

Beers, Bars, and Powders: Exploring US Market Potential for Ramón Seed

Collin Motschke

M.S. Student

Natural Resources Science and Management

University of Minnesota

October 2019

Introduction:

Situated in northern Guatemala, the 5 million-acre Maya Biosphere Reserve (MBR) is the second largest tropical rainforest in the western hemisphere (Nittler and Tschinkel, 2005). Established in 1990 with a vision of balancing human activities and resource conservation, the MBR is home to a rich diversity of plant and animal life and numerous Maya ruins. The management structure of the MBR also boasts a uniquely high degree of diversity. Some areas of the MBR are protected (e.g. national parks and wildlife preserves), and thus prohibit settlement and extractive industries, while others (referred to as multiple-use zones) permit residence by forest communities and the sustainable harvest of timber and non-timber forest products (Tejada, 2011).

Many of the people that live within the MBR are members of forestry concessions. At the end of Guatemala's civil war in 1996, the Guatemalan government (via Guatemala's Council of Protected Areas, CONAP) granted nine communities the right to sustainably harvest products from the MBR for a period of 25 years ("The Secret to Stopping Deforestation in Guatemala," 2018). Since the establishment of the concessions, the most common forest products have included big-leaf mahogany, Spanish cedar, chicle gum, allspice, and xate palm.

Starting in 2000, local operators and managers of the MBR, including the Rainforest Alliance (RA), began collaborating with the University of Minnesota's (UMN) Center for Integrated Natural Resources and Agricultural Management (CINRAM). The focus of the early research related to the value chain development and livelihood impacts of xate palm harvesting and other market-based solutions to promote conservation. Over a decade later, in an effort of diversify the concessions' product offering, CINRAM and the UMN's Master's of Development Practice (MDP) program began to shift its focus to another non-timber forest product called ramón.

Once a staple food crop of the Maya civilization, ramón is the seed of an abundant, naturally occurring canopy tree called *Brosimum alicastrum*. The seed has been found to contain a variety of nutrients including fiber, calcium, potassium, folic acid, iron, zinc, protein, and Vitamin B (Puleston, 1982). Most commonly, ramón seeds are dried, roasted, and ground and then used as a gluten-free flour substitute and/or complement in baked goods or as a caffeine-free coffee alternative.

Background:

To date, most UMN research has focused on the processes, perspectives, organizational structures, and finances of ramón seed producers in the MBR (Zetina, 2011; Current, Getahun, Molina, and Molloy 2013; Aleman, Osborne, Villarraga 2016, Raasch, Zumba-Deleg, and Becker 2017). Many of these studies have mentioned and recommended further study of potential market pathways for ramón seed in the United States' natural foods industry. The present study intended to contribute to this area of need by addressing the following questions:

- What are the estimated awareness and interest levels of ramón seed in targeted U.S. foods markets (snack bar, gluten-free flour, and superfood powder)?
- How do current ramón seed prices compare to similar products in the targeted markets?
- What are the primary barriers to adoption/purchase of ramón seed?
- What attributes of ramón seed (e.g. nutritional profile, historical significance, production narrative, environmental benefits) are most important to the targeted markets?
- How can producers improve ramón seed's likelihood of adoption in the U.S. market?

Furthermore, the study aimed to achieve the following objectives:

- Offer usable market insights and recommendations to the RA and Comité de Ramón

- Inform key players in targeted markets about ramón seed
- Identify potential improvement areas in existing ramón seed supply chain
- Encourage potential clients to conduct product testing with ramón seed
- Generate sales leads for Teccino, the California-based importer and distributor of ramón seed.

Methods:

Employing a combination of literature reviews, interviews with ramón seed suppliers, conversations with key stakeholders in targeted markets, retail price evaluations, and assistance from UMN instructors and students, this study revealed rich information related to ramón's market potential in the US food market.

The methods employed in this study were unconventional and opportunistic rather than empirical. I.e., the activities and the approaches more closely aligned with those of a salesperson than a graduate student. Each time a new market was discovered or recommended, stakeholders within that market (usually product developers at food companies) would be sought out and contacted to learn more about what they look for when adopting new ingredients (e.g. nutritional attributes, price, social/environmental benefits, product story) and how ramón may fit into their future product offering.

Because of the ad hoc nature of this study, it is most effective to describe the efforts chronologically. This report is divided into four phases, each phase building on the one before it.

Phase I – Natural Products Expo West 2018 and Beer Beginnings

This study began by reviewing reports prepared by MDP groups that traveled to Guatemala in 2016 and 2017. The reports not only outlined the UMN's most recent ramón-related projects, they also provided critical insight into ramón's existing value chain.

