

# Kanin

Process Book





## Contents

- 2 Biomimicry Case Studies
- 4 Product Research
- 5 Logo
- 9 Color Palette & Typography
- 10 Business System
- 12 Baybayin
- 14 Marketing Applications
- 16 Packaging

# Biomimicry Case Studies

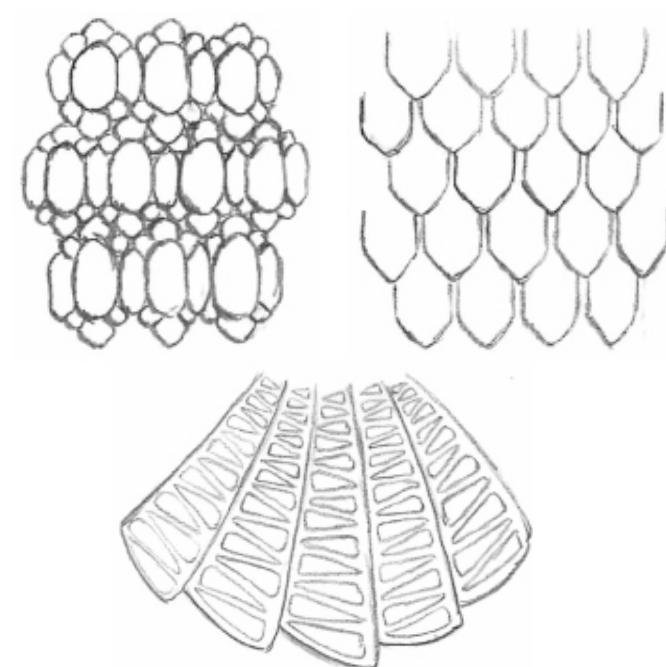
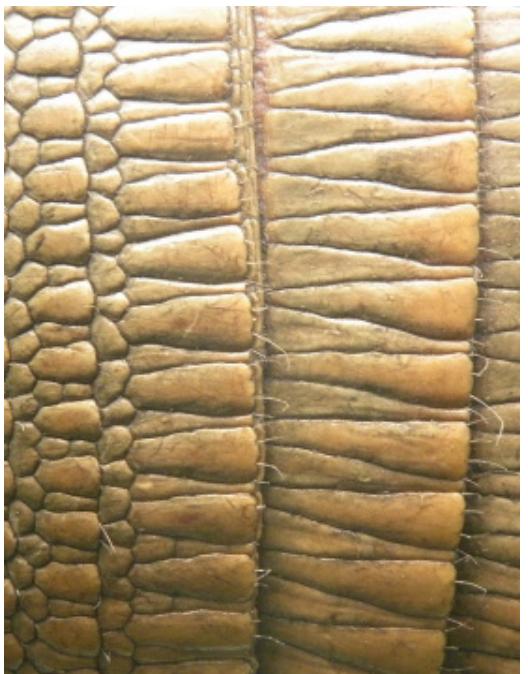
## What is Biomimicry?



**Biomimicry** is the conscious imitation of models, systems, and elements from nature for the purpose of creating human solutions. This approach brings together two often disconnected areas: nature and technology, biology and innovation, life and design. Biomimicry is a way of seeking sustainable solutions.

When researching examples of biomimicry, I wanted to focus on properties from nature that could contribute to potential package designs: structure, form, support, durability, biodegradability, etc. For each case study, I also sketched patterns that were inspired by the forms, textures, or properties from each biomimicry case study example.

## Case Study: Armadillo

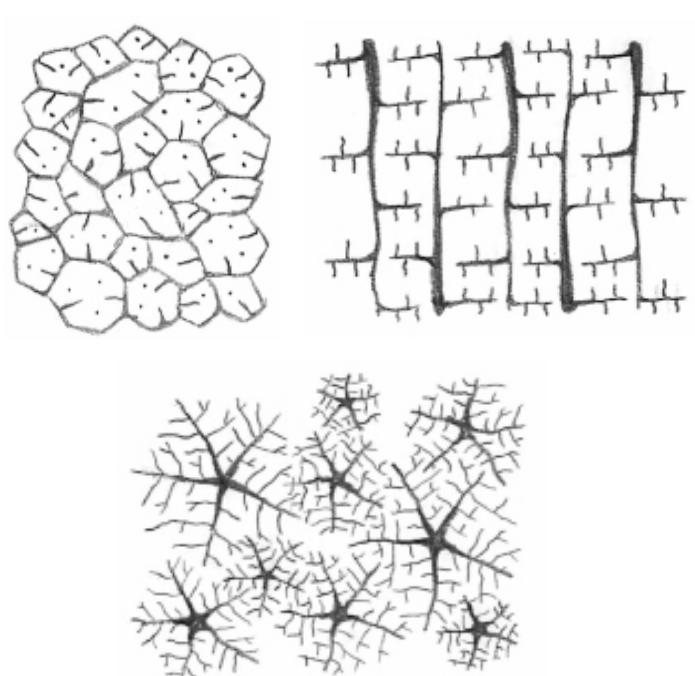
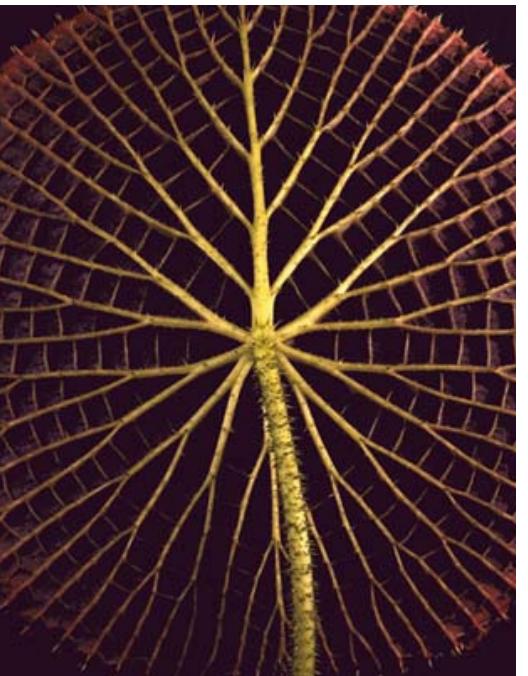
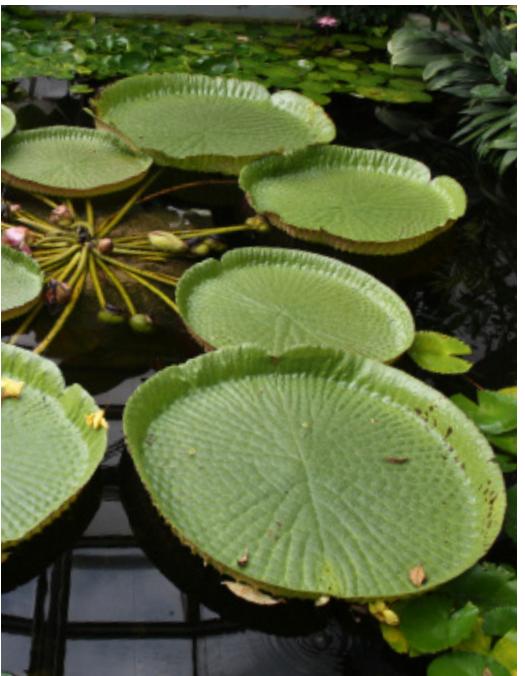


The armadillo is a small to medium-sized mammal native to the North and South American continents and is characterized for its armor-like shell. Their armor-like shell are composed of overlapping plates called dermal bone covered with leathery skin. While the armadillo's underside exposes its soft skin, its leathery shell protects the armadillo from predators and spiky bushes. The three-banded armadillo is named for having only three overlapping dermal bones and is the only armadillo species to be able to roll its entire body into a ball for further protection.

