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Api-Tourism as Added-Value: The Case of La Ruta de la Miel in Chile

Master of Science in Agroecology

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*... Regalar miel es como regalar un ramo de flores.
También es como decir una cosa bonita a alguien,
un piropo, un cumplido.
Se le endulzan las orejas. Es como dar un abrazo sincero..."*

*...To give somebody honey is to give a bouquet of flowers.
It is also like saying something nice to someone,
A wink, a compliment.
It sweetens the ears. It is like giving a sincere hug...*

Rigoberta Menchu: Li Mìn, una niña de Chimel

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Abstract

95% of all honey produced in Chile is exported as a bulk commodity. This means that more than 10,000 individual beekeepers from around the country are combining together their product, homogenizing it, irradiating it, and selling it to middlemen who sell it at a fluctuating world price. At the same time a *terroir* culture is developing around honey, meaning that increasingly consumers place value on the individual flavors and characteristics that make honey such a place-based olfactory experience.

To investigate the theme of added-value in honeys, I use the case study of the O'Higgins region of central Chile. My qualitative methods complimented an ongoing project to quantify and certify the specific properties of the region's honeys. Specifically, I examined the possibility for api-tourism; a tourist route based on different honey types and consumer interactions with artisanal beekeepers in the rural countryside. I found that there is a strong possibility for success based on existing natural and cultural resources and stakeholder interest. The end result was a proposal for further action, including an interactive map and marketing concept for a regional honey brand.

La Ruta de la Miel

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Introduction

*...Let honey
overflow in
infinite tongues,
And let the ocean become
A hive....*

Pablo Neruda "Ode to the Bee"

Api-tourism as Added-Value for Beekeepers

Beekeeping is considered by some as a perfect example of "productive conservation" (Brown 2006). Thought of as a "win-win-win" solution wherein economic development, natural resource conservation and ecological services (pollination) co-exist, The Food and Agriculture Organization of the United Nations positions small-scale beekeeping in the development discourse as a "sustainable livelihoods approach", contributing to livelihood security, especially in rural communities where access to income is limited (Bradbear 2009).

Bees, nature and humans exist within a delicate symbiotic relationship. All over the globe, civilizations have derived both nutritional and economic benefits from bees through honey hunting and traditional beekeeping for thousands of years in the form of honey, beeswax, pollen, propolis, royal jelly and other products. Bees also provide critical ecosystem services – most importantly, the pollination of flowering plants and maintenance of biodiversity. Finally, all bee species directly depend on the resources of the natural world, which are shaped increasingly by anthropogenic activity — undoubtedly the central cause of the pests and disease that threaten apiculture today.

Apiculture arguably has many "emergent properties". For one, beekeeping generates income without destroying habitat — it actually improves habitat and maintains biodiversity with pollination services. The productive activity arguably encourages ecological awareness. At best, beekeepers actually have a financial incentive to conserve the environment; ensuring that flowers are available and bees are protected from contamination. The next step when consumers value honey and identify the product with a particular environment or plant — or with the person who produced it — and work in conjunction with producers to protect the natural environment.

Biodynamic beekeeper Gunther Hauk calls human beings "co-creators" of this natural environment. To Hauk and to a growing movement of holistic beekeepers, including many of my Chilean colleagues, the honeybee serves as a barometer of the health of the environment; the pressures of disease a reflection of the pressures on all forms of life as a result of human-centric reductionist thinking (Hauk 2008).



Figure 1: Springtime bloom of "diente de león" in Limache apiary

If we can taste *honeys* — realizing that there is more than just one generic honey — noting the difference from place to place and plant to plant and experiencing honey as a pure reflection of nature, then perhaps **consumers** can directly relate to what is at stake through this olfactory experience and become more responsible co-creators of our surroundings. For a win-win-win scenario to

happen, consumer demand for authentic, local honey must be stronger than the market forces that push for mixed, unidentifiable, commodity honey. This is what I hope to be the central emergent property of my research in Chile — and what I carry with me today, back to my home country as a beginning beekeeper. The starting question is: what is the economic and cultural environment in which a honey terroir can survive and thrive?

The Disappearing Bees



Figure 2: Opening up a hive to examine its activity

There are an estimated 16,000 species of bees inhabiting the earth. From the giant honeybees of Southeast Asia, to the stingless bees of the Yucatan Peninsula, each has a distinct history and ecology. This thesis concerns activities associated with the genus *Apis*, which includes eight species of honeybees, the most common being *Apis mellifera*. Within the *mellifera* species are 24 distinct races (Bishop, 2005). In Chile, beekeepers work with *Apis*

Mellifera linguistica (Italians) and *Apis Mellifera carnica* (Carnolians) and many are a cross between the two (Buchmann & Nabhan 1996).

Beyond grains and many pulses, the majority of our food crops need insect pollination. The most efficient and most prolific insect pollinator is *Apis mellifera*, the European honeybee (Buchmann & Nabhan 1996). For this reason, perhaps no other insect is more studied. Humans have domesticated the honeybee over centuries for two main purposes: to produce honey and to pollinate crops. So, after

the honeybees started inexplicably disappearing around the world in 2007, due to what was later termed Colony Collapse Disorder (CCD), many snapped to attention.

This phenomenon can be attributed to several causes, including: the disappearance of natural spaces due to the expansion of cultivated crop land in developed countries; the massive employment of pesticides in industrial agriculture; and the introduction of the *Varroa* parasite (Conrad 2007).

Gunther Hauk describes the phenomenon of CCD as revealing the bee as a "sick patient who has been trying for years to signal to us the deep crises of its diminishing life forces and its increasing inability to resonate with the environment" (Hauk 2008). The honeybee is indeed an indicator of a sick environment; an environment in which all pollinators are under pressure from anthropogenic activity.

But in fact, all of the bees are at risk. The difference between *the European honeybee* and their more subtle, solitary cousins in the wild — the carpenter bee, the miner bee, the squash bee — is that these solitary insects are generally not privileged to the same research dollars and attention, and so we don't always notice their absence. But I believe that conscientious marketing and consumption of honey products can spill over and into a greater consciousness of the plight of pollinators in general. I've set this as another intention for myself as a beginning beekeeper.

Scope of this Thesis

Chile is a fascinating environment in which to study beekeeping. The South American country is often referred to as an "ecological island" — an area of land isolated by natural barriers, which allows for a large amount of endemism. As a result, Chilean apicultural production is characterized by a great variety of honey

types that are derived by native flora that contain associated special characteristics. Adding to the intrigue is the fact that most beekeepers are small scale — with less than 100 hives. Yet today, these small-scale beekeepers produce a commodity. Approximately 95% of the honey produced in Chile is exported in bulk without added value, without identity, accounting for 1% of the world honey trade (Montenegro, Gómez, Díaz-Forestier, et al. 2008). But these disparate producers symbolize islands within an island, creating conditions for a true artisanal honey culture. One of the main challenges ahead is networking and organizing despite physical isolation.

The Chilean apicultural sector straddles two worlds: On one hand, the bulk of honey producers remain on Cochrane's "agricultural treadmill", producing undifferentiated commodities, open to international competition within a liberalized economy, dependent on constant developments in productivity-enhancing technological innovation (Berdegué 2002). What that looks like in practice is that 10,000+ small beekeepers are essentially combining their product in one big pot, homogenizing and irradiating it, and shipping it abroad. For the Chilean government, the Ministry of Agriculture, and those concerned with honey as an export commodity, the pertinent questions are: How do you standardize a product that is the result of 10,000+ individual producers? Specifically how do you effectively transfer technology and knowledge to meet export requirements?

On the other hand, a small minority of beekeepers are pursuing specialty markets — gourmet, organic, fair trade — a new honey *terroir*, as well as working with Universities to develop industrial uses for hive products — a honey-specific bio-prospecting of plant species. This alternative asks the question: Why would you want to standardize and commodify honey products when their real value is in their individuality?

For as long as there have been beekeepers, there have been honey connoisseurs. The ancient Greeks observed early on that the taste of honey varied depending on the source from which it predominantly came, favoring wild thyme honey above all others. Around 400 B.C., the most desirable, "Attic" thyme honey came from the slopes of Mount Hymettus, near Athens (Bishop 2005).

There are as many different kinds of honey as nectar-producing plants, and the blends that naturally occur in each landscape are infinite. This presents an opportunity for Chile, a unique geographical environment in which natural barriers and extreme climates equal a hotbed for endemic plant species — meaning they are only found in Chile. There are nearly 6,000 native plant species in Chile, and nearly 50% of those are endemic (Montenegro & Ortega 2012.).

As a result, Chilean apicultural production is characterized by a great variety of honey varieties with a high percentage of nectar from native plant species (Montenegro, Gómez, Díaz-Forestier, et al. 2008). The result is a number of truly unique honeys — produced nowhere else on earth — that have also been found to have special antibacterial and antioxidant properties (Montenegro & Ortega 2012).

