

FNE10-683 Final Report

Marketing Analysis of New State Shaped Maple Candies

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The goal of my project was to design and make Rhode Island, Connecticut and Massachusetts shaped maple candy molds using new materials of FDA approved silicone rubber. Then, I was to do an analysis of how well they sell compared to traditional maple leaf candies. Finally, I needed to present my findings in a way that other maple syrup producers could utilize them.

My farm has changed some since I originally applied for this grant. My father passed away unexpectedly, and I had depended on him to run the sugar house and make retail sales. Now I've been forced to discontinue all retail business and concentrate on all wholesale sales. I even had to tear down the sugar house and move it to a different spot on my property. Luckily there is a demand for my Rhode Island shaped candies at farmers markets and stores. The 2010 maple crop was down a bit, but I still made 75% of a normal crop and compensated by raising my syrup prices 15%.

The 2011 crop started out looking bleak due to having a foot of snow on the ground. Because I use all buckets, I waited till all the snow melted before tapping. I also thought that I had missed half the season by waiting, so I tapped half as many trees just to make an effort. As it turned out, there were good temperature conditions for making syrup and I made a full crop any way.

I started a new project this year. I am planting six acres with sugar maples and white pine as a reforestation project with help from Natural Resources Conservation Service. They are paying me \$14,000.00 upon completion of the project in three years. This year, I've been spending a lot of my time clearing the land.

My collaborators also had reduced maple syrup production in 2010. Because my project covered multiple state shaped candies, it was necessary to have people in those states making molds and candies to collaborate my findings. Leon Ripley of Granville, Ma. has 3,600 taps and makes about five hundred gallons of syrup a year. Ten percent of his sales are in maple candy sold on the farm and at festivals. Rob LaMothe's Sugar house of Burlington, Ct. has 4,500 taps and makes an average of 1,000 gallons a year. He makes 20% of income from candy. Syrup and candy are sold on the internet, at the farm and at fairs and festivals.

My advisor Barbara Stetson and I got together and talked about what I wanted to do, how I was going to do it, and the different ways that it could be done. Initially, we talked for three hours. After I made several prototypes, we got together two more times to talk about the problems I was having. Barbara went over my final report, and aside from a few typos and grammar, she said it was fine.

I didn't start my project until June, 2010. That's when I had time to devote to the project. I started by finding an existing picture of each state. State road maps turned out to be my best resource. By trial and error, I made enlarged copies of each picture, first at 10% then 15% then 25%, trying to find the right size to fit into the candy box. Originally, I was going to have three different sized candies in three different sized boxes. When it came time to buy the boxes I was given a price break if I bought a full box of large candy boxes. I fixed the dilemma of having a medium size candy by not filling the large candy mold all the way to the top. I did have a problem with Massachusetts. It was disproportionate to the size of the box. I had to shorten the length to fit in the box; I don't think anybody will notice the difference. Once I had a picture of the state I wanted, I traced it on tracing paper than glued the tracing paper to a piece of poster board. I then cut out the shape of the state. Next, I used sculpey clay, which is clay that will stay hard after it has been baked in the oven. The clay will remain soft until it is baked. So as not to disturb the sculpture, I did the work right on a cookie sheet. To start, I used a rolling pin and two wooden dowels and parchment paper. Once I had the clay soft, I placed a piece of parchment paper on the cookie sheet, and then I put the clay on the paper with the wooden dowels parallel with each other and with clay in the middle. The dowels acted as a depth gauge when I use the rolling pin to flatten the clay on the parchment paper. I used dowels of a larger diameter to make thicker candies. Then, I took my state shaped poster board cut out and lay it on the clay. I cut the excess clay away from around the state shaped stencil. The sides of the shape should have a slight bevel to make it easier for the candy to release from the mold. For Rhode Island, I used a small flat headed dowel to press the clay down to accentuate the shape of the bay and the islands. To make the letters R I, I used a tapered dowel with a flattened end,

like a pencil, with the end broken off, to press into the clay. Massachusetts was done similarly to accentuate Cape Cod so that it wouldn't break off. I took the dowels off the cookie sheet and baked the sculpey in the oven. Once the sculpey clay had cooled sufficiently, I made a mold using equal amounts of Amazing Mold Putty part A and part B. It's not so crucial to be exact, so I just eyeballed it. I mixed the mold putty parts together until the putty was uniform in color. Then, I pressed the putty onto the clay sculpture on a flat surface, making sure to press it into the detail and getting the corners just right. I pressed the top flat so the mold, when upside down, sits level to pour the candy. I let it cure for half an hour. I repeatedly made ten molds of each size, large and small, of each of the three states. I then used Amazing Casting Resin, which is a two part liquid that, when mixed together in equal amounts and poured into the molds, will cure into a solid as an exact replica of the candy. I repeated this until I had one hundred pieces of each size and shape.

When I spoke to my collaborators to let them know that I had resin casts and molds for them to experiment with, they informed me that they don't make candy in the summer because it melts in the heat. In late August, I drove to their houses to demonstrate how to make their own molds. I left ten boxes of mold making putty with each of them. I waited a month before contacting them again. After giving the material to each of my collaborators, one backed out saying it was more work than what he was willing to do. I found a last minute replacement that was eager to help. I found out that even though I had talked to the men who owned their farms, it was their wives who did most of the work. I still ended up making several molds for everybody anyway.