### **Biomimicry Applications:**

- Flexible plating on armor and packing
- Protective casing in package design
- Retractive ability of overlapping plates or materials
- Ball-shape for decreasing surface area of materials

## Case Study: Amazon Water Lily

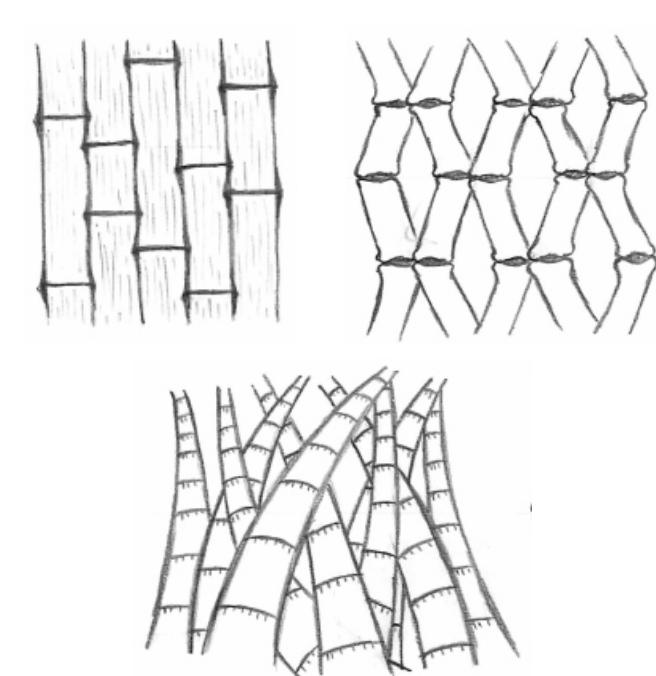


The Amazon Water Lily is native to the Amazon River basin, growing in shallow bodies of water such as bayous and oxbow lakes. Amazon Water Lilies are characterized by their large green leaves that float on surfaces of water for photosynthesis. The large leaves contain tiny air-spaces that allow it to stay afloat. While it can grow up to about 10 feet in diameter, the large circular leaves of the Amazon Water Lily is supported by a system of ribs and struts on its underside. These ribs and struts begin expand and branch off outward in a radial manner, providing a light-weight yet strong support system.

### **Biomimicry Applications:**

- Supporting frameworks of buildings and package material
- Light-weight panels
- Optimizing use of surface area

## Case Study: Bamboo



The bamboo plant is one of the fastest-growing plants in the world and is strongly associated with the economy and culture of South, Southeast, and East Asia. Bamboo is used as building materials, food, and a versatile raw product. Bamboo plants have hollow stems that consist of strong fibers. Different sized fibers arranged throughout the stem provide strong reinforcement to bamboo plant. The stems of bamboo are also characterized as thin-walled and tubular which maintains its physical integrity and allow for resistance against buckling, bending, and external forces.

### **Biomimicry Applications:**

- Bamboo fibers for structural and packaging materials
- Hollow cylindrical shape structures
- Thin-walled tubular stem properties for panels

# Product Research

## Philippine Rice



Rice is a primary food source for many Asian cultures. When choosing to design the identity and packaging for a potential rice product, I took into consideration different aspects that could be improved upon with rice products: packaging, sustainability, accessibility, health issues, the significance of rice within Asian cultures.

As an individual of Filipino heritage, I wanted to focus my work on branding rice from the Philippines. The Philippines is famous for their rice terraces and I wanted to show more visibility towards this great resource.

Although rice is a main food source for the Philippine people, the amount of rice that they cook and eat at a time brings up several issues. According to statistics from the Philippines Department of Agriculture, each Philippine citizen wastes 2 tablespoons of rice everyday either by cooking too much rice at a time or not finishing their servings of rice. When not wasted, import savings can result as high as P6.2 billion and could feed 2.6 million hungry Filipinos in a year.

Large servings of rice can also cause health issues because rice does not provide enough nutrients towards a balanced diet. Eating larger amounts of rice essentially only adds unnecessary carbs to one's diet.

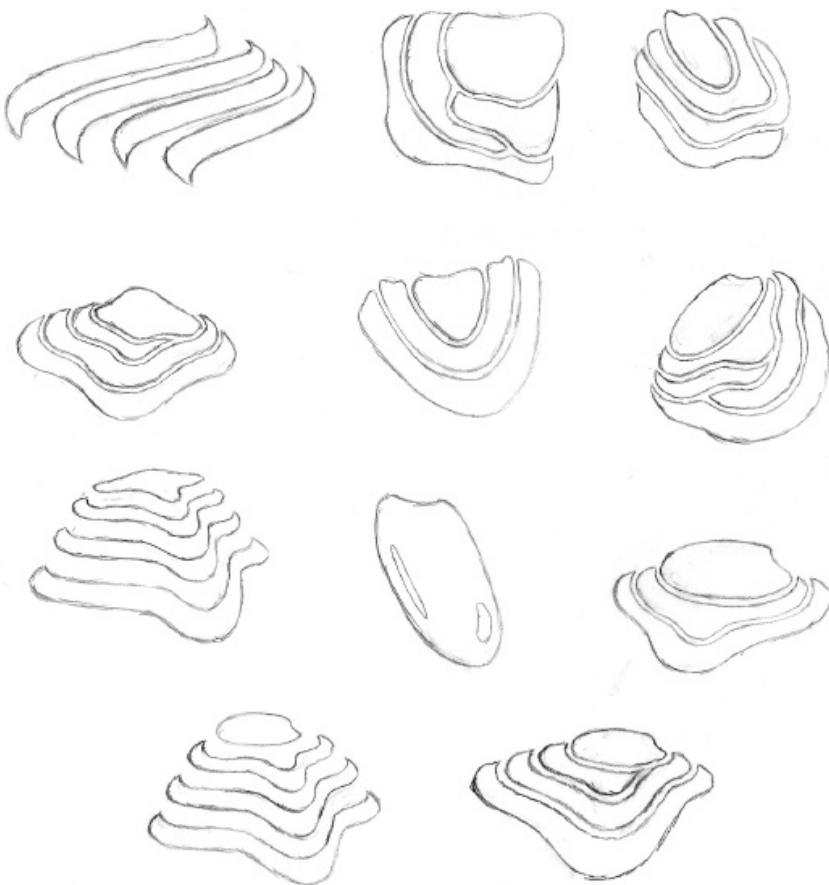
Packaging of rice also brings up issues of sustainability. The rice industry in the Philippines and most Asian countries tend to package rice in large sacks typically made out of vinyl and other non-biodegradable materials. With pollution as a prominent issue in the Philippines, this form of rice packaging only contributes to this problem as well.