Shortly after, Caroline MacDougall, the founder and CEO of Teccino, a California-based maker of coffee alternatives, importer of ramón, and longtime partner of the RA, was contacted. Caroline has decades of experience working with and promoting ramón in the U.S. and therefore possessed information that was essential to this study. The meeting centered on the core problems with ramón in the U.S. market. Firstly, Caroline said that ramón is very expensive as compared to most other gluten-free flours. She emphasized the importance of seeking out niche, premium-priced markets. Secondly, she mentioned the fundamental problem that U.S. consumers don't know what ramón is. In response, she recommended that UMN researchers enlist the help of marketing, public relations, and/or journalism students to promote ramón and increase consumer awareness. To further develop this idea, she suggested that the students focus on the product story (i.e. history and social and environmental benefits) of ramón. Lastly, Caroline said that ramón's inconsistent supply was an important issue that needed to be resolved before it can be a viable product in the U.S. market. This sentiment was informed by an experience wherein Teccino's order was unfulfilled due to a host of supply-side problems.

After outlining a few of the problems related to ramón, Caroline suggested that UMN researchers and ramón producers attend the 2018 Natural Products Expo West in Anaheim, California, which is the world's largest natural, organic, and health products event. She said that it would provide an opportunity for UMN researchers to discuss product development processes and the integration of ramón seed with high-potential clients.

Prior to attending Expo West, the UMN research team, with the help of Lindsay Wilson, a sustainable enterprise research consultant, compiled a list of and contacted Expo attendees that had perceived potential interest in ramón. Gluten-free flour producers, snack and energy bar manufacturers, and spice and herb importers were prioritized. Additionally, two informational pamphlets were developed to deliver to prospective ramón buyers.

Concurrent with pre-Expo West planning, the MDP Program Director, Dr. Dave Wilsey, received a Mini Grant from the UMN's Institute on the Environment to collaborate with Urban Growler Brewing Company to brew a ramón-infused beer. The hope was to increase local consumer awareness of ramón and pilot test the viability of integrating ramón into the ever-expanding craft brewery market. Urban Growler founders Deb Loch and Jill Pavlak were supportive of the idea and proceeded to develop a few of beer varieties with ramón.

In early March 2018, UMN researchers Dr. Dean Current, Dr. Dave Wilsey, and Collin Motschke, along with RA NTFP Coordinator, Juan Trujillo, and NTFP Manager of ACOFOP (Association of Forest Communities in Petén), Julio Madrid, attended Expo West. There were three primary Expo West objectives:

- 1) Meet with strategic partners (i.e. Teeccino and Cafinter S.A. [ramón exporter based in Cobán, Guatemala]) to discuss existing issues and potential solutions related to the ramón seed supply chain
A key takeaway from the Teeccino and Cafinter S.A. meetings related to ramón's high cost. Teeccino and Cafinter S.A. inquired about potential ways to decrease costs. Cafinter S.A. requested to receive raw seeds, rather than dried seeds, as the cost of raw seeds is lower and they are capable of drying the product themselves.
- 2) Execute prearranged meetings with targeted vendors to explore needs and discuss potentiality of future commercial relationships
Prearranged meetings with the following companies Patagonia Provisions and Gaia Herbs were executed. Both companies expressed interest in ramón, but did not have immediate plans to begin product testing. Follow-up correspondence with these companies is discussed in Phase IV.
- 3) Seek out and talk to expo exhibitors with product lines and/or value propositions that are consistent with ramón, in hopes of establishing future commercial relationships
The two most promising prospects were The Best Bar Ever and Nature's Bakery. Follow-up correspondence with these companies is discussed in Phase IV.

Upon returning from Expo West, the UMN researchers and ramón producers hosted an event to launch Urban Growler's ramón beer varieties. Attendees were primarily comprised of MDP students, UMN faculty and staff, and a few international forestry stakeholders (e.g. Corey Brinkema, President of Forest Stewardship Council – U.S.).

Phase II – Guatemala Trip 2018

In late June 2018, Dean Current and Collin Motschke traveled to northern Guatemala (Flores, San Benito, and Uaxactún) to meet with colleagues from the RA, ACOFOP, El Comité de Ramón, and El Comité de Xate. The trip provided supply-side context, enriched relationships with ramón producers, and afforded UMN researchers an opportunity to explain their U.S. market research pursuits. A particularly noteworthy meeting involved RA ecologists Manuel Mazanero Cano y César Mendoza, who have been conducting production research on ramón, i.e. how much ramón is available in the concessions and what factors may be driving fluctuations in fruiting times and quantities. These findings will be critical once commercial relationships are established, as buyers will need to know how much product can realistically be delivered without harming the ecosystem.

The UMN researchers and RA members then returned to Guatemala City to meet with Nicolás Cofiño, the Innovation Manager of Cevecería Centro Americana S.A., maker of Guatemala's macro-brew, Gallo. Nicolás expressed interest in integrating ramón into a craft beer via its newly established microbrewery called El Zapote Brewing Company. Nicolás also requested the assistance of Urban Growler's Deb Lock and Jill Pavlak to help develop a recipe and production process, due to their recent success with the creation of ramón-infused beers.

Nicolás concluded the meeting by putting the UMN researchers in contact with his colleagues at Central de Alimentos S.A., the food-based subsidiary of Cevecería Centro Americana S.A and manufacturer of many well-known Guatemalan products including Incaparina, Gran Día, Señorial, Del Monte, Protemas, NEF, MASECA, Australian, and Naú. In August, the research team connected with two associates at Central de Alimentos S.A. to discuss the possibility of adding ramón to snacks and cereals.

