

CHOCOSOL: An experience of producing joy without generating malice

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Topics addressed:

Packaging, local and international marketing

Introduction

Chocosol was born of a search for applications for the “Fuego Solar” (Solar Fire), but with time it became a project in its own right. Its slogan, “We produce joy without generating malice,” sums up the cooperative’s philosophy. Its goals always looked to establish networks of fair trade, innovations in appropriate technologies, and recycling of someone else’s garbage. The cooperative also sought to reclaim traditional technologies, and to manage scales that would guarantee its sustainability without having to turn to mass-production. Eventually this eco-company came to benefit more than 15 people.



The Fuego Solar can roast, cook and heat using different tools

Process development: A story of experiences

Background

The technology that we used consisted in the “Fuego Solar”, developed by specialists in alternative technology. It is comprised of a large wall of 52 mirrors, cut and pasted in such a way that they reflect and concentrate rays of sunlight in a focal point that measures one square foot. On a sunny day the focal point reaches a temperature of more than 900 °C in a matter of seconds. The Fuego solar can be used to roast grains, but also to cook, bake, grill, or boil water, depending on the design of piece that is placed behind the ceramic glass of the focal point. We came to process some 160 kg of cacao, 67.5 kg of peanuts, 70 kg of sugar and 9 kg of amaranth each year. This yielded some 220 kg of our signature chocolate called “Oaxacan Crunch”, 27 kg of dark chocolate and approximately 10 kg of pure baking chocolate yearly.

Project

The first step in the process, after acquiring local organically produced ingredients, was to roast the cacao and peanuts in the solar roaster. Secondly, the paper-like shell had to be peeled from the cacao nib. Recycling different kinds of containers, we attempted to design a tool for peeling the cacao. The prototypes were, however, insufficient, because too much cacao was lost and bits of shell remained in the clean cacao. We finally opted for peeling by hand, feeling

that it was allowed us to carefully select the best beans. Because it was also the slowest way to peel, we decided to reduce the aims of our scale of production to 13 kilograms of chocolate per batch. The third step was to grind the ingredients. The sugar was milled in a stone metate, a traditional grinding stone made of volcanic rock, while the cacao and peanuts were milled in a bici-molino, or bicycle-powered mill. This innovative design adapts a manual mill to the chain ring mechanism of a bicycle, and allowed us to mill some 15 kg of grain an hour while realizing healthy aerobic exercise. The technology of this and other bicycle machines was brought to Oaxaca from Guatemala by technicians with great experience, and is currently developed there in CACITA, (*Centro Autónomo para la Creación Intercultural de Tecnologías Apropriadas*). Next, all ingredients were ground together in an electric mill, and the resulting chocolate was “conched” in a solar pot called the “Hot Pot”. This consists in a black pewter pan inside a topped glass pot surrounded by seven screens of metal panels that direct the sun’s rays toward the pot.



Molding with Hot Pot

The texture of a good chocolate depends, in large part, on the length of time it is conched. With the solar pot, it was possible to prolong this process for some 8 hours or more, since the solar pot maintains the product hot for awhile after taking it out of the sun, and can maintain its liquid state if constantly stirred. After conching, we poured the chocolate into molds made of recycled PET bottles and cut-and-stapled tetrapak containers, making 200g bars that were then chilled in a freezer. Tetrapak also served to make trays for the maneuvering the chocolates in this phase of production.

Conclusion

The packaging was always a limiting factor. Looking for a package that would not generate garbage, we tried using brown paper, wax paper, and corn husks. As all of these presentations proved very delicate, it was difficult to commercialize Chocosol outside of the city of Oaxaca. Unfortunately, competition from industrialized products, costs of production, the wrapping that limited commercialization and the varied social conflicts that affected Oaxaca in recent years, forced the members of the cooperative to abandon the project in order to look for other means of subsistence, expecting the right moment to retake it.

In our process, we thought in make other products using the Chocosol infrastructure, like soap and peanut butter, but by the moment, we need to do more experiments about it.

Chocosol is an unregistered brand, which identifies itself as “Copy Left”, a system within which whomever shares the idea can use the name and logo of the brand, under the sole condition that solar reflectors are used for roasting the grains. One example, “Chocosol Toronto”, in Canada, is an establishment where different kinds of chocolate are made of cacao imported from the state of Chiapas, Mexico, which is roasted with a “Fuego Solar”.



Roasted cacao beans