The differentiation of Chilean honeys on the basis of biological origins and beneficial properties is recognized as one way to improve their value in both national and international markets. The process of certifying monofloral honey is most commonly achieved through *melissopalynology*, or pollen analysis — and today Professor Gloria Montenegro of the Pontificia Universidad Católica (PUC) is recognized as the foremost expert in Chile. There is now a national standard for monofloral, bifloral and polifloral honeys, but a gap still exists between consistent access to this technology and the certification that beekeepers need to produce a true added-value product.

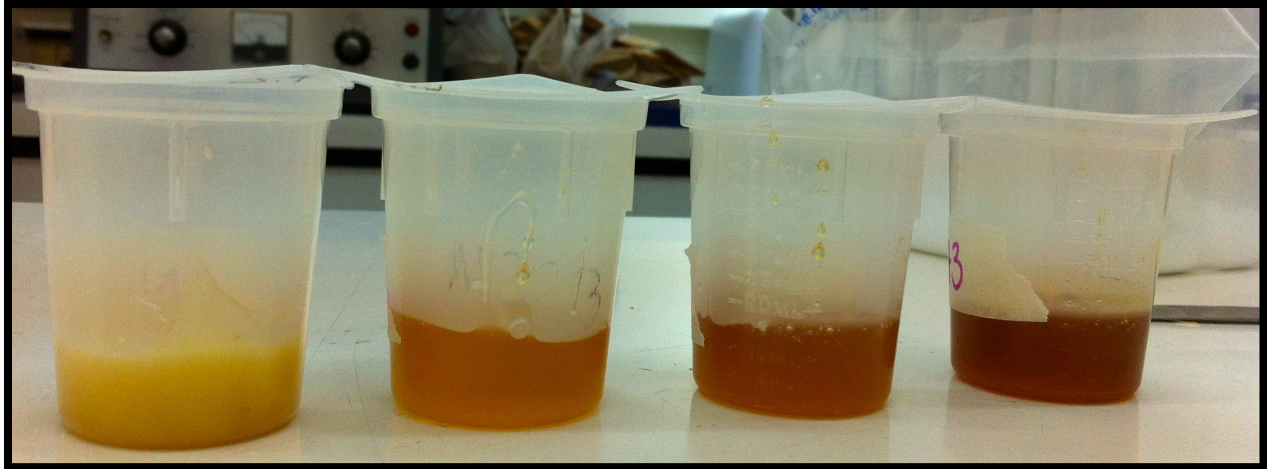


Figure 3: Distinct honey samples processed in PUC laboratory

There are a handful of successful beekeepers who've achieved added-value through certification of botanical origin, most notable the producers of Ulmo honey in southern Chile. There are also those who've changed the equation with fair trade and organic certification. There's a third category who've achieved added-value by simply marketing their own identity and environment — without official certification. In this way, the current beekeeping environment in Chile is an exciting look at the development of honey "terroir".

My time in Chile revolved around the general theme of added-value in small-scale Chilean honey production. My research can be broken down into two time-periods: first, from March to June, my energy and research concentrated on an initiative called "La Ruta de la Miel", a honey-route specific to the O'Higgins Region of central Chile that highlights beekeeping culture and products, specifically honey varieties identified through pollen analysis. La Ruta de la Miel will be a gastronomical tourist route that highlights differentiated honeys and complementary products, as well as the producers themselves and in the process personalizing apiculture in the country. This thesis seeks to explore the strengths, weaknesses, opportunities and threats for such an undertaking — and to develop a

specific plan and action steps to connect certification and "api-tourism" to create not only added-value for producers in the long term, but benefits for rural communities as a whole.

The second half of my time in Chile I worked alongside several beekeepers as an apprentice, learning from different models of added-value outside the University, leaning into the practical aspects of the trade, and making several videos to communicate the experience with the general public (See Digital Appendix).



Figure 4: Mosaic in San Pedro de Atacama

Research Questions

First, questions particular to this case study in Chile: What is the potential for rural tourism based on differentiated honeys or "api-tourism"? What are the challenges

and opportunities associated with the "Ruta de la Miel"? What does a tourist route based on honeys look like?

Then, broader questions of importance beyond this particular case study: How can identifying the botanical origin of honey represent added-value? What is the role of certification in obtaining added value? Finally, what are some potential emergent properties from marketing place-specific and plant-specific honey varieties?

Methodology

Methodology can only bring us reflective understanding of the means which have demonstrated their value in practice by raising them to the level of explicit consciousness; it is no more the precondition of fruitful intellectual work than the knowledge of anatomy is the precondition of "correct" walking.

-- Max Weber in *The Methodology of the Social Sciences*

I found this quote in an article by the sociologist Michael Burawoy about the Extended Case Method. I like what this quote says about methodology as simply supplying reflective understanding. In his article, Burawoy defines the Extended Case Method as "a reflexive model that takes as its premise the intersubjectivity of scientist and subject of study" (Burawoy 1998). He says reflexive science embraces not detachment but rather engagement as a road to knowledge. This concept is familiar to me as an Agroecologist, but Burawoy's description of social scientists as "thrown off balance by our presence in the world we study" hits especially close to home.

As much as I studied frameworks for social science research applied to agricultural development prior to traveling to Chile, upon landing I struggled to find "legitimate" methods in that context. I changed my original research scope to participate in an ongoing project and it took me months just to settle-in, understand

the big picture, learn enough beekeeping vocabulary and do the bureaucratic and everyday tasks associated with living abroad.

What I like about the Extended Case Method and Burawoy's thoughts on methodology is that he legitimizes an approach wherein context is a point of departure, that "thematizes our presence in the world we study" (Burawoy 1998), essentially advocating the reflexive model familiar to Agroecology along with participant observation. I believe in the end, that is ultimately how I would categorize and legitimize my work with beekeepers in Chile. I was a participant-observer in the creation of a tourist route based on honey types, traveling the road and absorbing the context as a tourist, and eventually creating a map and a brand concept based on that experience. Also, I participated in Chilean apiculture, serving as an apprentice and student and engaging on a daily-basis with the small-scale beekeepers that I sought to understand in my overarching research.

The Case Study

The case study is a research strategy that focuses on understanding the dynamics present within single settings (Eisenhardt 1989). My data collection methods -- interviews, surveys and observation -- are consistent of the case study approach (Eisenhardt 1989). Case studies also contain a substantial narrative element. Such narratives are included throughout this thesis. The words of others are difficult to summarize into neat scientific conclusions, instead they stand as evidence of a particularly rich problematic (Flyvbjerg 2006).

In the best of scenarios, this single case can be analyzed and elaborated upon to make useful observations that are relevant for the wider case. In this context, I seek to make broadly relevant my reflections on the case of Chilean beekeepers, while also avoiding over-generalization. As the Danish economic geographer Bent Flyvbjerg says in his defense of the case study, "formal

generalization, be it on the basis of large samples or single cases, is considerably overrated as the main source of scientific progress” (2006).

Soft Systems Methodology

I used Soft Systems Methodology to frame my research process. SSM recognizes that systems are constructed through our subjective experiences, and that we are thereby a part of the analysis. Reflected through the writings of Peter Checkland, Richard Bawden, and Sriskandarajah among others (Bawden 1991; Sriskandarajah et al. 1991; Checkland & Poulter 2006), SSM is a rejection of traditional positivist agricultural research that attempts through trial and error to deduce universal truths, i.e. through scientific trials, test plots, etc. and separate the researcher from the research. SSM was developed with a paradigm shift in mind, and the idea that scientific reductionism is not adequate to address ideas of sustainability. Instead Soft Systems Methodology focuses on the whole (Checkland & Poulter 2006).

To me, the importance of SSM isn't the theory alone, but in the application of the theories to practice — tools like Rich Picture and SWOT that propelled this research into different directions through reflection; that resulted in a vision, and specific recommendations based on the whole picture.

SSM also helped to conceptualize (and rationalize) my role in a pre-existing traditional positivist agricultural research project. As the other students were busy in analyzing pollen, my job was to incorporate the messy, subjective, people-centric information into the mix. Much of my role — as discussed later — was to navigate complex social systems, requiring a broad understanding of country-specific culture and history as applied to class relations and rural issues. On a day-to-day level, I was required to also navigate social biases and culture-specific behavior in order to work effectively with beekeepers and other stakeholders.

