

Abstract

Farmers, ranchers, and fishermen in Puerto Rico have suffered many losses due to state emergencies such as hurricanes and earthquakes, among other unfortunate events such as the pandemic. After these events, especially after the hurricane, farmers and ranchers have seen the need to seek crop insurance, insurance in general, and accounting records, in order to submit claims to the insurance companies, while appealing processes for the USDA insurance programs. *The Risk Management and Emergency Preparedness in Puerto Rico* proposed to deliver accounting, financial and management tools for the target audience, so they can have up-to-date accounting information, reduce financial risks, and prepare for the next natural disaster. To accomplish the project's objectives, we offered 18 hours of training in the following topics: Risk Management, Income Statement, Cash Flow, Inventory, Balance Sheet, Financial Scorecard, Introduction to Microsoft Excel and the Accounting and Financial System for Farms in Excel. The participants' profile, pre and post-tests, and short tests were performed to analyze their knowledge and evaluate the workshops' impact on their farms and agribusinesses.

Introduction

The Southern Risk Management Education Center involves educating local farmers, in order to strengthen and develop their planning, problem solving and decision-making skills in the agriculture sector. The project titled: *Risk Management and Emergency Preparedness in Puerto Rico* provided the necessary tools for basic protection against natural disasters, such as earthquakes or hurricanes. The workshops were delivered using distance learning methodologies, such as the Zoom platform. During the online workshops that took place throughout September–October 2020, there were a series of evaluations given to the participants: profile group, pre and post tests and short tests. The goal of these evaluations was to analyze the participants' agricultural background and measure their knowledge about the topics.

In recent years, the effect of climate change or increasing global surface temperatures on agriculture is evident, as crop and livestock production has been affected by droughts, wildfires, earthquakes and increased intensity of storms. The Caribbean region has been deemed especially vulnerable due to its geographic and economic scale, exposure to extreme weather events, and reliance on tourism and imported goods (Mimura et al. 2007; Barker 2012; Gould et al. 2015). In 2017, Puerto Rico's agriculture sector was the most affected after the landfall of hurricanes Irma and María, the last one being the most catastrophic storm in decades. In 2020, Puerto Rico had over 2,000 earthquakes, at least 2 dozen over magnitude 5, and between 7 and 8 in intensity. As a result of these events, educating about risk management is essential, especially in disadvantaged communities.

This is an innovative project given that it is the first to use distance learning as a tool to increase the number of participants, due to Covid-19 pandemic. The objectives of this project were to deliver non-formal education on financial record keeping, educate about the importance of reducing risk with insurance, provide producers with information by insurance entities, and coordinate focus groups to gather information about producer's needs and wants after their experiences with these disasters.

Methodology

A formal assessment of educational activities was conducted. The information was gathered through online questionnaires, following the educational activities that consisted mostly of online lectures and workshops. All of the questionnaires were distributed to the participants through their email addresses once registered in the workshops from September to October 2020. The participants' profile group consisted of the following sections: Sociodemographic Characteristics, Management Capabilities, and Program suggestions, among other open questions. The data of the pre and post tests data was collected to study how participants perceived the knowledge acquired after the workshops were also conducted. The participants' post-test scores were compared to their pre-test scores, in order to evaluate the increasing participants' knowledge of the training content. Participants were asked on a Likert scale-type question (Very advanced to No knowledge) about attributes which included topics about financial risk, agricultural marketing, and legal risk. Finally, the short tests allowed the analysis of the participants' level of comprehension regarding the course material, providing insight into the workshops' progress and any future recommendations. A total of 23 participants completed the profile group, 142 participants completed the pre and post tests, and an average of 96 participants completed each short test.

Results and Conclusions

During the fall semester, non-formal education was delivered through distance learning to farmers, ranchers, and fishermen. Eighteen (18) contact hours were offered in six days of workshops, the topics discussed are shown in the table below (Table 1). As mentioned before, Zoom was the platform used as the distance learning tool, while Google Forms collected the data for the profile group, pre and post tests, and short tests.