## Rice Terraces

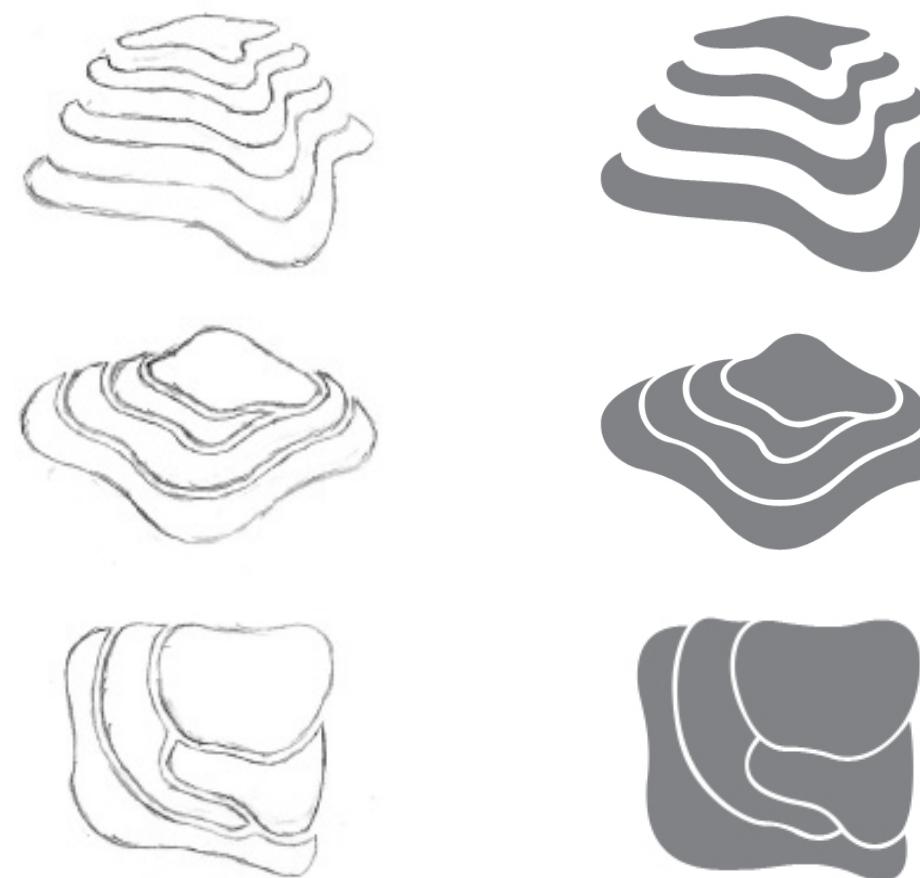


Philippine rice is known for the terraces that it comes from. Because of this, I decided to derive my logo from the forms of the man-made rice terraces of the Philippines.

## Sketches



## Vectors of Top 3

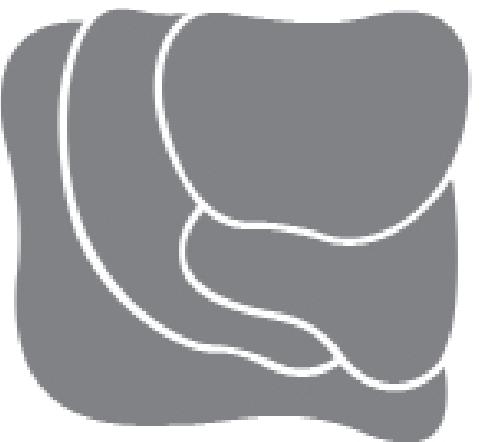
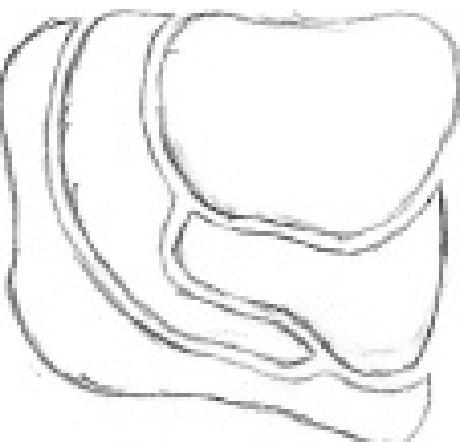


For my logo sketches (left), I used positive and negative spaces that outlined the form of the rice terraces. I played around with looking at the terraces at an angle or from a top view as well. While sticking with the forms of the terrace, I also explored possible logos that incorporated the form and outline of a milled rice grain.

Narrowing down the sketches to three possible choices (right), I created vectors to refine their shapes and to make the interplay between positive and negative spaces more effective.

## Logo

### Symbol



Between the top three preliminary logos, I chose to further work this symbol. Mostly editing with the shape of the bottom "terrace," I wanted the final symbol to have an overall square-like shape that would make it suitable for grid layouts and placing other graphic elements around it. The right-most rice terrace design is the primary symbol of the company logo.

I used a green monochromatic color scheme to emulate the green Philippine rice terraces. I used a gradation pattern with the four shapes of the symbol to emulate descending tiers like that of a rice terraces.

This symbol can stand alone when appropriate, such as when the company name has already been established.