Firstly, Diana Sánchez, the New Products Manager was contacted. Diane indicated that her primary responsibility is to seek out and establish commercial relationships with small-scale food producers that would be willing to distribute their products via Central de Alimentos S.A. Diana inquired about ANSA (a Flores-based food manufacturer that has multiple ramón products and close ties with the RA and UMN); more specifically, she asked about ANSA's factory location, production capacity, hygienic certifications, and the quality of the ramón cookies they produce. After learning of ANSA's

relatively small size and low production capacity, Diana determined that Central de Alimentos S.A. would not be a suitable partner, as they target producers that are capable of producing mass-market foods.

Diane then connected the research team with Adolfo Viallato, the Research and Development Manager at Central de Alimentos S.A, who is in charge of raw material product testing and determining if ingredients can be feasibly integrated into new or existing products. Adolfo explained Central de Alimentos S.A.’s product testing process and then stated that he had tested ramón powder approximately five years prior. Due to its unusual taste (simultaneously bitter and sweet), inconsistent availability, and high costs, Adolfo and his team concluded that ramón would not be a viable product for Central de Alimentos S.A. However, Adolfo acknowledged that he was attracted to the production narrative and the environmental and social benefits of ramón, thus indicating possible considerations in the future.

Phase III – Retail Price Evaluations

In the next phase of the analysis, the price of ramón seed was compared with the prices of similar products in targeted markets. As mentioned above, one of ramón’s most common applications is as a gluten-free flour substitute and/or complement in baked goods. Thus, in the first evaluation, the retail price of one pound of ramón seed flour (USDA organic certified) was compared against one pound of other common types of organic flours, most of which are gluten-free (GF). See Table 1 for results. The prices listed in the chart were calculated by averaging prices obtained from a variety of online retailers (e.g Amazon, Thrive Market).

Organic Flour Type	Average Price (per lb)	% Change
All Purpose White (Unbleached)	\$ 1.75	681%
Whole Wheat	\$ 1.79	663%
Tapioca (GF)	\$ 3.27	318%
Corn (GF)	\$ 3.31	313%
Brown Rice (GF)	\$ 3.59	281%
Buckwheat (GF)	\$ 3.66	273%
Oat Flour (GF)	\$ 4.19	226%
Sorghum (GF)	\$ 4.97	175%
Cassava (GF)	\$ 5.45	151%
Coconut (GF)	\$ 5.51	148%
Quinoa (GF)	\$ 7.01	95%
Chickpea (GF)	\$ 8.54	60%
Almond - NOT ORGANIC - (GF)	\$ 9.80	39%
Ramon (GF)	\$ 13.66	

Table 1: Retail Price Evaluation of Organic Flour Types

As indicated above, a pound of ramón seed flour is markedly more expensive (39%-681%) than a pound of other organic flours. Though derivation of the prices was non-empirical and despite the use of retail rather than wholesale prices, the above results provide evidence that organic ramón seed flour is not cost-competitive with other products in this market.

Informed by this finding, the research team pivoted to another market and performed a similar retail price evaluation. This time, a pound of organic ramón seed powder (i.e. flour) was compared against a pound of other types of organic superfood powders. A superfood is a product that is rich in compounds (e.g. antioxidants, fiber, fatty acids) that are considered beneficial to human health. Currently, many of the most common superfood types are considered exotic, or not of U.S. origin. Superfood powders are most often used as a dietary supplement or are added to other foods to improve a meal’s overall nutritional value. Ramón seed meets the requirements of a superfood and can therefore be compared to other products in the market. Table 2 contains the results of the retail price evaluation of superfood powders. Similar to the evaluation of organic prices, the prices listed in the chart were calculated by averaging prices obtained from a variety of online retailers (e.g Amazon, Thrive Market).

Superfood Powder Type	Average Price (per lb)	% Change
Açaí (fruit)	\$ 60.98	-78%
Camu camu (fruit)	\$ 59.72	-77%
Chlorella (algae)	\$ 48.69	-72%
Spirulina (cyanobacteria)	\$ 40.28	-66%
Boabab (fruit)	\$ 35.60	-62%
Moringa (leaf)	\$ 33.85	-60%
Maca (root)	\$ 25.97	-47%
Lucuma (fruit)	\$ 22.91	-40%
Hemp (seed)	\$ 20.77	-34%
Chia (seed)	\$ 18.34	-26%
Tumeric (flowering plant)	\$ 17.77	-23%
Cocoa (seed)	\$ 16.49	-17%
Ramon (seed)	\$ 13.66	
Flax (seed)	\$ 8.59	59%

Table 2: Retail Price Evaluation of Organic Superfood Powder Types

The above results suggest that the retail price of a pound of ramón seed powder is remarkably cheaper (between 17% and 78%) than most other products in the organic superfood powder market. Ramón seed’s cost-competitive nature in this market deserves further study.

So far, the following superfood powder companies have been contacted and will require follow-up.