Table 1: Workshops for Group 1, September to October 2020

DATE	TITLE	CONTACT HOURS	NUM. PARTICIPANTS
Sept. 9, 2020	Farm Inventory and Introduction to Farm Accounting and Financial System in Excel	3	117
Sept. 16, 2020	Income Statement and Cash Flow	3	131
Sept. 30, 2020	Balance Sheet and Finance Scorecard	3	253
Oct. 7, 2020	Risk Management and Introduction to Business Planning	3	112
Oct. 14, 2020	Introduction to Excel	3	93
October 21, 2020	Farm Accounting and Financial System in Excel	3	101
	Total	18	-

Two examples from the short tests are presented in Figures 1 and 2. In Figure 1, results shows that 97.6% of the participants that took the short test selected the correct answer. On the other hand, in Figure 2, 84.7% of the participants selected the correct answer.

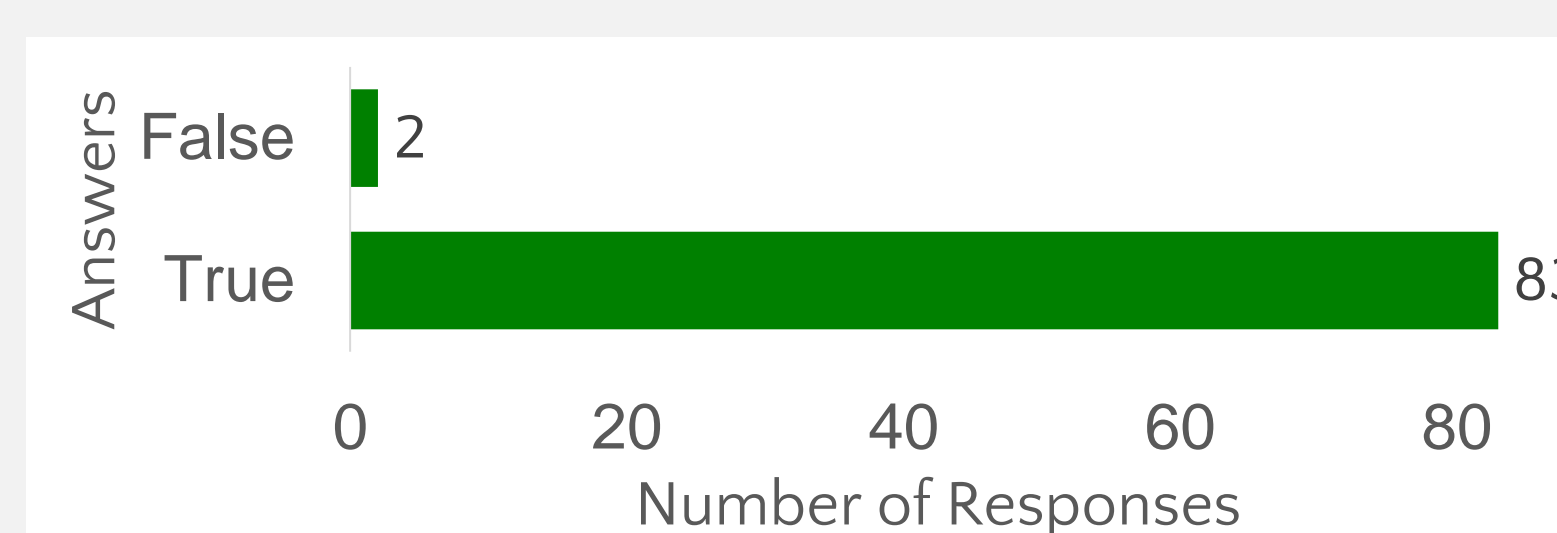


Figure 1: Accounting and Financial Records allow the farmers, ranchers, and fishermen to make better decisions.