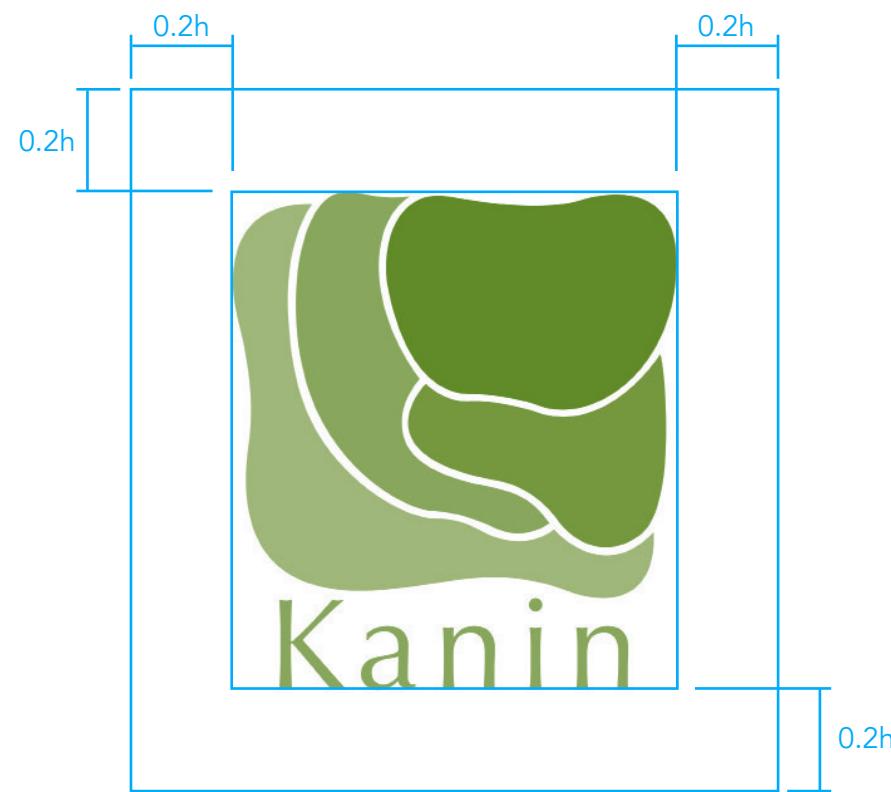
### Company Name & Final Logo



The company name of the rice product is called "Kanin," which translates to "cooked rice" in Tagalog, the Philippines' primary language. I wanted to have a Tagalog term as the product's name to create a sense of credibility and ownership as a product from the Philippine Rice Terraces.

For the final logo, the symbol's overall square-like shape allows for the wordmark to be appropriately placed underneath or next to it. The typeface of the wordmark is Optima Regular. Both vertical and horizontal options of wordmark provides flexibility of the final logo design's application.

## Measurement & Minimum Free Space



The Kanin logo must have a minimum surrounding free space for best display practices. No other graphic elements (e.g., type, images, rules) should occupy this space.

The minimum free space of both the vertical and horizontal versions of the logo is determined by the height ( $h$ ) of each version. For the vertical version, the minimum free space is  $0.2h$  (0.2 times the vertical logo's height). For the horizontal version, the minimum free space is  $0.5h$  (0.5 times the horizontal logo's height).

# Logo Application

## Correct Usage



Color Logo



Grayscale Logo



White Logo on  
Colored Background



Logo on Light Background  
(10% black or less)

## Incorrect Usage



Incorrect Symbol/Wordmark Ratio



Incorrect Color Saturation Levels



Incorrect Symbol/Wordmark  
Placement



Logo on Dark Background



Color Substitution



Incorrect Type Tracking

With the Kanin logo subtle color scheme, I mostly focused the Correct and Incorrect Logo Usage on color applications such as the gradation pattern with the tiers, background color, and single color alternatives. I also displayed placement usage between the symbol and wordmark.

# Color Palette & Typography

## Color Palette



1	Pantone P 158-16 C (100%) CMYK: 48, 0, 100, 37 RGB: 96, 139, 40 Hex: #608A28
2	Pantone P 158-16 C (85%) CMYK: 40.8, 0, 85, 31.45 RGB: 117, 152, 63 Hex: #74983F
3	Pantone P 158-16 C (70%) CMYK: 33.6, 0, 70, 25.9 RGB: 137, 167, 93 Hex: #89A75D
4	Pantone P 158-16 C (55%) CMYK: 26.4, 0, 55, 20.35 RGB: 159, 183, 122 Hex: #9EB779



1	Pantone P 179-11 C (100%) CMYK: 0, 0, 0, 73 RGB: 103, 104, 107 Hex: #66686A
2	Pantone P 179-11 C (85%) CMYK: 0, 0, 0, 62.05 RGB: 124, 126, 129 Hex: #7C7E80
3	Pantone P 179-11 C (70%) CMYK: 0, 0, 0, 51.1 RGB: 145, 147, 150 Hex: #919395
4	Pantone P 179-11 C (55%) CMYK: 0, 0, 0, 40.15 RGB: 167, 169, 171 Hex: #A6A8AB

With the monochromatic gradation, I wanted the logo's color scheme to be subtle yet effective in emulating rice terraces. Kanin's primary color is green. The green represents the Philippine Rice Terraces and symbolizes the product's organic and healthy quality.

Kanin's main green is PANTONE P 158-16 C (100%). For its grayscale alternative, the main gray is PANTONE P 179-11 C (100%). For both the color and grayscale versions, the following tints in the logo follows a 100% - 85% - 70% - 55% gradation pattern from the main green or gray Pantone hue.

## Typography

### General Communication

Avenir Book      ABCDEabcde12345

### Heads

Optima Regular      ABCDEabcde12345

### Subheads

Avenir Medium      ABCDEabcde12345

### Body

Avenir Book      ABCDEFGHIJ  
abcdefghijklmnopqrstuvwxyz  
1234567890

Avenir Book Oblique      ABCDEFGHIJ  
abcdefghijklmnopqrstuvwxyz  
1234567890

Avenir Medium      ABCDEFGHIJ  
abcdefghijklmnopqrstuvwxyz  
1234567890

Avenir Medium Oblique      ABCDEFGHIJ  
abcdefghijklmnopqrstuvwxyz  
1234567890

For typographic applications, Kanin's identity uses Optima (the same typeface as the wordmark) and variations of Avenir.

