

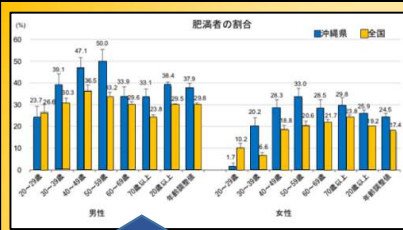


# “NUCHIGUSUI” SHI-KUWA-SA

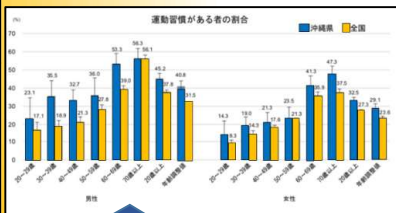


## Eradicating Obesity with an Okinawan Super Fruit “Shi-kuwa-sa”

### BACKGROUND



This shows the obesity rates of Okinawa and national average.



This shows the amount of exercise of Okinawan people.

According to Okinawa prefecture’s “Department Of Public Health and Medical care”, the obesity rate is 18% above the nation’s average. However, the average amount of exercise Okinawan people do is above the national average.

We need to improve Okinawan people’s daily diet to solve this obesity problem.

We thought that one of the many Okinawan foods could be “ぬちぐすい”.

We found “Shi-kuwa-sa” to be a super fruit that would solve the obesity problem.

### “Nuchigusui”

Nuchigusui (ぬちぐすい) is Okinawan dialect for “food is the best Medicine”.

### SHI-KUWA-SA

Diameter: 3-5 cm  
Scientific name: citrus depressa

- Sour
- Used for drinks and desserts
- Found in Okinawa and Taiwan



Skin contains 98% of all Nobiletin in the Shi-kuwa-sa fruit

Shi-kuwa-sa Nobiletin contains a high amount of Nobiletin which is an organic compound. Nobiletin has many positive effects for our health: such as suppressing the escalation of blood sugar by helping make Adiponectin in our body. Adiponectin promotes the production of insulin which is the only component that suppresses the escalation of blood sugar. Suppressing the escalation of blood sugar prevents high blood pressure.

### Amount of Nobiletin



### METHOD

1. Research on the current situation of Shi-kuwa-sa industry. (Interview with “YONAR” s’).
2. Start creating Shi-kuwa-sa recipes
3. Create shelf talkers (POPS) to promote our recipes and display them next to Shi-kuwa-sa juice products at 18 shops in Naha kokusai street “popular tourist spot”.
4. Create our page to post Shi-kuwa-sa recipes on Cookpad and Instagram which is one of the most popular Social Networking Services all over the world.

### PRECIDENT

There are many products that contain “Shi-kuwa-sa”, however, they are mostly used for their flavors. These days, many companies in Okinawa produce “100% Shi-kuwa-sa juice” which contains a high amount of Nobiletin by squeezing the whole fruit. We focused on this “100% Shi-kuwa-sa juice” while creating our recipe.

### FUTURE PROSPECT

Looking at the high number of views on the recipe website, we succeeded in providing people with new Shi-kuwa-sa recipes, however, we would like to encourage people to consume “Shi-kuwa-sa” in their daily life. Therefore, we need to think of more effective ways to succeed and we hope to resolve the obesity problem in Okinawa.

### RESULT

#### Recipes Multi-purpose sauce



**Ingredients:**  
Miso, 100% Shi-kuwa-sa juice and brown sugar

**Instructions:**  
1. Mix all the ingredients together  
2. Microwave them at 600 watts for 20 seconds (Optional) Add sesame and black pepper into the multipurpose Shi-kuwa-sa sauce

#### Various use

- Use this sauce as a dip for vegetables.
  - Dress meat or fish with it.
- It encourages the intake of Nobiletin

We successfully let many people know about “Shi-kuwa-sa multipurpose sauce”



We got over 3000 views!!!



### APPLYING IT TO THE PACIFIC NATIONS

Rank	Country	% of Adult Population that is obese
1	Nauru	61.0
2	Cook Islands	55.9
3	Palau	55.3
4	Marshall Island	52.9
5	Tuvalu	51.6
6	Niue	50.0
7	Tonga	48.2
8	Samoa	47.3
9	Kiribati	46.0
10	Micronesia	45.8

The top 10 obese countries are all Pacific Nations. Replacing traditional foods with imported, processed food has contributed to the high prevalence of obesity and related health problems in the Pacific Islands. Jane Perry reports. -WHO website

We thought that we could use Shi-kuwa-sa to solve their obesity problem

#### PLAN I Plant Shi-kuwa-sa seedlings

Since the geographical factors are similar to that of Okinawa, we could plant seedlings in the Pacific Nations so people in the Pacific Nations can get Shi-kuwa-sa easily and cheaply. Shi-kuwa-sa needs soil with higher acidity and warm climate both of which the Pacific island have.

Suggested this plan to JICA

- This plan has many problems
- Complicated procedures
  - Possibility of affecting the eco system
  - High cost

#### PLAN II Make recipes to increase the demand for Shi-kuwa-sa

We figured out that we should make people in the Pacific Nations interested in Shi-kuwa-sa first by exporting 100% Shi-kuwa-sa juice and suggesting multiple recipes that might match their own traditional food, so they can consume Nobiletin easily and constantly. If they think it tastes good and that Shi-kuwa-sa will help them improve their health, we would be able to expect that their demands for Shi-kuwa-sa would rise and they would try to get Shi-kuwa-sa by themselves in the future.

Plant Shi-kuwa-sa seedlings



### FUTURE PROSPECT