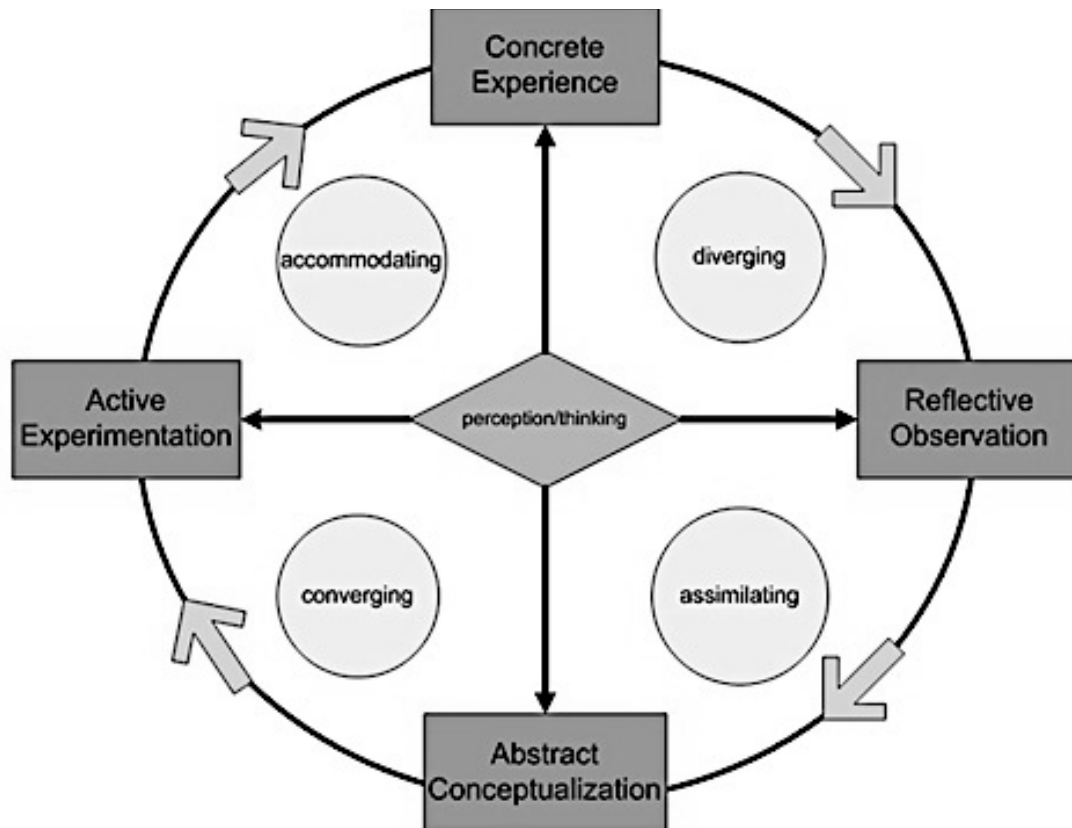


Figure 5: Kolb's Cycle of Learning and Learning Styles (adapted from Davenport University's Experiential Learning program (2014))

By using SSM and specifically the Kolb Cycle, I was able to conceptualize and organize a research journey that traversed the real world situation into an abstract world of systems thinking and back again. The model above describes two processes: First, the cycle of learning on the outside. Then, the four learning styles: diverging, assimilating, converging, accommodating. The effective learner inhabits all four, but it is common to be stronger in one area. This thesis makes evident my inclination to describe the present (diverging) and also, a propensity to design a plan of action (accommodating) – I suspect resulting from a background in both

journalism and activism. I organize this thesis using the terms from the cycle of learning, to better understand the project as a learning process with distinct stages.

First I asked the question: ‘What is?’, diving into the **diverging** stage of the Kolb Cycle (Kolb 1984). I defined the problematic situation and at this point defined my research questions. After periods in the field, I was ready for the **assimilating** phase, creating a Rich Picture and a SWOT analysis. I identified key issues, or areas prioritized for future investigation and literature review. I made a modified Rich Picture and SWOT with the input of my Chilean counterparts.

From there I began to vision. ‘What could be?’, imaging a future wanted situation for La Ruta de la Miel. I came up with ideas, some more related to reality than others. I checked with stakeholders about the likelihood of some of these schemes, including a common brand for beekeepers in the region and received helpful, although not necessary optimistic feedback about the future prospects of this plan. I then moved into the **converging** stage, finding collaborators, making a map and developing specific concepts.

Next in the **accommodating** phase, I conducted a number of honey tastings, press interviews and public presentations about La Ruta and my specific ideas about a future scenario. I intended for this to be the point for participation and feedback from beekeepers and stakeholders, checking in on the reality of my vision and answering the question: How do we get there? However, for reasons discussed later, participation was not optimal. Because this is an on-going project, now run by Chilean graduate students, I envision this thesis, my suggestions and analysis as a precursor to this last phase.

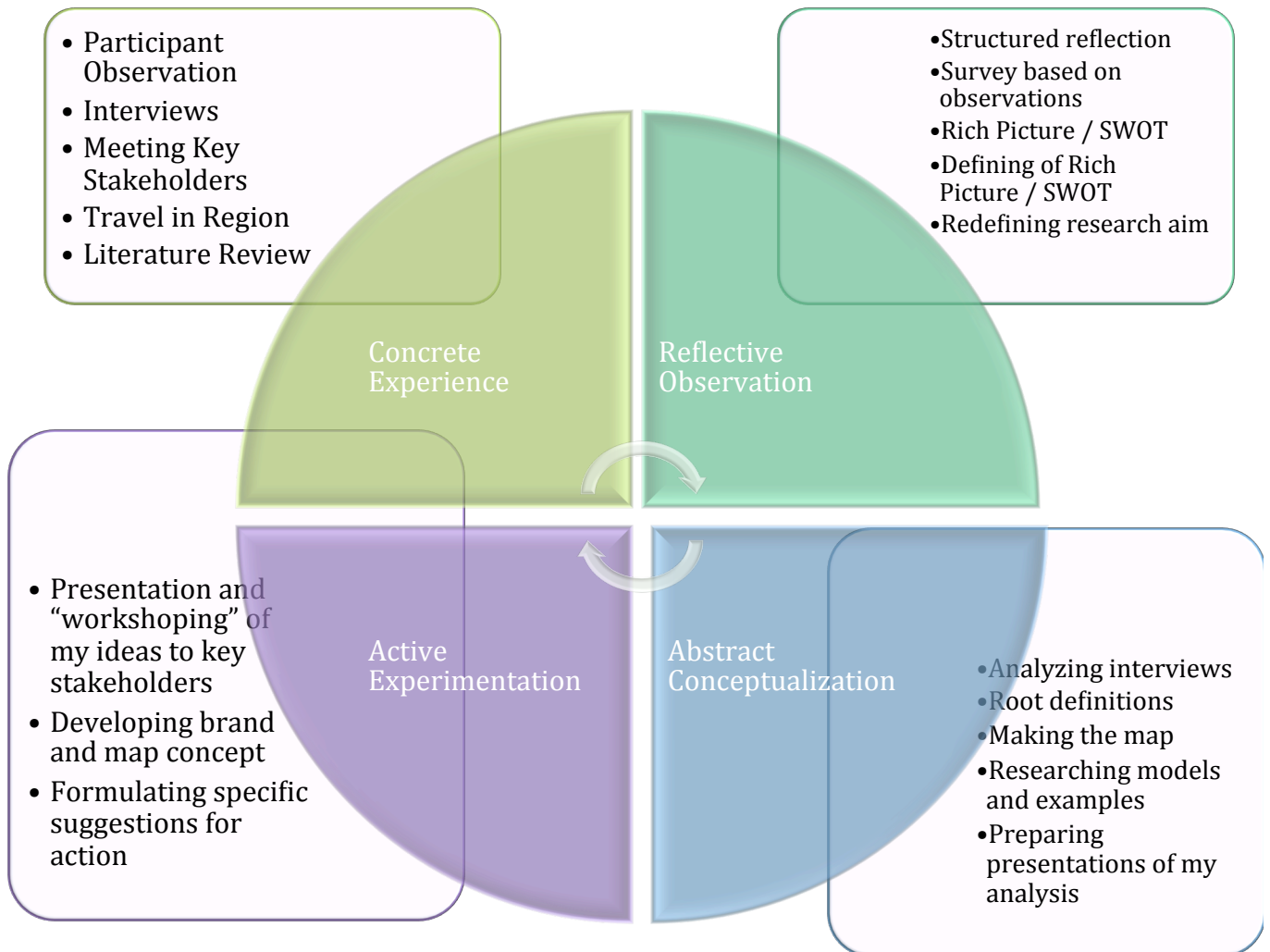


Figure 6: Specific research steps expressed through Kolb’s Cycle of Learning

Specific Methods for Data Collection and Analysis

Field Research

As an international consultant for the potential project, it was important to me to experience the state of transportation, local lodging and other associated tourist

activities. To do so I traveled widely in the region searching for interesting honeys, beekeepers and associated activities to be incorporated into a map. I talked with over 50 beekeepers in my travels, and visited many of their homes and apiaries. I also tried to gain a feel for the region's rural places and the likelihood of this scheme attracting international and/or national tourists.

