

# **A study of new possibility of the agriculture in Okinawa using recycled water**

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## **1. INTRODUCTION**

Okinawa's agriculture has advantages in its warm climate and its location being close to emerging Asian countries, but there is a serious lack of the water supply. Currently, Okinawa is considering to use recycled water for agricultural use. However, the consumer reaction towards the use of recycled water is concerned, and this is hindering the promotion of recycled water use. On the other hand, the use of recycled water can allow more efficient water management in agriculture. This water management also fulfills the water management standard of the GAP certification. Therefore, Okinawa is willing to encourage the recycled water use within agriculture for both water supply purpose and the GAP certification promotion purpose. Recently, the GAP certification has become popular and its effect is highly evaluated in Japanese society as well. This research considers the solutions to the consumer concern of the recycled-water use and how GAP certification can be more acquired in Okinawa.

## **2. METHODS**

### **(1) A test marketing and a consumer survey of recycled water products**

I conducted a test marketing of the agricultural products cultivated by recycled water in order to perceive the consumer reaction towards the product and to find out what to consider in the actual market. Moreover, I have created a survey in order to seek any potential consumers and carried it out in and outside of Okinawa prefecture. By analyzing these results quantitatively, I have estimated the potential market share of Okinawan agricultural product cultivated by recycled water.

### **(2) Trend in GAP and a case study from Spain, advanced country of GLOBAL G.A.P. acquisition**

In order to investigate what is necessary in increasing GAP certified farms, I have researched the fundamental concept of GAP, its domestic and international trend, and the possible factors that hinders its acquisition. Adding to that, I have also interviewed the people concerned about the local agriculture in the region of Almeria, southern Spain, where GLOBAL G.A.P. plays a significant role in the local agriculture, and I considered this result.

## **3. RESULTS AND DISCUSSION**

(1) In the test marketing, majority of the consumers showed a positive impression on the products cultivated by recycled water, just by showing an information panel with some illustration. The result of the survey conducted in and outside Okinawa prefecture showed that the provision of information about recycled water leads to the understanding of the necessity of the project, and that it adds value to the products. Furthermore, it was found out that the evaluation of the recycled water products was strongly influenced by the consumer's willingness to buy local product and their capacity to accept new technologies. The estimate of the market share has showed that it would not affect the sales of Okinawan agriculture even if all Okinawan agricultural product is substituted with the recycled water products. From the above results, it can be said that most consumers would not have a negative images toward the use of recycled water.

(2) In the region of Almeria, there was an effective system for GAP, where each community members were able to share the concept and the purpose of GAP very well. The producers were well supported by the local Agricultural Cooperative Union as well. For instance, there were professional agricultural instructors for the producers and the Union also pays the fee for the GLOBAL G.A.P. acquisition. This effectively motivates the producers to gain the GLOBAL G.A.P. certification. The case study of Spain shows that Okinawa should also promote GAP as a whole community. It is important, that the community has a system where the producers can have a network where they can support each other, in order to promote the acquisition of the GAP certification.