Company Name	Webpage	Status	Next Step
Metabolic Response Modifiers (MRM)	https://mrm-usa.com/	Contacted; sample requested, sample sent	Follow-Up
Terrasoul Superfoods	https://www.terrasoul.com/	Contacted; response received; message forwarded to sourcing team	Follow-Up
Swanson Health Products	https://www.swansonvitamins.com/	Contacted; response received; message forward to correct department	Follow-Up
Navitas Organics	https://www.navitasorganics.com/home	Contacted; response received; no immediate plans to move forward with ramón.	Follow-Up
BareOrganics Superfoods	https://bareorganics.com/	Contacted; no response	Follow-Up
California Gold	https://www.iherb.com/c/california-gold-nutrition	Contacted; no response	Follow-Up

Organic Traditions	https://organictraditions.com/us/?SID=o1c7ljfq3tm9p3m3u410ucr087	Contacted; no response	Follow-Up
Sunfood	https://www.sunfood.com/	Contacted; no response	Follow-Up
Foods Alive	https://foodsalive.com/collections/superfoods	Contacted; no response	Follow-Up

Table 3: Superfood Powder Commercial Activities

Phase IV – High-Potential Clients

Throughout this analysis, relationships with prospective ramón buyers were fostered. This section details the correspondence with these high-potential ramón prospects.

The Best Bar Ever – Nature’s Bounty

Best Bar Ever – Nature’s Bounty is a producer of protein bars. UMN researchers originally met and delivered a ramón sample to The Best Bar Ever’s Product Development Manager, Shane French, at Expo West in spring 2018. By August 2018, Shane French had carried out product tests with roasted ramón flour. He appreciated ramón’s high fiber content and believed it would pair nicely with chia and flax seeds. He also said that ramón would be a nice addition to a chocolate bar, although Best Bar Ever did not have immediate plans to develop a chocolate bar, at least until mid-2019. He later indicated that he wanted to conduct product tests with raw, non-roasted ramón. Because Teeccino did not have this product in stock, it was requested directly from the Rainforest Alliance. Due to importation difficulties including approval from CONAP (Guatemala’s National Council of Protected Areas) and the need for a phytosanitary certificate, direct dispatch of raw, non-roasted ramón was not possible. Despite these complications, Best Bar Ever should continue to be a prospective buyer of ramón, as Shane French has been responsive and has retained a relatively high level of interest since spring 2018.

Nature’s Bakery

Nature’s Bakery is a maker of soft-baked snacks (primarily snack bars). UMN researchers and RA members connected with and delivered a ramón sample to Tony Castro, Materials Manager at Nature’s Bakery, while attending Expo West 2018. Tony expressed immediate interest in ramón and quickly requested a price quote for 100lbs of ramón flour for product testing. He also requested a price quote for 250lbs of ramón flour for subsequent purchase. After a few months without word from Tony, Dean and Collin scheduled a phone call. Tony said that Nature’s Bakery had made a cookie and bar with ramón, but ultimately determined that the price of ramón was too high and would elevate the price of their finished products to an uncompetitive level. He further explained that, through their supplier, General Mills, Nature’s Bakery pays 16 to 45 cents per pound for most types of flour, which is far below ramón’s current price point. Tony concluded by noting that Nature’s Bakery produces affordable, mass-produced packaged goods, not premium, high-priced goods. Thus, as a result of ramón’s high price and developing supply-side infrastructure, Nature Bakery is not currently interested in adopting ramón.

Patagonia Provisions

Patagonia Provisions is a food-based subsidiary of retailer, Patagonia, Inc. that offers of variety of products including seafood, soups, beer, and snacks. The research team first met with and delivered a ramón sample to members of Patagonia Provisions at Expo West 2018. Our primary contact, Kai Hinson, Product and Sourcing Manager at Patagonia Provisions, expressed immediate interest in ramón, particularly for its historical significance and product story. She also indicated that Patagonia Provisions is accustomed to working with small-scale producers and relatively young supply chains. She said that Patagonia Provisions has a long queue of products that would take priority over ramón, but was open to future contact. In August 2018, Kai was contacted again to reevaluate the feasibility of ramón product testing. She reiterated that there are pre-existing products queued and could not move forward with ramón at that time. Given Kai’s interest in ramón, experience with small-scale producers, and Patagonia Provisions’ emphasis on ethically sourced products with environmental benefits, this company should remain a high-priority prospective client for UMN researchers and RA members.

Gaia Herbs

Gaia Herbs is a maker of plant-based herbal supplements. Similar to the abovementioned companies, the research team first met with and delivered a ramón sample to Gaia Herbs while attending Expo West 2018. Gaia Herb's Sustainability and Social Impact Manager, Alison Czczuga, agreed to meet with the research team, was remarkably enthusiastic about ramón, and requested future contact. Through follow-up correspondence, it was determined that both Alison and the product developer (a key figure in deciding whether to begin ramón product testing), were new to the company and thus had limited influence and knowledge of Gaia Herb's product development process. That said, Alison stated that product efficacy, taste, and story were priorities, therefore making ramón an attractive candidate. Due to these factors, Alison's demonstrated interest, and her presumed expanded influence at Gaia Herbs, this company should continue to be considered a high-potential ramón buyer.