Preliminary Survey

To spread the word about the study, PUC researchers held and continue to hold informational meetings in small-towns, often in conjunction with development NGOs involved in apiculture. At one such presentation in Chimborongo, a somewhat urban hub in the O'Higgins Region, I presented the main idea of the Ruta as a starting point to expand the base of consumers of differentiated honey and passed out a survey for people to fill out – including name/location and products offered (see sample survey in Appendix). I also asked about surrounding tourist resources and their ideas about participation in the Ruta. From there I had many people approach me afterwards and express interest in the project. Out of 40 or so surveys, there are 10-15 where people explicitly express interest in participating; principally in sharing their beekeeping practice with visitors.

I then visited dozens of survey respondents, in the process observing and taking notes on the viability of future visits to their area: the presence of other beekeepers and willing participants, proximity to natural areas, cultural sites of interest or other potential tourist attractions, specialty foods or complementary artisanal activity. I also used a "snowball" technique, asking for my contacts to provide me with more beekeeper contacts in the area, and building my base of participants from there (Trost 1986).

Interviews

I conducted semi-structured interviews with 26 beekeepers, industry leaders, consultants and other related stakeholders (See appendix) in order to assimilate individual visions of a future Ruta into my larger analysis. I then transcribed those interviews, analyzed them for themes, and then translated them into English to use as direct quotations in the analysis.

I did not use any coding software, rather I organized them by theme by reading thoroughly, color-coding them and organizing them by cutting and pasting into a document.

Rich Picture

With the information I gathered while in the field, and through interviews, I drew out several versions of a rich picture of the region. This rich picture was shared with a key stakeholder-beekeeper, and adapted with her input.

SWOT

Also based on interviews and experiences traveling, I drafted several versions of a SWOT analysis of La Ruta de la Miel. This analysis was also a participatory project, involving other members of the interdisciplinary student team. Rich Picture and SWOT (Checkland & Poulter 2006) proved effective ways to identify the problem situation of added-value for Chilean honeys.

Interactive Map

I combined quantitative from each honey's pollen analysis (other students' associated research) with my qualitative information from the field to design a multi-media map and associated brand concept. Using this method, I was able to

visually analyze the area's potential; the nexus of interesting honey products, willing participants, and related attractions.

Video

Video was used in the latter part of my research to understand the associated identities of each beekeeper with whom I worked. Over the course of my apprenticeships/stays, I made short promotional videos of each operation, highlighting their identity from my outside perspective, then engaging in a participatory editing process with each beekeeper to create additional dialogue on identity in a uniquely reflective process that also "gives something back" to my research subjects. While the process was in and of itself an iterative research process, the videos can also be seen as end products, the action portion of my thesis project.

Reflection

Dr. Edvin Ostergaard describes the two directions of observation: outward and inward (Ostergaard et al. 2008). Reflection is a central method, or tool used in Soft Systems Methodology to relate personal experiences with theory – inward and outward observation. Throughout my fieldwork in Chile, I reflected on questions like: What exactly did I see? What did I experience? How did I feel about this? What did I learn from this? I kept a journal throughout my research process to "check-in" with myself at regular intervals. My reflections are included throughout this thesis to give an idea of my personal processing of the research.

Research Sample

The Biozones Project

My contacts and “research subjects”; participants in La Ruta de la Miel are almost all participants in a larger affiliated project: the regional government and the Universidad Católica seek to define "Biozonas Apícolas" or "Apicultural Biozones" — defined as geographic areas that contain relative abundance of native melliferous plants and where particular honey types exist as a reflection of their unique natural environment. September 2012 marked the beginning of this major three-year project to analyze and certify the botanical origin and corresponding properties of the honeys of the O'Higgins region of central Chile. My contacts were largely derived from this project’s participants.



Figure 7: Malva Estrada Diaz, beekeeper in Pumanque

Identity and Role in the Research

Adapting My Approach: First Lessons

I was fortunate to receive a Fulbright Scholarship from the United States Department of State in order to carry out my research in Chile. This meant that I applied and had a preliminary research plan nearly a year and a half before I arrived in country. Originally, the main goal of my research was to “investigate governmental and scientific initiatives to improve the quality of Chilean honey for world markets and the implications for rural development”. Simply put, I was interested in the recent growth of this the honey export industry in Chile and its effect on the ground in rural agricultural communities.

My original idea for a methodology was to design a "participatory needs assessment" – essentially a survey designed with the population I intended to study – revealing the opinions and perceptions of small beekeepers about challenges related to sanitation, hive health, technology, marketing, and profitability. In doing so, I wanted to coordinate feedback from the beekeepers themselves about the future needs for the growing industry. In my original proposal to Fulbright I said: "With input from agricultural economists, scientists, and the beekeepers themselves, I will design survey questions to provide necessary qualitative data to evaluate current programs and assess future needs."

From the United States, I started imagining early on what participatory research might look like. I read literature on the Livelihoods Approach and participatory research in agricultural communities in general, mostly relying on Robert Chamber's work on Farmer First methodologies (Chambers 1994a; Chambers 1994b; Scoones 2009) I wanted to know the degree to which small-scale beekeepers are benefiting from this production system and if there are positive

alternative examples that promote honey and complementary products as diverse, added-value goods either in the global or national market.

I was also interested in how beekeepers defined success and then comparing that vision with what the Chilean government's development agency's definition of success. My plan was to use a livelihoods approach to understand a broad phenomenon by looking at indicators on a household and community level. I was also very interested in designing Participatory Action Research (PAR), inspired by several long-term agroecological studies in Central America and Mexico (Gliessman 2009; Holt-Gimenez 2002; Bacon et al. 2005).

But as I suspected, my study of Chilean apiculture ended up changing focus when I arrived and surveyed the real situation. When I arrived I met with academics and professionals who represented gatekeepers to a body of social knowledge related to the beekeeping sector. I met with Italo Bozzi, the President of FEDEMIEL, a national beekeeper organization based in Santiago, who basically laid out the answer to my original



Figure 8: Honey samples from O'Higgins region

question: despite all the money for technical assistance and extension, most beekeepers can handle the pests and diseases. To benefit beekeepers, it's the commodification of honey, the marketing that needs improvement (Bozzi 2013).

I also met with my original hosts in a university city called Chillan, in the region of Bio Bio. Although the scientists I had been in contact for months leading up to my arrival received me graciously, it became obvious that I would be on my own as one of maybe two social scientists in a large government bureaucracy

equivalent to the U.S. Department of Agriculture. Nobody would be advising me on methods, let alone participatory ones. There were no beekeeping specialists on staff. Making contacts, getting familiar with the industry, and figuring out how to measure livelihoods would ultimately be up to me -- dependent on the internet and the books I had in tow.

I began to think about my role as a researcher – was it my place to figure out the answer to the livelihoods question? Was it necessary to prove a point with data -- that small, added-value markets are better for small-scale beekeepers -- when the idea already seemed to be common knowledge? What did I know about

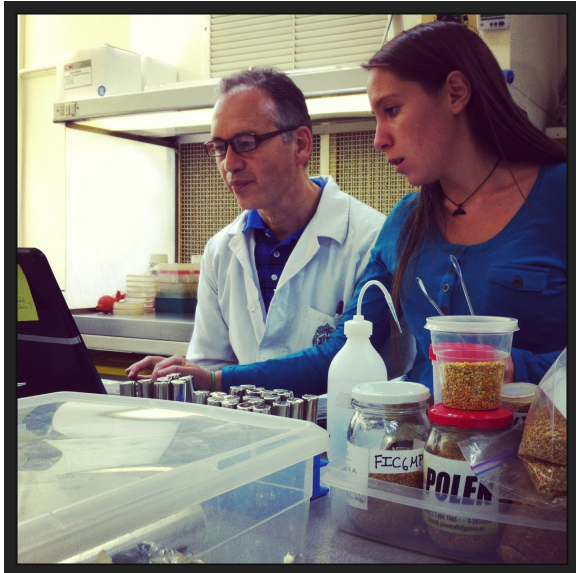


Figure 9: Scientists in the PUC laboratory

the best livelihood scenario for Chile's rural poor? Attempting to measure wellbeing among beekeepers in the Chilean countryside -- Did this general topic address a need in rural or *campesino* culture? Would the results be useful to anyone – especially the communities I sought to study? Finally, was this the best use of my expertise?

This internal debate represented one of the propositions of Experiential Learning Theory (ELT) outlined by Kolb & Kolb (2005). Indeed, these scholars determine that “learning is best conceived as a process... a process that includes feedback on the effectiveness of [a student’s] learning efforts” (Kolb & Kolb 2005). They also state, “learning is a holistic process of adaptation to the world”. This initial reflection on my place in the research and consequent reworking of my research was an important stage in my own learning process.

I eventually talked with Gloria Montenegro, a botanist and prominent scientist at the Pontificia Universidad Católica (PUC) in Santiago and was introduced to her project with the local government in the region just south of Santiago. The project is called "Transferencia Programa de Desarrollo de Biozonas Apícolas para la Valorización de su Cadena de Valor", or The Development Transfer Program of Apicultural Biozones for the Valorization of its Value Chain (not a very pretty title in English).