In November, the Maple Syrup Producers Association of Connecticut had their fall meeting. I offered to speak to them about my findings of my SARE project. The president wasn't looking for any speakers; he already had one lined up. He allowed me only a minute to speak during announcements, but I was given a table in the commercial area to distribute my resin casts along with individual instructions. I thought that one-on-one with anyone interested was probably better any way. They had a record turnout of members that day and I passed out all my resin casts. I even had my picture taken for The Maple News, which was published in New York State and circulated throughout the maple producing region.

In January, the Massachusetts Maple Producers Association had their winter meeting and I received the same response. I was just given a table to pass out my resin casts of Massachusetts. I did talk with the chairman of the North American Maple Research Committee,

Mike Girard. He was very interested in my project and wondered why nobody had thought of it sooner. When I was researching my proposal I called the maple specialist in Maine, Kathy Hopkins, and she showed an interest in what I was trying to do. Then, I found out she would be the speaker at the meeting so I made a Maine shaped sculpture and made a mold and gave it to her to use in Maine. We'll see what happens.

The results of selling the state shaped candies have been mixed and unexpected. The first problem was white spots on the finished candy. Maple candy can get white spots and the causes are not known for sure. Some say high humidity could cause spots, but rather than throw it away we would sell it as is. My project proposal stated that the candy would be marketed in white candy boxes, two little candies in a small box or a large candy in a large box. The box itself seems to be restricting the sale. The box doesn't say anything to indicate that the candy inside is special. I need to work on the presentation a little bit more. I tried selling the candy in plastic bags with a paper tag. I found out that you can't use staples to hold the tag on and had to purchase a plastic bag heat sealer and then glue on the tag, which didn't look that great either. The last observation made is that people are cheap. The small state shaped candies weigh more than the maple leaf candies and people were buying mostly based on price. First the two dollar candy would sell out, then the three dollar candy would sell out and so on until all the candy was gone. My collaborators were including the state shapes as the centerpiece in larger boxes of candy, and that went over well. Sales were up for Christmas. They sold all the candy they had made and could have sold more had they had it.

Production of the candy had its own problems. The candy molds had to be made one at a time and poured as individuals, some of which didn't sit level. This made making large quantities of candy difficult. I've since found a different manufacturer of a liquid silicone rubber. I spoke to the owner on the phone the other day and explained my need to make a multi cavity sheet mold. He said I stumped him because nobody had ever asked him how to make a multi-cavity mold. It took him a few minutes but he made a suggestion as to how to go about doing it. He said that I had an original idea and that he was going to make a "how to" video for his web site. I said that's just fine; just mention my name as to how you got the idea. "Oh no, I'm going to say it was my idea", he said. I said "fine".

My project was officially over, but I still wasn't satisfied with the results. I decided to try again with the liquid Silicone. The first hurdle was that it cost more, \$25.00 per pound plus shipping and I had to use more of it to make a sheet of molds. I had to make a box to support the liquid

as it cured. I tried a cardboard box but it didn't work. What I eventually settled on was a plastic storage container six inches by ten inches. The resin that I used to make the individual state shapes would stick to itself. To make a mold with fifteen cavities, I first poured a layer of resin in the bottom of the plastic container. This gave me a level surface to start my mold. Then I positioned the individual state shapes in the container to get them as close as possible without touching, just like you would lay out tile before grouting. Then, with a small amount of resin mixed up but not solidified yet, I used it like glue. I picked up each state shape from the container, dipped the bottom in the resin, and reset it in the container before it solidified. There is only a one minute of time to work with the resin after it has been mixed before it will solidify. It was necessary to make several small batches. This is how you make a positive multi-mold sheet so that you can make a negative multi-mold sheet.

The next step to make the multi cavity mold was to mix up a small amount of liquid silicone called Copyflex. Using a disposable paint brush, I painted the liquid silicone on each of the state shapes pushing the liquid into all of the small detailed areas. This is called the print coat because this is the layer that will make the actual candy shape. Then, I mixed up a larger batch and filled up the plastic container a quarter of an inch higher than the highest shape. I waited five hours before de-molding. Getting the rubber mold out of the plastic container can be difficult. You have to twist, pry, and push to release the suction. The resin base may come out first but that's ok it'll make it easier to peel the mold off the resin cast. The fifteen cavity mold that I made of CT cost about thirty dollars, not counting labor.

The economics of making your own state shaped molds is risky. If you're making money selling maple candy now, then adding your state shaped candy mold to your inventory of molds is a good idea. You'll make more money. If you're not making maple candy yet but hope to do so eventually, start off with the maple leaves first. The cost of the investment of homemade candy molds is high compared to the potential profit. Molds made from the putty are the cheapest. For about thirty dollars you can make a dozen molds. To make larger quantities with the liquid mold making material will require a minimum investment of about \$300.00.

I will not be expanding my own candy making business at present. I have too many other projects that I want to start. I hope my daughter or my wife will pick up where I left off and they will have my full support. In the future, it may be feasible to have natural rubber molds made into state shapes if the state associations wanted to pool their orders as a group effort.

Material List to make a sculpture

Sculpey oven baked clay Craft Department Purchase at Walmart \$6.00

Cookie Sheet, Parchment Paper, Rolling Pin

Variety of different sized dowels two - six inches long

Material to make molds

Amazing Mold Putty Purchase at Michaels Craft Store Ask a clerk, otherwise you won't find it

Amazing Casting Resin Order on line at www.amazingmoldputty.com How to video at site

Copy flex Liquid Silicone Order on line at www.makeyourownmolds.com How to video at site