Dharma Trading Post - Gualala Roast

Dharma Trading Post is a maker of an Aryurvedic alternative coffee drink called Gaulala Roast that is comprised primarily of ramón seed. The company is a direct competitor of Teeccino. Victor Briere of Dharma Trading Post originally contacted former MDP student, María Camila Villaraga, to learn more about the UMN's work with ramón and to evaluate the possibility of sourcing ramón from the MBR's forestry concessions via the Rainforest Alliance. Victor's interest waned when he learned that the ramón seed offered through the Rainforest Alliance was the same product that was included in Teeccino's beverages. Despite this, he was interested in conducting product tests to determine if he could modify the ramón flavor enough to differentiate it from Teeccino. He requested a ramón price quote, but insisted that the sale be direct with the Rainforest Alliance, rather than through Teeccino. Importation difficulties including approval from CONAP (Guatemala's National Council of Protected Areas) and the need for a phytosanitary certificate prevented direct import. Victor said to reinitiate contact once the direct importation issues have been resolved.

Nestlé S.A.

Nestlé S.A. is a Switzerland-based multinational company and is the largest food and beverage conglomerate in the world. In October 2018, Jean-Paul Ducos, a Product Manager in Nestlé's R&D Center Tours – Plant Science Research Unit, contacted former MDP student, Lilian Osbourne, and requested additional information about ramón. Jean-Paul and his colleague, Lilian Barro later requested 5 kilograms of whole ramón seeds and 5 kilograms of ramón flour for product testing at their laboratory in France. While preparing the shipment, members of the Rainforest Alliance determined that an EU-specific regulation, called the Novel Food certificate, would be required in order to export the whole seeds to France. Similar to other phytosanitary import requirements, the Novel Food certificate ensures that a particular plant-based product is incapable of germinating in the country that is importing the product. Due to delays caused by the Novel Food certificate, the 5 kilograms of ramón flour was the only product that was successfully sent to Nestlé for product testing. Months later, in May 2019, Jean-Paul was contacted to learn about the results of the testing. Jean-Paul did not share his results, but reiterated his interest in whole ramón seeds. Due to Nestlé's apparent interest in ramón, as they actively contacted UMN researchers without solicitation, and the immense potential of a commercial relationship with the world's largest food and beverage company, Nestlé must remain a high-priority ramón prospect. Also, regarding the Novel Food certificate, UMN Food Science and Nutrition faculty member, George Annor, said that germination potential can be prevented by grinding the ramón seeds prior to shipment, thus rendering the Novel Food certificate unnecessary.

Phase V – UMN Research Assistance

At the outset of this study, Teeccino's Caroline MacDougall stated that there is a general lack of U.S. consumer knowledge about ramón seed and an associated need for effective marketing campaigns. Per her recommendation, UMN faculty members who teach marketing, public relations, and journalism classes were contacted in Fall 2018 and asked about their willingness to use ramón seed as a real-world food product to study and promote. Faculty members of the following courses were contacted:

Course Number	Course Name	College	Faculty Member Contacted
MKTG 6088	Strategic Marketing	Carlson School of Management	Dave Hopkins
SSM 3503/5503	Marketing of Bio-based Products	CFANS	Jeff Howe
JOUR 3201	Principles of Strategic Communication	CLA	Stacey Kanihan

AECM 4444	Food and Agricultural Marketing Campaigns	CFANS	Garrett Steede
APEC 4451W/5451	Food Marketing Economics	CFANS	Hikaru Peterson

Table 4: UMN Courses Contacted for Ramón Research

Most faculty members declined to integrate ramón into their courses. Some thought the product was irrelevant to the course, while others said that the value proposition of ramón and the intended market segments were too complex for the assignments offered in the courses. Dr. Garrett Steede of the Agricultural Education, Communication, and Marketing Department and Dr. Hikaru Peterson of Applied Economics expressed immediate interest.

Dr. Garrett Steede said that ramón seed research and promotion would be a good fit for his Food and Agricultural Marketing Campaigns course. However, because the course was already underway, he said it would make more sense to include it in future years. In addition to suggesting his course, Dr. Steede also recommended pitching ramón seed to the UMN’s National Agri-Marketing Association (NAMA) team. The NAMA team is comprised of undergraduate students that prepare a full marketing campaign for a selected product and then present it at a national competition. The campaign encompasses all aspects of marketing including research, business strategy, action plan, finances, and measurement. Collin Motschke attended a NAMA meeting and presented ramón seed to the team. Members of the NAMA team expressed limited interest in ramón. That said, NAMA should remain a worthwhile UMN partner and promotional outlet for ramón in the future.

After a brief meeting, Applied Economics professor Dr. Hikaru Peterson agreed to focus the latter half of her APEC 4451W/5451 Food Marketing Economics course on ramón seed. The second part of the semester centered on two projects: case studies on food labels and market strategies based on economic and conjoint analysis. Collin Motschke and Dr. Peterson slightly modified the projects to better fit ramón’s desired market segments and more closely align with desired research outcomes.