She invited me to join her, to work with her team of undergraduate and graduate students from the physical sciences -- botany , food science and natural resources -- to observe at first and then find a place to plug in with my diverse perspective and skills. So I began to show up at the laboratory where her students were analyzing honey samples. I asked questions, did interviews and learned their techniques. I accompanied them into the field as they visited beekeepers, took GPS points, and analyzed surrounding flora to put together a botanical profile of each apiary. I learned that they were trying to make essentially an atlas of differentiated honey products. And they were making the lab results known to participants in workshops conducted in communities around the region with the intention of giving beekeepers a tool -- certification from the University -- that would differentiate their product from the rest. The team wanted me to take on the tourism component, La Ruta de la Miel.

I felt good about participating in an on-going project, in which my identity and perspective was not just appreciated, but uniquely valued. Also, the beekeepers participating were receiving something in return -- a certification, and down the road hopefully some added-income. The value of certified honey is debatable (indeed part of that debate is included in the analysis section of this thesis), but at least the research "subjects" were asking for this research. They saw value in it. So instead of barreling ahead alone, with my individual questions about development

and livelihoods, I decided to adapt to a role that I found more appropriate by working on an ongoing and seemingly important project within the same subject area. Ultimately, I felt as though my identity as an outsider would be in this case a help, and not a hindrance.

My Role

I would describe my role in the interdisciplinary team as three-fold: as an Agroecologist, a community organizer and an international consultant.

The specific characteristics of an Agroecologist are articulated in Lieblein et al. "Skilled agroecologists graduating from the programme will: Have knowledge of farming and food systems, be able to handle complexity and change, be able to



Figure 7: Interviewing members of APIUNISEXTA

link theory to real life situations, be good communicators and facilitators, and be autonomous learners" (Lieblein et al. 2004). All of these characteristics served me particularly well working with a complex subject involving human stakeholders, in another language and culture.

During my eight months in Chile, I steeped myself in the real life situation of beekeepers; visiting them, having long conversations, working alongside them when possible and in some cases living with them for a while. Agroecology's emphasis on the big picture justified all this time spent 'in the field' learning and documenting the actual

situation. But I had to 'get my foot in the door', and gain the trust of participants. And to be able to do this, I had to hone in on my communication skills — in Spanish — my general knowledge of beekeeping, and my abilities to create the right environment as a participant-observer. Being flexible and adaptable were key characteristics. So was my persona as an international visitor and a young woman. I felt that people were willing to participate because I was perceived as a non-threatening, curious outsider. And as is customary in rural Chile, I was treated like a daughter in many of the places I stayed.



Figure 8: Pontificia Universidad Católica de Chile (PUC)

As for the community organizer identity, I felt like much of my time was spent making connections and trying to navigate and integrate myself among two worlds: that of formal University research (in this case the botanical laboratory at La Universidad Católica — one of the most prestigious and wealthiest universities in Chile) as well as among small-scale beekeepers of humble economic means situated in the countryside. The interdisciplinary research team of which I was a part was not thinking of stakeholder interviews or participation really of any kind. I brought this perspective to an otherwise 'objective', scientific approach.

The head professor's reputation as an important researcher in the world of honey was both a help and a hindrance. There were uncomfortable dynamics of class and social hierarchy because she is regarded as the country's leading authority on monofloral honey. Many beekeepers were not interested in participating because historically they have failed to see any practical applications of past

research. In speaking with beekeepers, it became obvious that there is a perceived gap between researchers and subjects that may ultimately be detrimental to the larger project – as well as similar future undertakings.

I did my best to broker this difference, sticking myself as international outsider in the middle to fill the gap to the best of my ability. In the beginning, in order to make contacts, it was important that I was affiliated with the University's official project. But after several months, once I gained the trust of groups of beekeepers and key contacts, it became more of an asset to be independent; free to make my own recommendations outside of the grant-funding institutional hierarchy. I had this to say in a reflection to my classmate Ben Hunsdorfer in May, two and a half months after arrival:

I feel like the bulk of the participatory part of this project is happening through individual ideas and converging ideas of the beekeepers I visit. I'm struggling to figure out what "methodology" that falls into – maybe something closer to participant observation and case study than anything else. I feel like I'm doing the work of a community organizer – going out and talking to people about a development concept, gauging interest and participation levels, and carefully considering peoples individual visions to eventually assimilate this information into a whole – a project and a geographical proposal to present to the group for feedback in August.

I also reported on my progress at that time:

So, at this stage in my learning cycle, I've made key connections with Universities and researchers – and a specific project; I've integrated myself into the operations of the beekeeper association APIUNISEXTA, I've talked to over 30 beekeepers in remote places all over the area and conducted interviews with many of them. I've figured out the mapping technology that I will use for the pilot map; I've sketched a rich picture of beekeeping in the region and done a SWOT of both the Biozones project and the Ruta – all of which I've reviewed with beekeepers and researchers. And finally, I gave a presentation and conducted a survey which lead to more visits and points on the map.

My original work plan was as follows:

1. Field visits and spend time in the region with beekeepers
2. Do interviews, take photos and video with people in the zones identified as initiatives of interest
3. Examine existing tourism resources and infrastructure
4. Do a literature review for models of agri-tourism
5. Meet with representatives of the beekeeper and tourism sector in the region
6. Evaluate the current situation using SWOT analysis
7. Define zones of interest, defined as nodes, in the region
8. Make spatial connections between recognized nodes
9. Travel as a tourist to try out potential routes
10. Create a map with a combination of geo-referenced and descriptive information
11. Edit video and photos to incorporate them into the map
12. Present this product to relevant actors
13. Revise the map product with their input
14. Publicize the map as a public resource

I accomplished each of these objectives to varying degrees. Towards the end, there were internal and external roadblocks to true participation and public input in the design of La Ruta. As I explain later, I was able to leave a prototype and a solid foundation and suggestions for further action to a Chilean graduate student who is completing that portion of the work plan at the present time.

On Language

It is important to mention that I conducted the entirety of this research in Spanish, a language that is not my first language. This was a challenge on many levels. One, it just took more time to do everything, especially communicating through the written word. Two, understanding technical beekeeping vocabulary, words to describe hive diseases, equipment, etc. was an additional challenge.

Overall, I felt that most people understood me, but in rural Chile where there are not many tourists visiting, I was sometimes the first foreign accent that people had ever heard. This was a roadblock in two-way understanding.

From a journal entry in June:

An ongoing challenge is the language divide. While I feel comfortable with my Spanish, it has been hard for me to absorb all information that I would if I were conducting research in my own language. It takes more time to do everything – writing emails, translating articles and interviews – and although I can express my ideas to those around me, I certainly don't have the same vocabulary and am therefore limited in what I can contribute.

But since finding this niche in the research – analyzing the possibility for a tourist route based on honeys – I feel more comfortable with what I can offer. I am an outsider. I am subjective in my analysis. I am in some ways a tourist, but I feel like I've seen the inside of more houses and certainly more beehives than any other tourist. But I feel like this new, outside perspective is appreciated and wanted by both the beekeepers who want to promote a new kind of tourism and the academics who would rather stay in the laboratory than talk to people in the field.

Although I had a lot of help transcribing the interviews from Spanish into Spanish – a task completed by a graduate student working with me on La Ruta – I did not have any translation help.

Therefore, all direct quotes that I pulled for the purpose of this paper were

interpreted only by me. When reading through transcripts, there were cases in which I did not understand fully what a respondent was trying to convey. In that circumstance, I chose not to include that information as a direct quotation or otherwise. While I realize this method was limiting in some ways, and I may have missed some of the rich picture of Chilean apiculture, I worked to interpret qualitative data to the best of my ability and am confident that I understand the great majority of my research subject.

Timeline

The first four months of my research were spent settling in, making contacts, participating in University activities and traveling independently in the region while conducting interviews. During this time, I was focused on the development of La Ruta de la Miel.

Second, after taking a brief reflective hiatus in the United States, I returned to look more broadly at the concept of added-value in Chilean honey as a whole. I decided to work directly with producers and employ a case-study methodology to look at differing practices, identities and marketing strategies related to varietal honey production.

Therefore, the challenge of this thesis is to analyze the concepts of "api-tourism", and the possibilities of La Ruta de la Miel, within the larger context of varietal development and added-value within the honey supply chain.

