members as it causes delays in the payment process, thus making about half of the members sell their products to middlemen who offer the advantage of cash payment, even if the prices are low. These problems have generated others, such as the lack of raw material for the production of the main pulps (cashew, caja, acerola, etc.), causing the cooperative to have to gather their products from more distant regions increasing the cost of production for the final product. At the same time, due to a lack of agricultural diversity, there is an excess of raw materials such as soursop and passion fruit.

Methodology

For the construction of this work, it was necessary to carry out a rural appraisal of the production units of cooperative farmers, which aimed to collect productive, social, economic and environmental data about the area covered by the cooperative in order to support the development of strategic planning. Structured interviews were used consisting of several key questions that had been previously determined. In the second stage, after systematization, the data were submitted to a management tool known as a SWOT analysis and SWOT matrix. In the third stage, the data were submitted to a management tool known as 5W2H. The fourth part shows the application of PDCA tool.

Results

Diagnosis of Family Production Units

Given the observation of such problems, we identified the need to draw up a plan aimed at the productive diversification of the company. Due to the lack of quantitative and qualitative data on file, it was necessary to carry out a rural appraisal of family production units and cooperative members in order to gather information that could support the development of such planning. We can evaluate some information, as a result of the work we have carried out. Our results showed:

- 106 cooperatives visited on total of 125;
- 81 interviewed families;
- 19 cooperative members could not be located;
- 14 communities visited, 12 settlements of agrarian reform;
- The 81 families have a total planted area of 191.78, with over 50% of the total number of workers employed by soursop and passion fruit cultures;
- There is an area for planting of approximately 370 hectares, but this total was only 142, 30 of which belong to farmers who are interested in diversifying their production;
- A technical employee was needed to work effectively in the field, providing technical assistance and working on the selection of fruits;

SWOT Analysis

The term SWOT stands for Strengths, Weaknesses, Opportunities and Threats that quickly became a method used by all major companies in the world to formulate their strategies. For this reason the method is also known as SWOT analysis matrix. In business administration, the SWOT analysis is an important tool used for strategic planning and collecting important data characterizing the internal (strengths and weaknesses) and external (opportunities and threats) environment of a company. SWOT analysis is a tool used to make environmental analyses, as the basis for the management and strategic planning in a company or institution. Thanks to its simplicity, it can be used for any type of scenario analysis, from a family-owned business to the management of a multinational corporation. The SWOT analysis technique was developed by the American Albert Humphrey, during a research project at Stanford University between the 1960s and 1970s, using data from Fortune 500, a magazine that ranks the largest US companies.

SWOT Analysis Coopeagro

Internal Environment	Strengths	Weaknesses
	Area available for planting Plenty of water Field of technology Established brand Quality Cooperation Extensive infrastructure Partner Support Frequent search for improvement	Low soil fertility Underutilization of resources Lack of planning Lack of diversification of fruit Poorly selected fruits Narrow market Lack of technical assistance
External Environment	Opportunities	Threats
	Guaranteed market High storage capacity Attractive prices Partner Support	Climate adversities Seasonality of production Price fluctuations Competition with the middleman

The 5W2H Tool

5W2H is a tool for the development of action plans that, due to its simplicity, objectivity and guidance to action, has been widely used in project management, business analysis, development of business plans, strategic planning and other areas of management. Source attribute it to different authors, ranging from the works of Alan G. Robinson, Rudyard Kipling, Marco Fabio Quintilian and even Aristotle. We note that the acronym 5W2H originates in the first letters in the English interrogative words of each question we must ask.



The concept behind the term means that an action is influenced by seven circumstances. Therefore, when drawing up a plan of action, we must respond formally to these questions:

- What (What) should be done? (the action);
- Why (Why) it should be done? (the goal);

- Who (Who) should perform the action? (the person responsible);
- Where (Where) should the action be performed? (location);
- When (When) should the action be done? (time the condition);
- How (How) should the action be done? (mode);
- How (How much) will the action cost? (cost, intensity, depth, etc.).