Case Studies on Food Labels

This project compelled students to conduct an in-depth study of six food labels (i.e. certifications) that are used to market products that are similar to ramón seed. The following certifications were selected: Fair Trade Certified, Certified Vegan, Certified Gluten-Free, Non-GMO Project Verified, Certified Paleo, and Rainforest Alliance Certified. The class was divided into groups and each group was assigned a certification. At the end of the study, each group produced a final report and presentation that provided 1) a history of the label, 2) a discussion of relevant regulations, associated enforcement, and costs, 3) perceived and projected market performance of the label, and 4) a recommendation for ramón producers to pursue or disregard the label. Table 5 provides an overview of students’ findings. The students’ results were delivered to the RA.

Food Label Name	Logo	Recommended for Ramón?	Justification
Fair Trade Certified		Yes	-Relatively inexpensive; Capital expenses and annual costs for certification are comparable to what RA pays for USDA certification -Acquisition process is comparatively simple -Market performance of Fair Trade Certified products are improving each year
Certified Vegan		Yes	-Relatively inexpensive; Capital expenses and annual costs for certification are comparable to what RA pays for USDA certification -Once Certified Vegan label is obtained, it would be easier to integrate ramón into other certified finished products (e.g. snack/energy/protein bars, granola, etc.)

			-Promising market projections
Certified Gluten-Free		No	-This label is not required by FDA in order to market a product as gluten-free -May make more sense for the ramón buyer (e.g. finished product manufacturer, consumer packaged good vendor, etc.) rather than producer and exporter to obtain the certificate
Non-GMO Project Verified		No	-Relatively expensive -Considerable controversy around GMOs and history of this label
Certified Paleo		No	-Products can be marketed as paleo-friendly without this certification -Consumers that are not on paleo diet may be confused or alienated by certification.
Rainforest Alliance Certified		No	-Relatively expensive; high capital costs -Difficult to maintain standards

Table 5: Overview of Food Label Findings

Market Strategies Based on Economic and Conjoint Analysis

The second project required students to design and execute a conjoint analysis of food products that are most likely to include ramón seed. A conjoint analysis, also referred to a discrete choice model, is a market research technique that uses a survey to evaluate how a consumer values the attributes and associated levels of a given product. Results from the analysis reveal information about a consumer’s decision-making process by determining which attributes or combination of attributes are considered most important. This information is often used to market and determine a price point for a given product.

The students were divided into groups; each group selected a ramón-friendly finished product. The following products were selected: craft beer, energy bars, nutrition bars, granola, herbal tea, nutrition bar and supplement powders. Each group conducted preliminary market research on their selected products in order to identify relevant attributes and levels of each attribute. Later, they developed and implemented a survey assessing consumer preferences. After analyzing the results, each group prepared a final report and presentation that included recommendations for the RA. Table 6 outlines each groups’ attributes, results, and overall recommendation.

Product	Attribute	Level	Results	Recommendation
Craft Beer	Price	\$4.00/16oz: \$8.99/6 pack of 12oz	Price, additional ingredient, and purchase considerations had statistically significant effects on the rating of the product. Survey respondents preferred craft beers at the lowest price level, with an additional/unique ingredient, and with a claim of environmental sustainability.	Brew a low-priced (\$4.50/16oz: \$8.99/6 pack of 12oz) ramón beer at local breweries with marketing efforts focused on its environmental benefits.
		\$6.00/16oz: \$10.99/6 pack of 12oz		
		\$8.00/16oz: 12.99/6 pack of 12oz		
	Additional Ingredient	Conventionally brewed beer (water, barley, hops)		
		Beer brewed w/ additional/unique ingredient (e.g. ramon)		
	Purchase Considerations	Environmentally sustainable		
Socially sustainable				
Economically sustainable				
Energy Bar	Price	\$6.37/package	Price and flavor had statistically significant effects on the rating of the product; label claims did not have a statistically significant effect. Survey respondents preferred energy bars at the lowest price level and with a chocolate flavor profile.	Produce a low-priced (\$6.37/pack), chocolate-flavored ramón energy bar.
		\$7.37/package		
		\$8.37/package		
	Flavor	Chocolate		
		Almond		
		Dried Fruit		
Label Claims	High protein			
	High fiber			
	Energy boost			
Granola	Price	\$3.79/12oz package	Price, nutritional content, and packaging had statistically significant effects on the rating of the product; the presence of gluten-free label did not have a statistically significant effect. Survey respondents preferred a low-priced granola that was high in protein and packaged in a bag.	Produce a low-priced (\$3.79/12oz package) ramón granola that is high in protein and packaged in a re-sealable bag.
		\$5.49/12oz package		
		\$6.19/12oz package		
	Nutritional Content	High protein		
		High fiber		
	Label	Gluten-free		
No label				
Packaging	Re-sealable Bag			
	Box			
Herbal Tea	Price	\$10.29/package	Wellness characteristic was the only statistically significant determinant of rating. Survey	Produce a ramón-based herbal tea that highlights its anti-anxiety/calming benefits. A
		\$10.89/package		