Ongoing: Organic Beekeeping Diploma Course at the Centro de Educación y Tecnología (CET), Yumbel

March

Based in Santiago

- Preliminary Research, Interviews, Introductions
- Visited Stakeholders in Valdivia, Chillan
- Joined Montenegro Team in Santiago

April

Based in Santiago

- Key Partnerships with APIUNISEXTA
- Field Visits in sixth region
- Completed Proposal to work on La Ruta de la Miel
- Investigation of Cartographic Techniques
- Investigation of Methods

May

Based in Santiago

- Field Work: Visits, Interviews in O'Higgins region
- Meetings in Lolol, Chimborongo — Presentation of Ruta Idea / Solicitation of Ideas, Survey
- Key Partnership with Geography Department; Nodo Apicola
- Wineries Connection
- Intensive time in Limache and Secano Costero region
- Began Reflection Writings Back and Forth with Ben

June

Based in Santiago

- Continued Field Work in O'Higgins region
- Honey Tasting at Expo Rural in Santiago
- Honey Tasting with Chefs
- Reflective Writing Continues

July

U.S. / Transient

- Literature Search Intensive
- Coding and Organizing Transcripts
- Prepared Presentation for Encuentro Apicola
- Agroecology Conference in Chiloé — Key contacts with Slow Food Chile, beekeepers and future-mentors

August

Based in Limache

- Presented at Encuentro Internacional Apícola, San Vicente
- Began First Draft of Thesis
- Apprenticeship / Case Study with Mieles Flora Nativa, Limache

September

Limache / Peru

- SOCLA
- Continued Apprenticeship

October

Central and Southern Chile

- Case Study: Eduardo and Slow Food community Madroño honey, Cauquenes
- Work with CET Organic Apiculture Program
- Case Study: Mieles del Sur, Frutillar

CONCRETE EXPERIENCE

National Context



Figure 9: Hives in extreme north, Iquique region

Chile is a long, skinny country that stretches nearly 4,300 kilometers (2,700 miles) north to south. Its geography lends itself to an immense variety of landscape and ecosystems, crunched between the Andes Mountain range and the South Pacific Ocean. Beekeepers are found throughout the country -- from

Arica near the border of Peru, to northern

Patagonia -- but are concentrated in valleys in the center. Most hives are found in the Región Metropolitana, or the capital region, followed by the O'Higgins region (Barrera Pedraza 2013). Unlike the United States where the big business is pollination and beekeeping is a transient occupation, most



Figure 10: Hives in southern archipelago of Chiloé

beekeepers make their money from honey and are stationary — or move their hives within a small area.

In this area, a temperate mediterranean climate and a great diversity of melliferous plants with an extended flowering period, as well as a natural sanitary environment — guarded by the natural barriers of the Andes Mountains to the East, the Atacama Desert to

the North and the Pacific Ocean to the West — makes beekeeping

conditions optimal. For one, the Africanized bee has not yet entered Chile. Furthermore, the presence of over 6,000 native flower species makes possible the production of uniquely Chilean honey, known for high nutritive value, unique flavors and aromas, and medicinal qualities (Montenegro & Fredes 2008).

Chile's length also assures a wide variation in temperatures, meaning for beekeeping that it is 'always Spring somewhere'. Beekeepers with the resources to do so can take advantage and move their hives from floration to floration. Also, unlike beekeepers in



Figure 11: Traditional "rustica" hive

Canada, for example, they are not reliant on imported genetic materials — queen bees and colonies — from other countries.

Beekeeping began upon Europeans' arrival to Chile. The legend is that the Italian honey bee *Apis mellifera ligustica* was brought to the city of Peñaflor by an anonymous sailor (Marchese & Flottum 2013). In the last century, it was traditional practice for agricultural families to have bees for self-consumption, keeping them in "rusticas", made of logs or scrap wood. In this system, bees are essentially left alone — naturally forming their own free-hanging comb — until it is time to harvest a humble amount in the summer and fall. In the 1970s, there were more than 500,000 hives registered in the country, from which was produced close to 3,500 tons of honey annually. At the end of the 1990s, there were only 300,000 registered hives, but the production grew to close to 5,000 tons, according

to an extensive report by ABA Consultants in Rancagua, Chile (2011). This change was principally due to the transition to "modern" hives and production techniques.

Traveling around the country today, very few "rusticas" are left, instead they've been replaced with Langstroth hives — the typical design used worldwide. These hives are traditionally painted bright and cheerful colors and stick out against the farm fields, orchards and vineyards that characterize much of Chile. While known for its agricultural products — mostly because they are important off-season exports for the northern hemisphere — actually very little of the country's area is appropriate for agriculture.

For that reason, beekeeping makes sense in a country with so little arable land. Many beekeepers rent, trade for honey, or simply place their hives in the surrounding hills and wild areas. Beekeeping also makes sense for people with minimal resources: upon initial investment, hives multiply by themselves; equipment can be made locally; and bees do not need the beekeeper to feed them as long as there are flowering plant resources available.

Beekeeping in Chile is primarily a productive activity in which honeybees are



Figure 12: Honeybee pollinating citrus plant

managed in such a way to produce excess honey and complementary products to be sold for profit.

Second, the bee's role of pollination, besides directly contributing to the preservation of botanical biodiversity and the reproduction of native plants, also has an important impact on the productivity of agricultural activity in Chile, most

notably in the production of fruit and seeds — two of the biggest agricultural

sectors. Third, but no less important is apiculture's social value, acting as a complementary and alternative product in vulnerable rural sectors.

The Chilean consumer however, is another story. It is said that the average Chilean consumes between 90-100 grams per year, less than the world average of 220 grams (ABA Consultores). As in many other countries of the world, processed white sugar and soft drinks are consumed with regularity. Anecdotally, I noticed that honey consumption in Chile is a winter-time concern, and largely ingested only in cases of illness.

Economic Snapshot of Honey Industry

Today Chile's honey sector represents just 1% of total agricultural exports (Red Nacional Apícola). But the dynamics of the export market affect just about every small-scale beekeeper, no matter how rural and isolated. That is because between 80 and 90% of all honey produced in Chile is exported for sale outside the country (Barrera Pedraza 2013).

In 2011, Chile exported approximately \$28.9 million dollars worth of honey. In the last ten years, honey exports have increased by nearly 500% — from 1550 to 8000 tons. In the last few years, production has waivered between 7000 and 11,000 tons annually, placing Chile's supply at less than 1% of the world volume of exported honey (ABA Consultores).

Most of Chilean honey is exported to Germany and the United States. In May of 2012, the two countries represented 45% and 31% of the total, respectively (Barrera Pedraza 2013). Europe is regarded as the largest target market — providing in most cases a better price than the United States. Europe is also regarded as the "pickiest" market, where the strictest sanitization and certification requirements exist.

Honey as a Commodity

Honey destined for international markets is sold in bulk, in 300 kg barrels made for freight shipping. This product is destined to be "table honey", or honey that is a mix from many different honeys or distinct origins that is bottled in the country of sale. The goal of this kind of production is to obtain a product with uniform color and flavor.

In the context of commercialization, especially for export, this implies a necessary homogenization of the product — added-value governed by consistent quality of appearance, aroma, and purity. Also required is the homogenization of the system of production — the bottling, storage and transportation — and finally, a system of traceability and certification.

Only 0.3% of export honey leaves the country in its own packaging — meaning it is not bulk, not subject to international commodities pricing. There is

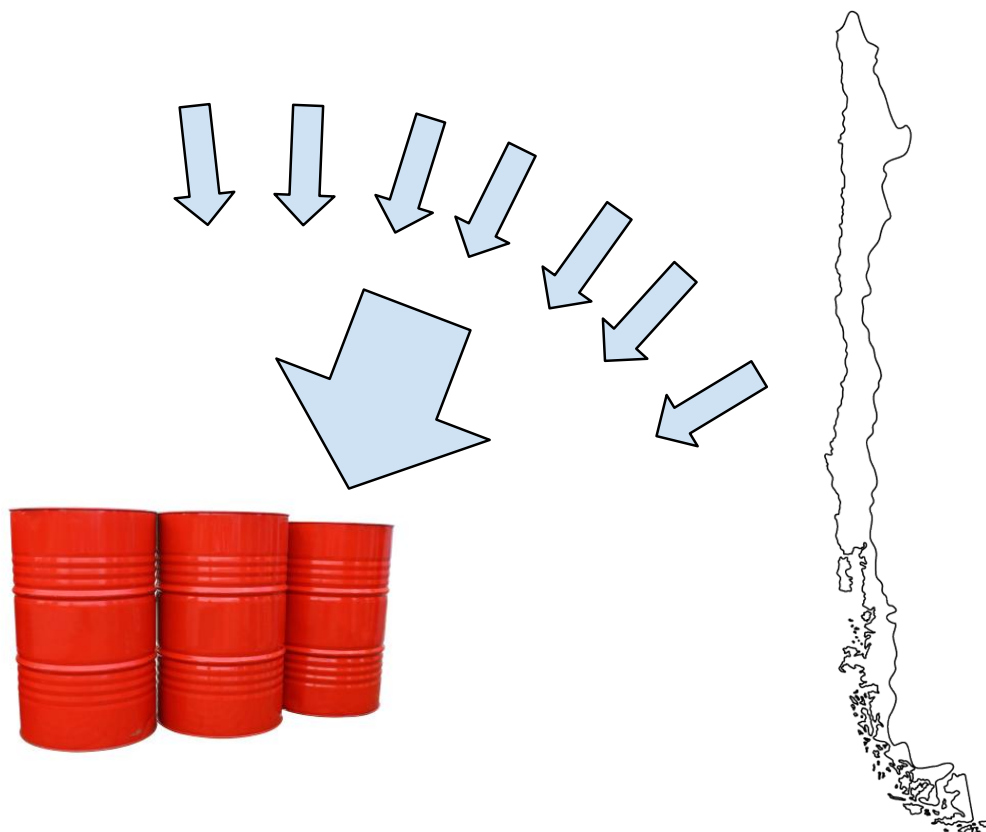


Figure 13: Homogenization and bulk export are defining characteristics of honey sector in Chile

one conventional honey, Ambrosoli, that is marketed in Peru and scarce examples of organic brands marketed in Holland (ABA Consultores). There is a big price range for independently marketed honeys. But exporters sell bulk honey (in barrels) at a fluctuating world price depending on market conditions. In 2008 the average was \$2.86 per kilo (ABA Consultores) – meaning the beekeepers themselves earn a fraction of that.