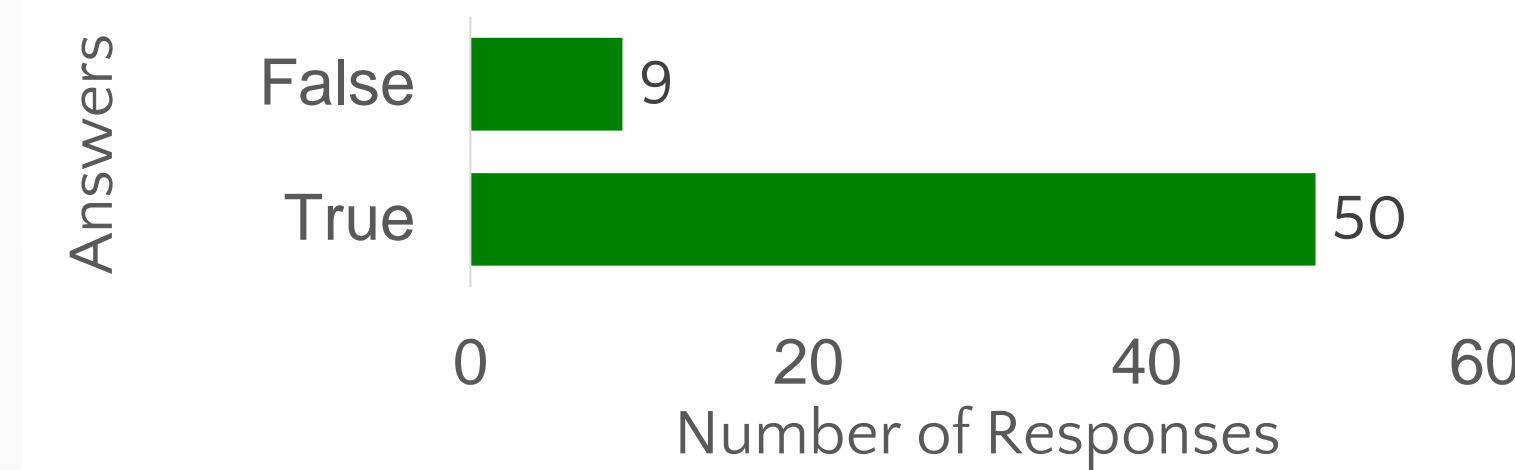


Figure 2: One alternative to reduce risk is by purchasing crop insurance.

Workshops were promoted in social media, group chat, extension agents, email to previous participants, Figure 3. The distribution of scores between the short tests were very similar. The average score was higher than 70%, but this was the second online course in Puerto Rico. Table 2 presents the scores that the participants received for each short test.



Figure 3: Promotional Flyer Group 1

Table 2: Number of participants per workshop that took the short test

Test Score	Farm Inventory	Income Statement and Cash Flow	Balance Sheet and Finance Scorecard	Risk Management and Introduction to Business Planning
Less than 6	1	15	12	3
6/10	6	14	10	11
7/10	14	26	20	9
8/10	29	26	15	13
9/10	37	26	9	10
10/10	44	0	19	13
Total	131	107	85	59
Average	8.74	7.42	7.41	7.85

The analysis from pre-post test reveals that most of the participants had acquired additional knowledge. By the end of the courses, it increased from moderate to advanced. For example forty eight percent of the participants said that they know little or no knowledge about financial risk, after taking the course only 1.5 said they had little or no knowledge.

The majority of the participants suggested that the workshops should discuss the following topics for a future occasion: Business Plan, Financial Risk, Human Resources, Accounting, Marketing, among others. Some success stories were shared on the pre-post test. Among the experiences, participants mentioned that after taking the workshops they made better decisions and improve business management, developed a business plan, requested funds from the "Regrow Program" which is a fund to revitalize agriculture. Overall, the evidence provided that these workshops were beneficial for the community not only to help them prepare for the risks they may face in their businesses, but also to feel more secure in facing unforeseen situations, thus manage their risk.

Results and Conclusions

- Most of the participants who attended the workshops were from Bayamón, Caguas, Canóvanas, Ciales, Cidra, Coamo, Guánica, Gurabo, Hatillo, Jayuya, Lares, Orocovis, Ponce, Río Grande, Salinas, San Sebastian, Santa Isabel and Yauco. Specifically, the participants with farms were in Canóvanas, Guánica, Lares, San Sebastian and Santa Isabel.
- 56.5% of the participants were male, while 43.5% were female; all of them between the ages of 24–64 years old and earning an annual income of \$10,000–\$150,000. Being the farm or agribusiness their main source of income.
- 47.8% of the participants were farm owners, while 21.7% were farm administrators.
- 43.5% of the agribusinesses were classified as a corporation.
- 43.5% of the farms are being leased and 39.1% have been purchased, mostly using their own capital or loans by a private bank.
- Before the workshops took place, 46.3% of the participants did not have any insurance, and afterwards, 35.18% did not have a crop insurance for their businesses.
- 60.9% of the participants designed a business plan for their farm and are working in developing one.
- 93.3% of the participants kept some type of farm records.
- Before the workshops 36.9% had some type of farm record and after taking the workshops 60.2% had a farm record.
- Most of the participants owned a computer to participate in the workshops and use it for farm related work as well.
- None of the participants in Group 1 was a veteran or active duty in the United States Armed Forces, while 21.7% had family members that were part of the Armed Forces in some way.

References

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