	Flavor/Variety	\$11.49/package	respondents preferred herbal teas with an associated anti-anxiety/calming effect. Though not statistically significant, there were slight preferences for herbal teas with USDA organic labels, at the \$10.89/package price point, and with the dark roast flavor profile.	USDA organic label, a \$10.89/package price point, and dark roast flavor profile could also be prioritized when producing a ramón-based herbal tea.
		Hazelnut		
	Dark roast			
	Wellness characteristics	Antioxidants		
		Anti-anxiety/calming		
	Certifications	Fair Trade		
USA organic				
Non-GMO				
Nutrition Bar	Price	\$1.39/bar	Nutritional content and texture had statistically significant effects on the rating of the product. Survey respondents preferred nutrition bars that are high in protein and have a crunchy texture. Though not statistically significant, there were slight preferences for nutrition bars that were labeled as nut-free and contain 100 calories.	Produce a ramón nutrition bar that is labeled as nut-free or gluten-free and high protein. The bar should have a crunchy texture.
		\$1.59/bar		
		\$1.79/bar		
	Label 1	Nut free		
		Gluten-free		
	Label 2	100 calories		
		High protein		
		No added sugar		
Texture	Crunchy			
	Chewy			
Supplement Powder	Price	\$13.99/bag	Function was the only statistically significant determinant of rating. Survey respondents preferred supplement powders that are used for post-workout recovery.	Produce a ramón-based supplement powder that is marketed as a recovery drink. Pair production with a marketing campaign to increase consumer awareness of ramón.
		\$15.99/bag		
		\$17.99/bag		
	Function	Pre-workout		
		Mass gainer		
		Recovery		
	Ramon	Included		
Not included				

Table 6: Overview of Conjoint Analysis Findings

Conclusions and Recommendations

Despite its opportunistic nature, the present study has produced a variety of findings that will be critical for future researchers and marketers of ramón seed. Key conclusions and recommendations are outlined below.

Producer and consumer awareness of ramón seed is low

With the exception of Nestlé S.A., the only health food market stakeholders that had prior knowledge of ramón seed were those who were already using it their finished products (e.g. Dharma Trading Post – Gualala Roast). Furthermore, no health food consumers that were either directly or indirectly involved with this study had expressed any level of familiarity with ramón seed prior to prompt from the researchers. This finding suggests an obvious need for improved consumer awareness in order to develop the U.S. ramón seed market.

Recommendations: Firstly, and most importantly, the sales and marketing efforts that are currently underway must be continued. Relationships with the abovementioned high-potential clients, with a special emphasis on Patagonia Provisions, Gaia Herbs, and Nestlé S.A., should be fostered through periodic follow-up calls and/or messages. Secondly, future ramón seed researchers and promoters should enlist the help of influencers in the U.S. health food market. Bloggers, chefs, and influential Instagram users have notable impact in the marketplace and may be willing to learn about and endorse ramón seed as a desirable, up-and-coming ingredient. Thirdly, future attendance of the Natural Products Expo may help forge relationships with other potential ramón seed buyers.

Ramón seed cannot compete in low-priced, commodity markets

Throughout this study, market stakeholders accustomed to working with ingredients including common grains and cereals (e.g. snack bar manufacturers, alternative flour companies, brewers) commented on ramón's comparatively high price. Many indicated that the inclusion of ramón would negatively impact their profit margins and may render their product prices uncompetitive. Ramón will likely remain an unattractive ingredient in this market until costs and prices are decreased. That said, ramón currently has high potential in premium-priced markets (e.g. superfood powders).

Recommendations: While consumer awareness of ramón grows and production costs decrease, it will be imperative to seek out and penetrate niche, premium-priced health food market segments. Findings from this study indicate that research and marketing efforts related to the superfood powder market should continue. Most urgently, superfood companies that have already been contacted should be called and/or emailed again. In addition to the superfood powder market, future researchers and marketers should consider segments that require unique nutrients that are found in ramón. For example, lactating mothers often seek foods and/or supplements that are high in folic acid, which ramón contains. There may be potential for ramón in this market.

Ramón's production narrative is widely appreciated

Most study participants found ramón's history (a staple food of the ancient Maya) and current collection process (wild harvested by women's cooperatives in the MBR) remarkably compelling. Food companies with explicit social and/or environmental values (e.g. Patagonia Provisions, Gaia Herbs) expressed markedly strong interest in ramón's production narrative for its positive impacts and associated marketing potential.

Recommendations: Prospective ramón clients that have products and values that are similar to those offered by ramón should be prioritized. Furthermore, when establishing contact with these buyers, it is advisable to highlight ramón's story. Nutritional attributes may be viewed as fungible, or resources that are essentially interchangeable with other products. For that reason, ramón's differentiating characteristic may be its production narrative.

The craft beer market may help springboard ramón seed into consumer consciousness

Likely due, in part, to a thriving local craft brewery industry, interest in ramón beer remained high throughout this study. In addition to Urban Growler and El Zapote, Fitger's Brewhouse in Duluth, Minnesota also agreed to brew a ramón-infused beer. The relative ease of convincing brewers to experiment with ramón reveals a potential promotional avenue for the seed in the future. Importantly, the brewing of ramón-infused beer does not require much ramón seed, thereby minimizing its revenue potential in the craft beer market.