Even though it is not very lucrative, the reason beekeepers sell their honey in bulk is because they want “*toda la plata al tiro*”, as beekeeper Monica Rodriguez put it, in a very Chilean phrase. They want all the money up-front from an exporter instead of selling off their harvest kilo by kilo over the course of a year.



Figure 14: Shipping containers like this one travel from Chile to Europe on barges

Honey Supply Chain Structure

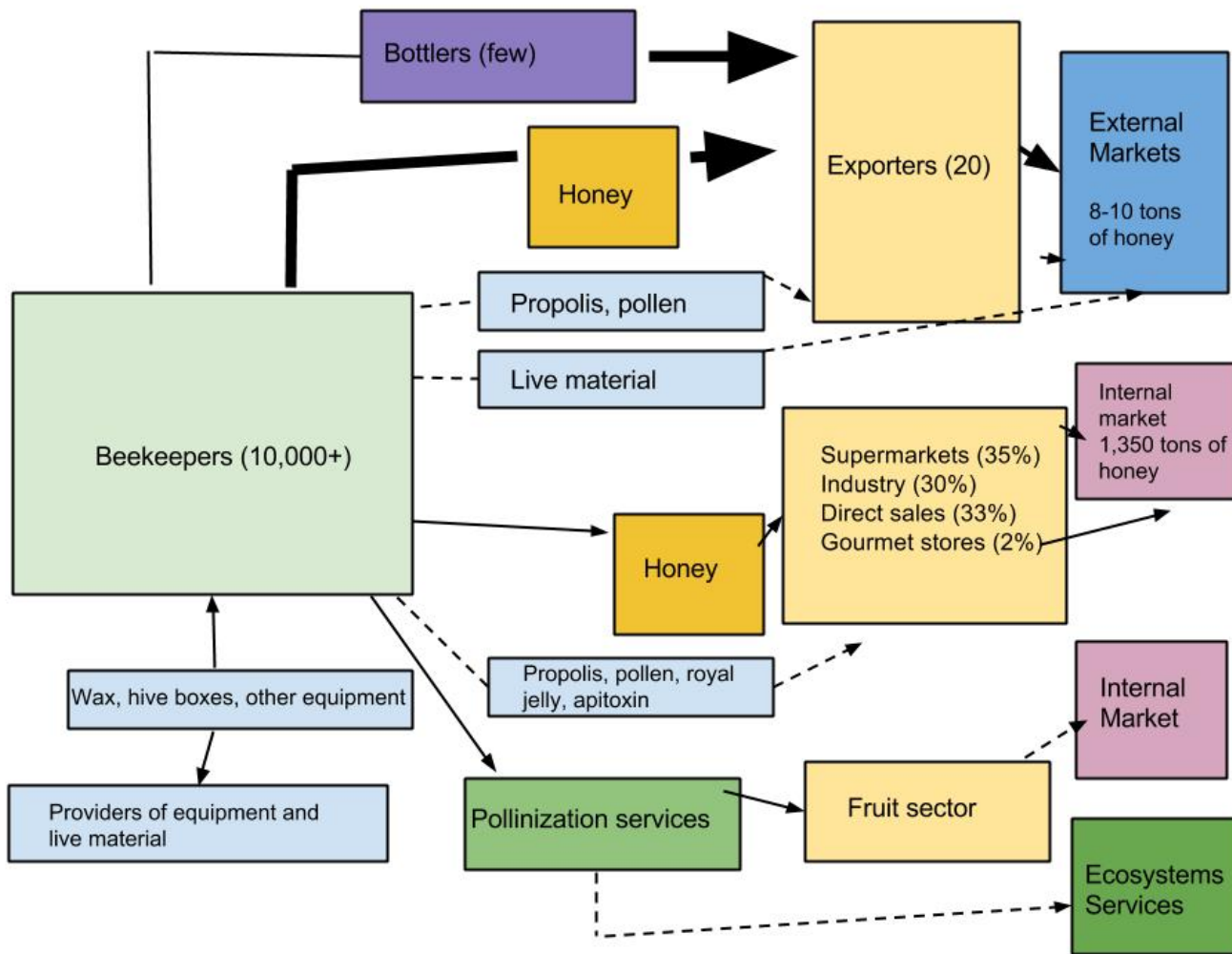


Figure 15: Honey supply chain structure in Chile (adapted from Red Apícola Nacional)

The major actors in the Chilean apicultural export system are the suppliers of beekeeping products, the beekeepers themselves, regional associations of beekeepers, the *intermediarios* or "middle-men", *acopiadores* or bottlers/packagegers, and the exporters. Whereas beekeepers represent a diverse group spread out all over the country, the system is very concentrated at the top,

where there are few material suppliers, few processors/bottlers and even fewer exporters. Herein power is concentrated, with very few links to the thousands of producers who make up the base.

De-commodification and Diversification of Honey

Internationally, a clear expansion and diversification of bee products is apparent, where together with an uptick in total volume consumed, there is also a growing



Figure 16: Premium quality Ulmo honey from Parque Pumalin, Patagonia

demand for "differentiated" honeys as extracts for industrial use (ABA Consultores). While neighboring Argentina may be one of the world's top producers by volume, Chile's industry — at least in words — is looking to steer its beekeepers towards specialization with an eye on gourmet and industrial products.

Misael Cuevas calls this the "de-commodification" of honey. "I think that in the long term we should build towards

a 'de-commodification' of honey...to get there the information we need is: what are the botanical and geographic origins, and above all, the attributes that our honeys have" (Cuevas 2013).

Interestingly, bulk honey with some degree of differentiation (monofloral or organic) has been gaining ground, constituting more than 14% of the total export market in 2010. There is a small number of beekeepers who have begun to certify the botanical origin of their honeys with the aim to add value to their product. Most

famous is Ulmo honey, produced from a large flowering tree found only in the southern regions of the country.

There is international precedence for adding-value via this kind of certification. Some of the world's most famous and most expensive honeys are monofloral: Manuka honey from New Zealand, Tupelo honey from the southeastern United States, Corsica honey from France, and Lunigiana honey from Italy (Marchese & Flottum 2013).

In just about every small town, you can find a humble plastic kilo of honey for sale for an average of \$2500 pesos (\$5 USD). This product looks the same everywhere, with cartoonish bees and the word: "miel". But it has no date, no location, no information to distinguish it at all.

What chance is there that Chilean honey becomes famous? That's exactly what national beekeeping leaders like Misael Cuevas are betting on. But in his

opinion, it is going to require that beekeepers work with scientists to fortify their marketing strategy with specific information:

If I tell you that I produce Tiaca and Tineo or Ulmo honey, or I produce Quillay honey, and you don't know what these are, it's all the same. But if I tell you, 'look, I produce Ulmo honey and Ulmo has a lot of natural antibiotics and there are inhibitors for a number of harmful pathogens, and for that reason, regular consumption of this honey will provide you defenses against these pathogens' — there you are going to believe me, but I also have to demonstrate it. I have to have information (Cuevas 2013).



Figure 17: Ubiquitous plastic kilo containers

Cuevas makes the argument not that honey must functionally different to have added-value, but that beekeepers need accurate information to share with consumers. More studies about the beneficial properties of specific honeys would benefit their selling power.

Who are the Beekeepers? "The Poor Little Sister"

There are somewhere around 10,000-15,000 beekeeping operations in Chile, according to the latest "apicultural census" conducted in 2007 (ABA Consultores). 92% percent of all beekeepers represent small-holders with less than 100 hives (national average is 48) and 25% percent are women, according to the Red Nacional Apícola, or the National Beekeeping Network.



Figure 18: Maria de la Cruz has 114 hives in Paradones

2013).