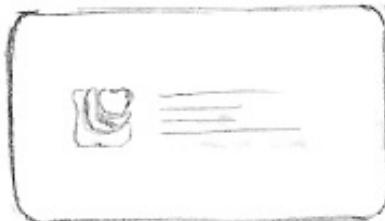
# Business System

## Business Card

Sketch #1



Sketch #2



Front



Back



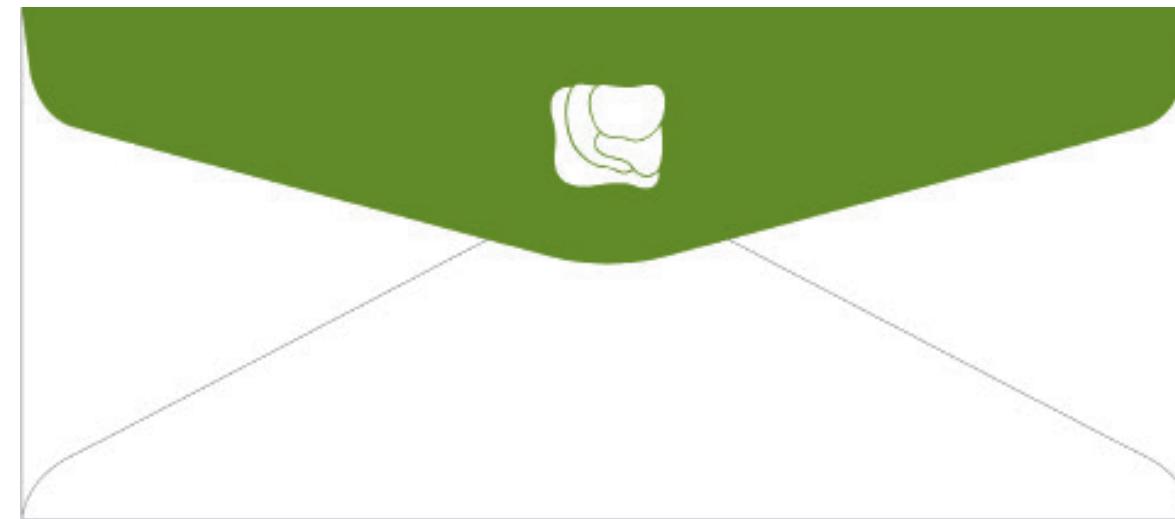
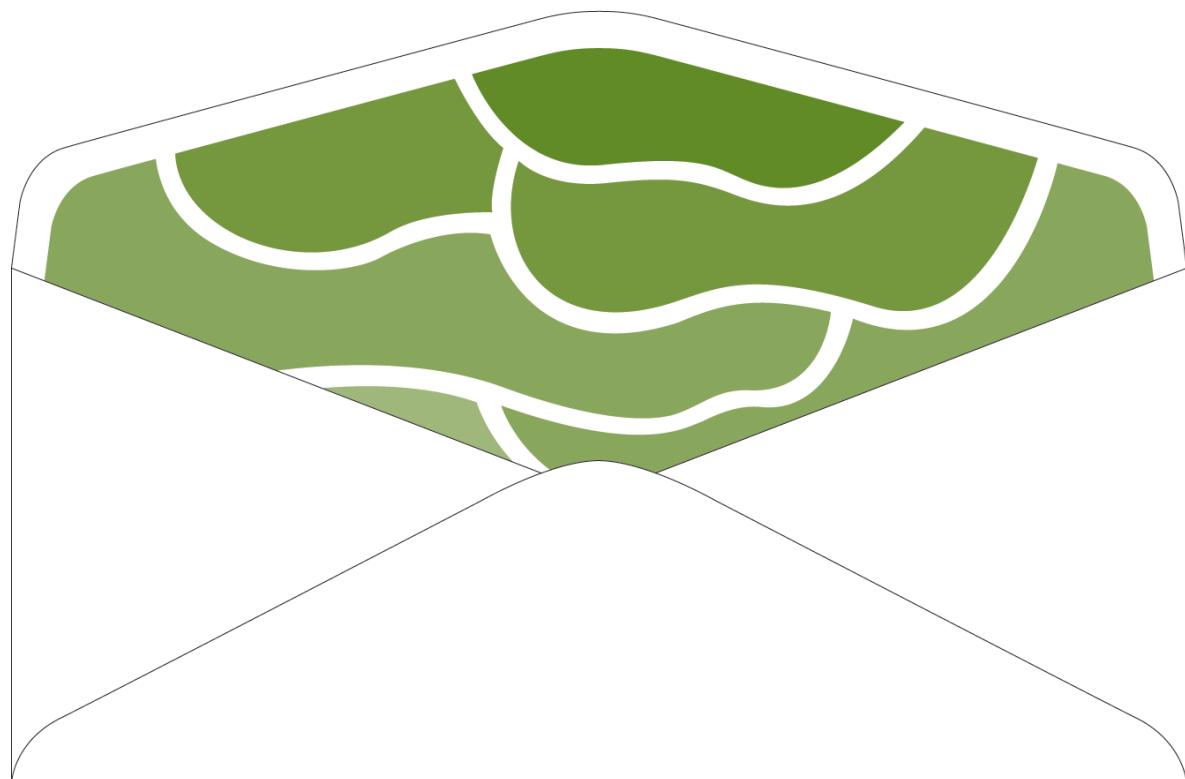
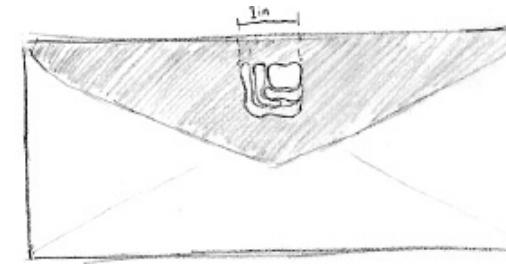
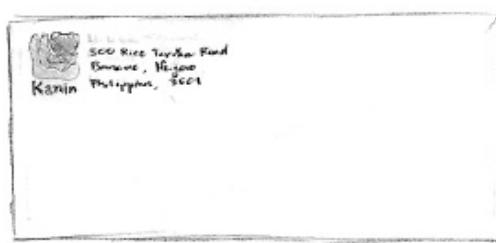
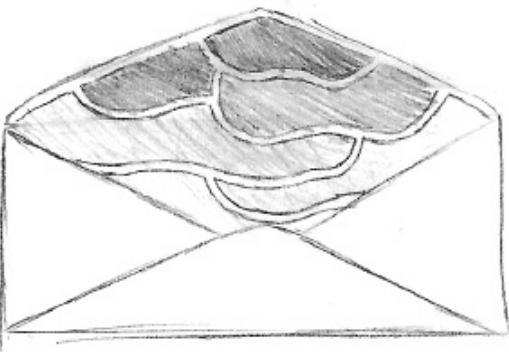
## Letterhead



For Kanin's business system, I wanted to keep the business card, envelope, and letterhead clean and simple while using the main green from the color palette to keep all three components consistent with the Kanin identity created from the logo.

For the business card, my sketches started off clean and simple just as I originally wanted by including the logo centered on the front and all the contact information centered on the back, both with a white background (Sketch #1). However, I continued the rice terrace forms that I started in my logo design process and carried it onto the business card (Sketch #2). Although this pattern wasn't the original "clean and simple" that I intended, I found the rice terrace pattern for the back of the card to effectively unify the business card to the identity of the product.

## Envelope



The rice terrace pattern from the back of the final business card design eventually became the overall motif for the other components of the business system.

# Baybayin

## Philippine Script



With Kanin being a product from the Philippines, I wanted promote a sense of cultural significance towards the Philippines through the graphic system of Kanin. One major issue that occurs within most marketing labels of products in the Philippines is the replacement of Philippine script with the Classic Latin Alphabet. Although rarely used now, there are still many records of the ancient Philippine Script, *Baybayin*, dating back to when it was last used in Philippines' pre-colonial period around the 19th century.

Making Baybayin more visible in the Philippines' present day culture —especially on labels and products that come from within the country— brings revival to an older aspect of Filipino culture and allows for the Philippines and its citizens to have a sense of ownership and nationalism towards their country's resources and products.

## Alternative Logo



This version of the logo features the same green leaf graphic on the left, followed by the word "KANIN" written in Baybayin script, which uses characters shaped like the rice grains from the original logo.