Recommendations: In short, the craft beer market should continue to be a key marketing avenue for ramón. Craft beer remains popular, and as indicated in the abovementioned conjoint analysis, consumers appreciate unique ingredients like ramón in their beer. A few craft beer-related activities should be prioritized. First off, Urban Growler has agreed to can a ramón-infused beer variety, which would necessitate regular ramón purchases and expand the distribution of and consumer exposure to ramón. Future researchers and marketers should make sure this happens. Secondly, the RA and UMN's relationship to Cevercería Centro Americana S.A should continue to be nurtured. The visiting of Deb Loch and Jill Pavlak to El Zapote Brewing Company could result in a ramón craft beer in Guatemala, which would not only increase awareness of ramón, but also require regular ramón purchases. Thirdly, other Minnesota craft breweries could be contacted to brew a ramón beer. Such an activity would help address local consumer awareness issues.

Clear and consistent communication between supply chain partners will be vital to ramón's future success

While at Expo West 2018, members of the RA, Comité de Ramón, Cafinter S.A., and Teccino had the opportunity to meet. During these meetings, it was evident that ramón's supply chain partners do not often coordinate to optimize the supply chain and discuss improvement areas. Looking ahead, in order to address ramón seed market issues like price and availability, constant and transparent communication between partners will be required.

Recommendations: UMN researchers retain a unique and unbiased role in the ramón seed supply chain; they serve as advocates for the Guatemalan ramón seed harvesters and longtime partners of Teccino and Cafinter S.A. Future UMN researchers should establish regular contact with each supply chain member throughout the year. Additionally, they should facilitate occasional meetings between all members.

Direct importation of ramón is not yet an option

A couple times during this study, U.S. product developers requested direct import of ramón seed, thus bypassing the Guatemalan exporter, Cafinter S.A., and California-based importer, Teccino. The developers assumed that the elimination of intermediaries would simplify the transaction and therefore decrease overall costs. Attempts at direct importation ultimately failed, however, due to an apparent lack of logistical experience. This outcome suggests that, in the short-term, Cafinter S.A. and Teccino are essential to the successful delivery of ramón seed.

Recommendations: Simply put, all ramón seed sales leads in the U.S. (samples for product testing, price quotes, etc.) should be forwarded to Teccino. UMN researchers should be apprised of future communications between sales prospects and Teccino. One exception to this protocol may be Nestlé S.A., as the RA may be able to offer unique logistical service to this potential client.

UMN collaborations could offer promising opportunities

UMN faculty and students from a variety of colleges and departments expressed interest in the study and promotion of ramón. Instructors appreciated the real-world application and students were drawn to the high-impact potential of a product with environmental and social benefits. Market development of ramón seed has the potential to be a university-wide effort.

Recommendations: First off, future researchers and marketers should consider the findings of students from the APEC 4451W/5451 Food Marketing Economics when making strategic decisions about labeling, marketing, and pricing. Students' recommendations to pursue the Certified Vegan and Fair Trade Certified labels should be prioritized. Secondly, other collaborations with UMN faculty and students should be considered. Dr. Steede's Food and Agricultural Marketing Campaigns course, the NAMA team and/or Grand Challenge Courses may offer immediate opportunities.

References

- Aleman, M., Osborne, L., & Villarraga, M. C. (2016). Reporte Final - Comite de la Semilla de Ramon. Unpublished Manuscript.
- Current, D., Getahun, A., Molina, J., & Molloy, C. (2013). Oportunidades con la Nuez de Ramón: Un Análisis del Papel Actual y Potencial de Conservación Forestal Mediante Certificación, Comercialización y Fortalecimiento del Cadena de Valor del Nuez de Ramón en el Departamento el Petén. Unpublished Manuscript.
- Nittler, J. and H. Tschinkel. (2005). Community Forest Management in the Maya Biosphere Reserve of Guatemala: Protection through Profits. USAID. Retrieved from http://pdf.usaid.gov/pdf_docs/Pnado388.pdf
- Puleston, D. E. (1982). The Role of Ramón in Maya Subsistence. *Maya Subsistence*, 353–366. doi: 10.1016/b978-0-12-259780-0.50024-7
- Raasch, C., Zumba-Deleg, F., & Becker, K. (2017). University of Minnesota Masters in Development Practice Student Field Experience Work for Rainforest Alliance, Guatemala. Unpublished Manuscript.
- Tejada, E. L. (2011, August 3). *Biosphere Reserve Information*. Retrieved from <http://www.unesco.org/mabdb/br/brdir/directory/biores.asp?code=GUA+01&mode=all>
- The Secret to Stopping Deforestation in Guatemala. (2018, August 16). Retrieved from <https://www.rainforestalliance.org/articles/community-the-secret-to-stopping-deforestation-in-guatemala>.
- Zetina, R. (2011). Empresas Forestales de Guatemala - Region El Peten. Unpublished Manuscript.