The PDCA Cycle

The PDCA Cycle is a management tool used widely in general management. Broadly, it aims to control and improve processes and products on an ongoing basis, as acts as a process that has no breaks or interruptions. The PDCA cycle is also known as the cycle of Deming or Shewhart cycle. This is because in 1930, Walter Shewhart developed a cycle for the quality of management, which eventually became the PDCA. However, it was only in the 50s, by W. Edwards Deming and his lectures in Japan, that the PDCA cycle became widely known around the world. As we have already stated, the PDCA cycle is aimed at the continuous improvement of the steps in a process. In this way, it is bound to the fundamentals of Kaizen Philosophy (Japanese culture related to continuous improvement and the quality management of the pillars). Similar to the Kaizen philosophy, one of the PDCA Cycle's purposes is to accelerate and improve a company's processes by identifying the causes of their problems and implementing solutions to them.

It is also important to note that due to the tool being based on a cycle, the whole process consists of planned and recurring activities and the theory that it does not have a predetermined end.

The steps of the PDCA Cycle



The PDCA cycle begins in the planning stage (Plan) in order to focus on the strategic part of the cycle, i.e. the collection and analysis of information. Then, execution occurs (Do), where everything is made up of pre-planned runs, creating the need to assess the quality of what is being done and

leading to the checking process step (Check). At this stage, we have to check everything that was done by comparing what was planned with the end result and pointing out any consequent problems and failures that may have occurred during the process. Finally, all this analysis implies the need for action (Act) and the correction of the problems and disagreements found.

Use of the Integrated Management Tools

Based on the reported facts, we establish the following planning model:

Objectives and Goals

Objectives	Goals
Agricultural Management Company Diversification of production in the field Provide technical guidance in the field Reduce losses in the production process Improve the quality of raw material Increase production and sales Productive and financial independence	Use of 3 modern management tools Obtaining 1 production control program Professional 1 Viability to field Planting of 142.3 hectares of seedlings (market) Professional 1 Viability trained for sales

Action Plan

Weaknesses	How to solve them	Who is Responsible	When they will be resolved (Months)													
			1	2	3	4	5	6	7	8	9	10	11	12		
Lack of technical assistance	Hiring experienced staff	Board of directors	x													
Low soil fertility	Perform soil analysis Plan fertilizer management composting	Field technician	x	x	x	x										
Underutilization of resources	Use plant by-products Use the vehicle stopped by technicians	Management and technicians	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Lack of planning	Creating a Technical Department Obtaining control software Preparation Planning	Board, management and technicians	x	x	x											
Lack of diversification of fruit	Diversifying and expanding the production area	Management, technicians and cooperative members				x	x	x	x	x	x	x	x	x	x	x
Poorly selected fruits	Idealizing the standards of harvesting and selection Enabling cooperative members	Technician	x	x	x											
Narrow market	Hiring an external vendor Opening new markets Increasing sales	Board, management and vendor								x	x	x	x	x	x	x

Making the diagnosis of family production units of cooperative members allowed us to obtain data that could support the development of the cooperative's strategic planning. In addition, it managed to obtain information that is extremely important to its management, and format a management model that integrates several total quality management tools. The board and management of the company proved quite pleased with the result of the work and agreed to start implementation of the Action Plan proposed in the first half of 2015.

Conclusions

After analyzing all the facts discussed, we found that it is essential to use management tools in all of the company's processes, and prepare, execute and follow up on their planning in order to achieve improvements in the entire production chain of the exploited agricultural activities. In view of this, we noted that the use of the management tools depends on the size of rural enterprises, or rural property, thus allowing family farmers the possibility of applying these tools in their day-to-day work. Therefore, we conclude that the integrated use of the management models studied would allow for the development of a more simplified strategic planning model aimed at small farms, helping family farmers manage their property, and generating an increase in income and economic development in the Brazilian countryside.

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Notes

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