Three individual Baybayin characters are shown in green. From left to right, they represent the sounds 'ka', 'ni', and 'n'. Each character is composed of a series of curved lines forming a stylized letter shape.

(ka)

(ni)

(n)

An alternative version of the logo shown at left replaces the Kanin wordmark with the word for "rice" written in the ancient Philippine script called *Baybayin*. This alternative logo can be marketed towards the Philippine audience to promote Filipino culture and nationalism. The same logo applications and usage guidelines will apply towards this alternative logo.

When making the alternative Kanin logo, I adjusted the stroke widths of each characters similar to the stroke widths of Optima.

## Marketing Applications

### Delivery Vans



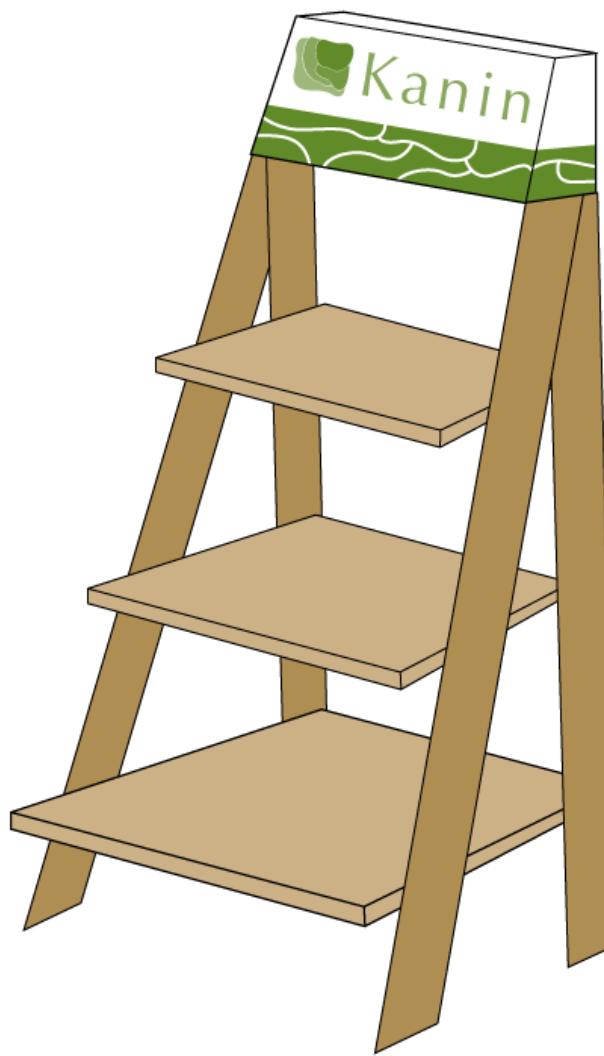
As a marketing application strategy, I took the rice terrace pattern that I created for my business system (i.e., business card and envelope) and applied them to the company's delivery van and billboard advertisements to further identity recognition.

These marketing applications would also have the alternative Baybayin logo option to promote the rice as a Philippine product.

### Billboards



## Shelf Display



## Utensils



More marketing strategies for Kanin involve in-store display applications. Along with displaying the rice terrace pattern from other applications, the shelf display further draws upon the idea of the rice terraces with its tier-like shelf formation. At the shelf displays, biodegradable utensils with the Kanin logo would also be available for customers who buy Kanin as an on-the-go meal.

# Packaging

## Creative Brief



### Needs

Most packaging for white rice comes in large paper or plastic bags that are not properly recycled or disposed of. With pollution being a major issue in the Philippines, the need for a sustainable form of packaging for white rice in which consumers can easily understand its sustainability properties is essential.

With current forms of packaging for white rice, consumers are also mostly exposed to buying rice in bulk packaging. Because of this, Philippine households tend to cook and eat rice in large amounts, also leading to wasting small amounts of rice. Packaging that promotes healthy serving amounts and reduced waste of white rice is also essential for approaching these issues.

### Project Objective

Kanin aims for sustainable packaging that promotes healthy serving sizes of Philippine white rice. With most of the Philippines relying on rice as a major food source, Kanin's packaging provides our customers healthy single-servings (1/4 cup) and easy package portability for rice consumption anywhere (e.g., home, school, work).

### Project Strategy

Kanin packaging will be small enough to hold a 1/4-cup serving of white rice. The packaging will be composed entirely out of biodegradable bagasse paper material to avoid issues of indisposable waste material or improperly recycled material. Each individual Kanin package will be flat boxes (roughly 0.5" H x 2.75" W x 3" L of shelf space). The top and bottom of the package will remain flat to allow for easy and space-efficient stackability of the product. While three of the box's sides will also remain flat, one side will be curved to emulate the form of the Philippine Rice Terraces. The front of the box will include a window made out of semi-transparent mulberry rice paper that allows the grains of rice to be seen by the customer. Because the package container will also be used as a measuring cup for water customers prepare the rice, the inside of the package will be lined with a biodegradable waterproof coating made from the pulp of sugar cane.

### Message

Kanin's packaging allows for our customers to eat healthy rice servings without any grain going to waste — including the sustainable package itself.

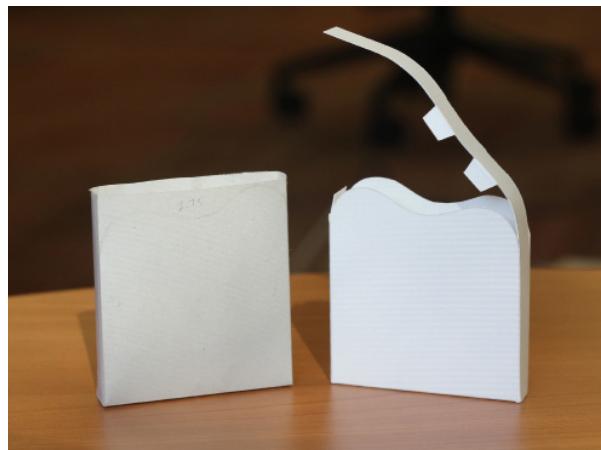
### Audience

Our primary target audience is middle-to-lower class citizens in the Philippines, specifically working citizens, families, and students. The minimal use of packaging material for our product as well as servings of the product will allow for affordability, even when buying the product in large quantities. Our secondary target audience is middle-to-lower class workers, families, students, and households in the international market.

