

Product Development Using Diatomaceous Earth–Urethane for Plant Cultivation

Flower Cultivation Course

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1. Introduction

According to the data (2025) obtained from the Development Bank of Japan, the amount of individual consumer spending on flowers in Japan decreased by 8.3% between 2014 and 2024. Under these circumstances, I developed new products using diatomaceous earth urethane to expand the demand for flowers. Diatomaceous earth–urethane is a plant cultivation material which is made by mixing diatomaceous earth with urethane. It has been under development since 2021 through collaboration between our school and Nippo Co., Ltd. in Okazaki City, Aichi Prefecture.

2. Product Development for Oshikatsu Activities Using Diatomaceous Earth–Urethane

I found that flower consumption has continued to decline year after year, and that younger people – particularly those under 34 – spend less on flowers. For this reason, I decided to develop products linked to ‘oshikatsu,’ which is popular among many young people. ‘Oshikatsu’ refers to activities aimed at supporting favorite people or characters, such as attending concerts and events or purchasing goods. I developed products specifically for displaying such goods.

2.1 Production Process

I proposed this product to Nippo Co., Ltd. The following four product types of shape were decided—the Hexagram Stage and the Mini Oshikatsu Stand which I designed, and the Hexagram Stage 2 and the Pentagon Stage designed by Nippo Co., Ltd. After the arrival of the processed diatomaceous earth urethane, colored with paint and spray, and succulent plants were planted on it by cuttings (Figure 1). The finished products, completed through these steps, were actually sold at an event sales practicum.



Figure 1. Oshikatsu-themed products developed using diatomaceous earth-urethane.

2.2 Sales Results

On October 25th and 26th, 2025, the products were put on sale at Gifu World Rose Garden for 800 yen per unit, but no purchases were made. This result suggests the need to reconsider the product design and promotional methods.

2.3 Observation

By referencing existing flower shops, I tried to come up with effective marketing methods to get the products into the target customers' hands. The POP displays at Tsuboi Flower Garden included rankings and instructions on how to order bouquets and arrangements, creating a friendly and approachable atmosphere for customers. Aoyama Flower Market, on the other hand, has stores near train stations, making them easily accessible to a wide range of people while traveling. Based on these two cases, I believe that placing POP displays that concisely summarize the product's appeal in high-traffic areas will stimulate interest and purchase intent.

3. Product Development of Diatomaceous Earth-Urethane with Containers

If the diatomaceous earth urethane is rubbed with too much pressure, the diatomaceous earth may peel off the urethane and stain the surrounding area, just like the soil does. To prevent this, I decided to use a traditional Japanese measuring cup (Ichi-go masu) and scraps of leather as containers for the diatomaceous earth urethane. I sold these products at our various school events and at existing garden centers, and collected customer feedback through questionnaires and other methods.

3.1 Sales Results and Observations

The sales results are as follows (Table 1). Based on the sales results and surveys, I found that the products received generally positive feedback from consumers. In terms of pricing, there was a tendency to emphasize low prices, as in the case of flower seedlings. However, raising prices is desirable to ensure profitability. Therefore, at Togokusan Fruit Park, higher prices were set. Despite this, more than half of the quantity displayed was sold, and so I believe that the purchasing intent does not decrease even if the price exceeds the desired purchase price indicated in the survey. In addition, during the event sales practicum in 2025, I found that seasonal containers did not pair well with succulent plants, which can be enjoyed throughout the year. Therefore, it is necessary to devise ways to allow consumers to continue enjoying the products as interior decor even after the event ends.

	Sales location Sales period	WRG (Event sales practicum) October 2024	Nagoya Gardening February 2025	WRG Flowertopia May 2025	Nanjya Festival June 2025	WRG (Event sales practicum) October 2025	Togokusan Fruits Park December 2025
Ichi-go masu	Selling price	1,000 yen	-	700 yen	400 yen	1,000 yen	1,500 yen
	Number of items on display	10	-	10	11	10	6
	Number of items sold	10	-	1	11	8	4
Scrap leather	Selling price	-	880 – 2,400 yen	1,000 yen	800 yen	800 yen	-
	Number of items on display	-	7	5	4	6	-
	Number of items sold	-	4	1	3	3	-

Table 1. Sales results of diatomaceous earth–urethane products.

4. Conclusion

I have developed two types of products to expand the demand for flowers. Sales results for the products that included a container showed that it was well received by consumers, but the Oshikatsu products did not receive a positive response from the targeted younger generation. Therefore, I intend to use containers made from materials such as leather scraps for the products, disseminate information on social media platforms used by many young people, and communicate the appeal of products using diatomaceous earth urethane through surveys and trial sales.