## Layout



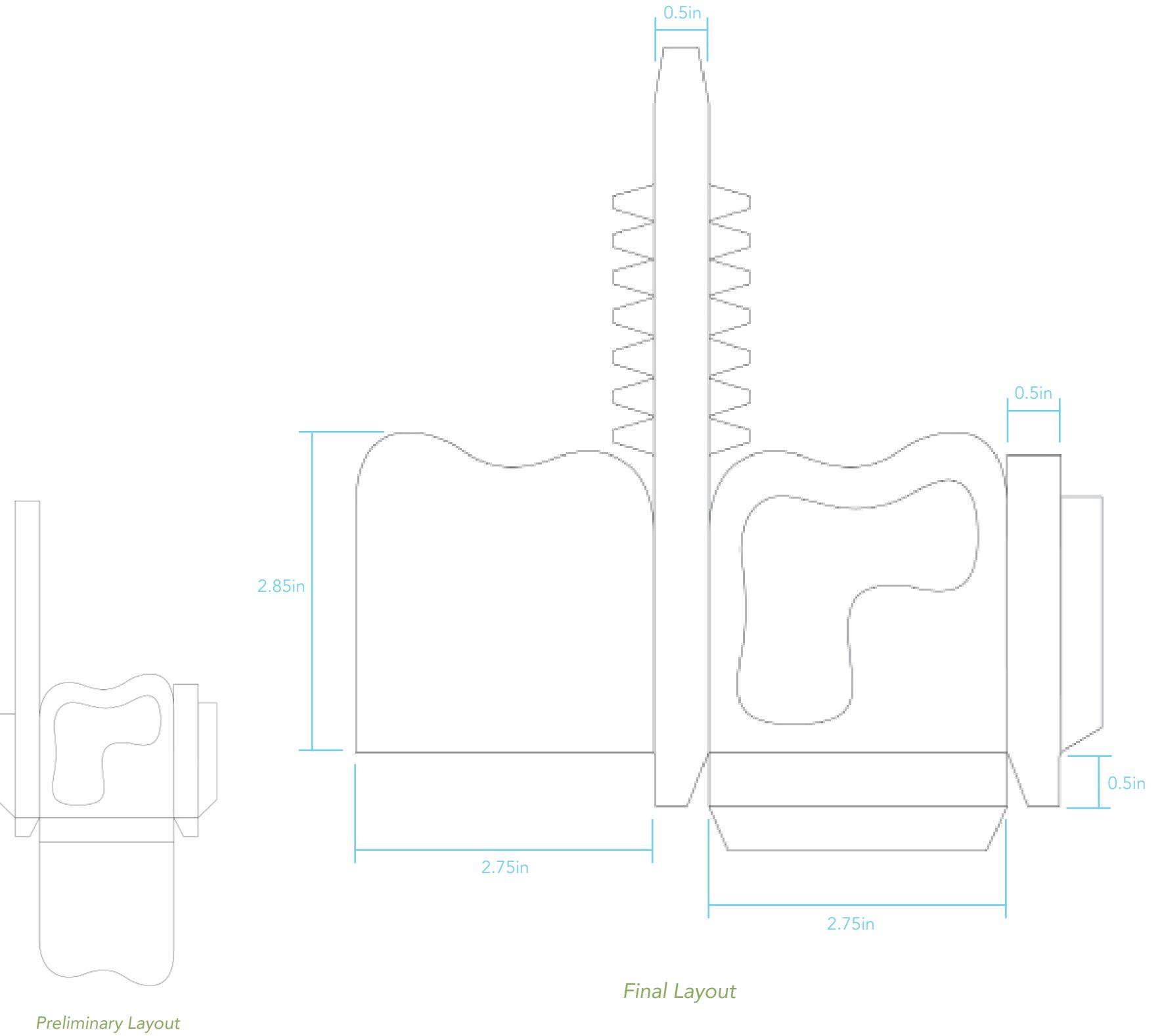
Newsprint Paper Prototypes



Bristol Board Prototype



Bristol Board Preliminary Layout



I started the packaging process by using newspaper print to create a general box shape that would be big enough to contain 1/4 cup of rice, resulting in a box with the dimensions of 2.75in x 3in x 0.5in.

From there, I created another box with the same dimensions using bristol board. The bristol board's sturdiness allowed for me to effectively create the curve that I wanted and to further test the material's durability in holding a 1/4 cup of rice.

After finalizing the curve and the overall form of the bristol board prototype, I then set a layout that I would use for efficient folding assembly of the final package. I started off with creating a vertical-oriented layout (*Preliminary Layout*), but there was difficulties in assembling the curved edge. After moving some of the folds around on the layout, the curved edge became easier to assemble with the horizontal-oriented layout (*Final Layout*).

The window on the front of the box takes on an organic form similar to that of the logo.

# Packaging

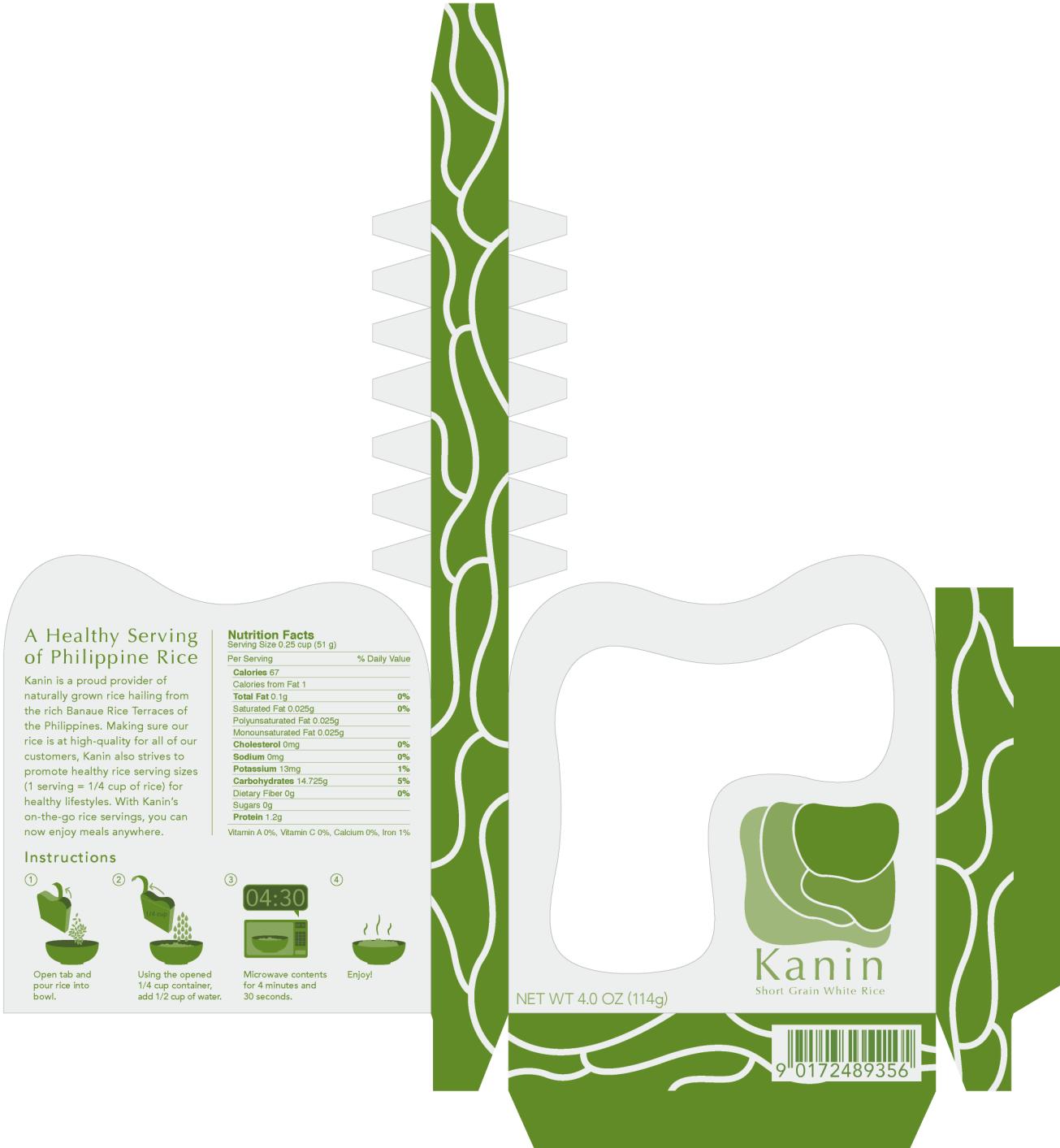
## Graphics

### A Healthy Serving of Philippine Rice

Kanin is a proud provider of naturally grown rice hailing from the rich Banaue Rice Terraces of the Philippines. Making sure our rice is at high-quality for all of our customers, Kanin also strives to promote healthy rice serving sizes (1 serving = 1/4 cup of rice) for healthy lifestyles. With Kanin's on-the-go rice servings, you can now enjoy meals anywhere.

#### Instructions

- ①  Open tab and pour rice into bowl.
- ②  Using the opened 1/4 cup container, add 1/2 cup of water.
- ③  Microwave contents for 4 minutes and 30 seconds.
- ④  Enjoy!



Like the business system, I wanted the packaging for Kanin to be simple and clean. However, I wanted to incorporate the rice terrace pattern that I've been repeating in the business system and the marketing applications. I decided to place the rice terrace pattern the side edges of the box so that it does not take up too much surface area but is still subtle enough.

Other than the gradation of the green in the logo, the main green on the package is Pantone P 158-16 C (100%), which includes the text and the rice terrace patterns on the side edges of the box.

The instructions on the back of the box incorporate pictograms that I illustrated that are intended to help the customer in preparing their rice.

The layout here displays the background color of the package as an off-white gray, simulating the color of the bagasse paper when the graphics are printed on the compostable material.

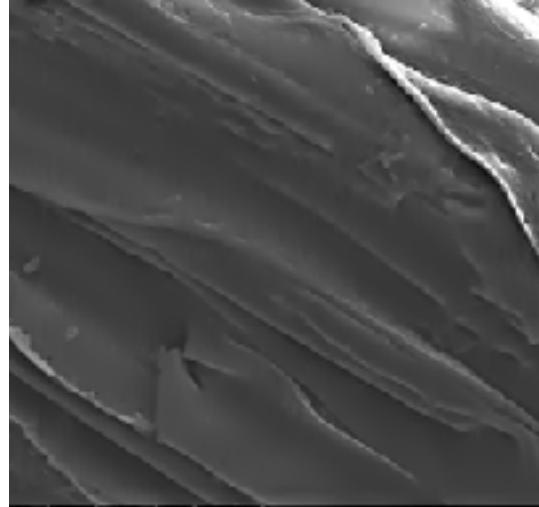
## Materials



Bagasse Paper



Rice Paper



Sugar Cane Lignin

### **Bagasse Paper (Box)**

Bagasse is a fibrous matter that remains after sugarcane and sorghum stalks are crushed to extract their juice. It produces pulp with physical properties that are well suited for generic printing and is widely used for boxes and newspaper production.

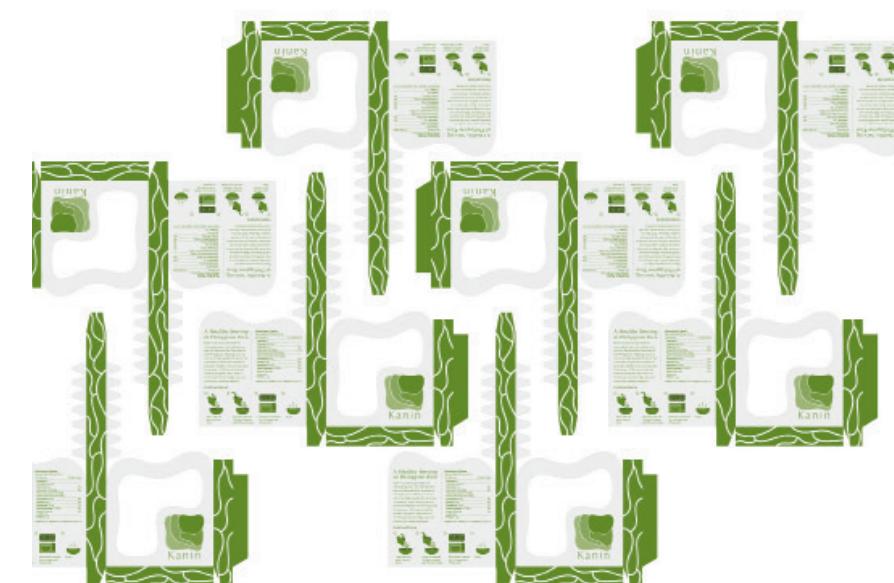
### **Rice Paper (Window)**

Rice paper can be processed from rice straw to produce a semi-transparent paper.

### **Sugar Cane Pulp Coating (Waterproof Lining)**

The pulp of sugar cane can be made into a biodegradable waterproof coating. The process involves removing the cellulose from the sugar cane and putting it through a fermentation process that preserves the lignin, which is the waterproof part of the cellulose. Lining the inside of the Kanin box with the sugar cane pulp coating allows for the container to serve as a water measuring cup for the rice.

## Printing



One issue that I took into consideration towards the packaging layout was its printing layout. To ensure that the greatest surface area of the bagasse paper is utilized, the way each layout is oriented onto the print in relation to other prints will reduce the amount of bagasse paper scraps that will result after cutting each print out. This allows for maximum number of layouts per print and minimize the amount of wasted bagasse paper in the printing process.

# Packaging

## Assembly & Final Package



For creating a simulated model of the packaging, I printed the layout on matte paper and manually cut out the layouts using an x-acto knife. Using double-sided tape, most of the craft was focused on correctly assembling the curved edge.

To simulate the rice paper window, I used regular tracing paper due to its similar semi-transparent qualities.

### Belly Band

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Although Kanin's packaging promotes single-servings of rice, customers can buy Kanin in packs of four that allows them to have healthy servings of rice throughout their day. Kanin four-packs would be bounded by a belly band, which is also from bagasse paper.