48 hives per beekeeper is the national average (Red Nacional Apícola). But said Misael Cuevas, to be dedicated solely to beekeeping, you need between 100

"Apiculture is socially attractive, especially in the *campesino* world, due to the little area required for the implementation of a hive, being that the bee needs approximately a radius of 3 kilometers for foraging. As a result, its important that the State support these ventures that are so important for the *campesino* family economy," said Patricio Madariaga of FEDEMIEL in a recent newspaper feature on the industry (El Mercurio 5 August

and 200 hives to make a living equivalent to wage-based agricultural job. "One person can manage up to 400 hives, then, two people, and then with an eventual third worker, they can reach 1000 [hives]. That means an earned income that allows, for example, a family with two kids to go to the University," said Cuevas (El Mercurio 5 August 2013).

Hugo Valenzuela, beekeeper and President of APIUNISEXTA says it costs about 700 or 800 pesos to produce a kilo of honey that is sold for 1250 or 1300, making the margin between cost and earnings very low and making

reinvestment a difficult and even impossible task. Hugo Valenzuela calls apiculture "poor little sister" of agriculture in Chile (Valenzuela 2013).

The calculations are more or less like this: If a beekeeper has 50 hives and achieves a minimal production of 30 kilos per hive, at the end of the season, they will produce 1,500 kilos — or 5 standard barrels. If they sell at an export price of \$1.300 Chilean pesos per kilo (around USD \$2.50), after taxes, their income will be close to \$12 million pesos (USD \$23,000) (El Mercurio 5 August 2013). To successfully pull-off this scenario, beekeepers must comply with traceability and sanitation standards.

In addition to honey-production, pollination is a fundamental activity for beekeepers. "Pollination service signifies an important source of work that translates to between 50 and 80% of income for many beekeepers between August and November [Winter/Spring]" said Patricio Madariaga of FEDEMIEL (El



Figure 19: Elisarda Brown, director of the Mata Rodonda cooperative in Pumanque

Mercurio 5 August 2013). But unlike the U.S., in Chile there are only 500-600 beekeepers that work to pollinate crops, and only about 100 who dedicate themselves exclusively to this activity. The big industry is the exportation of honey. Pollinators generally need more infrastructure — big trucks and transport equipment, and are generally bigger, with thousands of hives.

The identity of beekeeping as a small, family business is strikingly different from most other agricultural activities in Chile, which after three decades of neoliberal policies are in general, the terrain of large corporations, involving fewer and fewer people working in actual production. There's a positive side to being



Figure 20: Migratory pollination operation setting up in O'Higgins region

small. Misael Cuevas, the President of the Red Nacional Apícola, or National Beekeeping Network explained that from his perspective, the more small beekeepers there are, the brighter the future for beekeeping in Chile.

"Because if a campesino has ten hives and a relative from the city comes, they will ask about beekeeping, they will consume honey and they will be a 'diffuser' [of information]. That is different from a big company that has 15,000 hives, that doesn't

let anyone enter; that does their work alone and therefore has no dispersion or diffusion of the benefits of beekeeping or of apicultural products," he said. "There's a 'personal workforce' in honey production, and therefore from that perspective it's more artisanal, we have spirit, soul and heart" (Cuevas 2013).

An investment in the more than 10,000 small-producers spread across the country and redirection of the national beekeeping sector's priorities from

international to local markets would likely represent a sizable direct investment in the local economy.

On the other hand, because beekeeping is small-scale -- often a complementary activity for farmers -- beekeepers are too small, too "artisanal" to reach consumers outside of their very local area, save selling to middlemen to sell abroad. Also part of being small, said Italo Bozzi, is that most beekeepers have limited resources to invest in apiculture - - their profit margin is slim and they receive no subsidies from the state. "The

worst is that this little money that we receive isn't because we are small, but because of our marketing system" (Bozzi 2013).



Figure 21: Hugo Valenzuela, beekeeper, queen-producer, and president of APIUNISEXTA

Principle Challenges Identified by Industry

Sanitation

In 2008, the Acuerdo de Producción Limpia (APL), or Clean Production Agreement was formalized among beekeepers, exporters and government. Every agricultural sector in Chile has an APL which aims to be a management tool that improves production conditions, environmental, health and safety, energy efficiency, efficiency in water use, and other specifics per sector (Montenegro, Gómez, Díaz-Forestier, et al. 2008). In this document, national export goals are outlined as the following:

- To strengthen a clean and high-quality beekeeping sector
- To professionalize the supply chain in order to strengthen beekeeping
- To strengthen the development of new products and new markets
- To strengthen the dynamic associability and institution of the beekeeping sector
- To boost sustainable development of the sector

This document comments on the on-going problem of contamination within the supply chain. As stated earlier, honey, wax and other bulk bee products are routinely mixed from thousands of individual beekeepers and thousands of distinct locations into one homogenous product. Like any other product that is produced by many individuals and exported as a bulk commodity — milk, grains, etc. — because there are more steps in the supply chain, there is more risk for contamination.

But with beekeeping, the domesticated animal in this case is not corralled, or grazing in a confined area, but instead is foraging for pollen and nectar up to 7 miles in any direction from their hive (Bishop 2005). This means the quality and safety of the end product is connected to the crops, vegetation, water resources and overall ecosystem health surrounding the apiary.

Contamination

Another sanitation concern is that of direct human intervention: most beekeepers use a range of permitted chemicals: miticides, pesticides, and antibiotics to treat hive diseases and infestations. Many beekeepers also use un-permitted chemicals. More than one beekeeper told me that they use a commercial flea killer meant for dogs to treat Varroa — perhaps the most prevalent of the hive diseases. According to beekeepers' anecdotes, this un-permitted product does not

appear in analysis if you time its application correctly. The APL document emphasizes the importance of certification and traceability that identifies every link in the production chain — from apiary to table.

The alternative is bottling distinct honeys in Chile so that it is not mixed together. On average in Chile, only 0.3% of export honey sold is *fraccionada* or bottled, pre-packaged. Although it is logistically much harder to do, the price difference is astounding. The international price for honey fluctuates between \$1 and \$3.50 per kilo (Barrera Pedraza 2013). The United States, for example, pays between \$1.40 and \$1.60 for honey from abroad (National Honey Board). Whereas a kilo of packaged honey can sell for as much as \$18 USD in Chile (ABA Consultores). In gourmet markets abroad, the price for specialty Chilean honeys is almost unlimited. For example Fair Trade Ulmo honey sold in France by the company Natulim — can reach 34 Euros or \$44 USD per kilo and beyond.

The APL defines the beekeeping sector in Chile as transitioning from a “logic of production — collection” to a new focus on “industrialization — technical-ization”. Industry leaders are looking beyond the precarious sanitation situation, the complexity of the food supply chain and toward the more added-value “tech sector”, saying “Chile has accomplished important actions oriented toward the regulation of productive activity and the protection of the environment... and in this sense the formalization of a productive activity and its evolution from an artisanal complementary activity to the microenterprise “campesino” economy to an industrialized activity...” (Montenegro & Ortega 2012).

Principle Challenges Identified by Beekeepers

Although much of the institutional priorities and funding for the sector addresses biological problems — as seen with the APL — it is in fact the social and systematic issues that beekeepers themselves identify as more pressing.

Marketing

It is a common sentiment that beekeepers in general, at least the established ones, know what they are doing. Meaning, it's not issues of hive management, or biological concerns -- pests, diseases, or even climate -- that present the largest challenges overall.

In terms of apicultural knowledge, said Italo Bozzi, President of FEDEMIEL, a national beekeepers' group, "80% know how to do it. But they don't always have the resources to do it". He identifies the top three problems of the beekeeping industry as one of markets: the way everything is exported, and the low consumption of honey in Chile. Number two, he says is a lack of "team spirit"; low levels of cooperation among beekeepers. Number three relates to hive management: sanitation, bee genetics, medications, etc. Bozzi added, "The worst is that this little money that we receive isn't because we are small, but because of our marketing system" (Bozzi 2013).



Figure 22: Ana Maria Galaz sells a kilo of crystallized honey from last year's harvest

According to Monica Rodriguez, "I think the most complicated, in my own case, is not having a platform and not having the human resources to do marketing; I can only devote myself to produce. I produce, but what I do with this, I lack the other part. I think that the same thing happens with the great majority of beekeepers". In practice this means the great majority of beekeepers sell their honey to a middleman, or an *acopiador* to bottle, label and market -- and make a profit" (Rodriguez 2013).

Professionalism

"Professionalism" is a theme in just about every conversation about the national industry — especially considering the majority of honey is destined for European markets. "This is a sector that demands increasingly that we move towards industrialization and technification. This implies inversion, traceability, and being constantly up-to-date, because we work in an increasingly complex environment and because we are part of the food industry, which is very regulated and which demands standards of quality that involves look at the whole process," said Misael Cuevas to El Mercurio.

"Beekeepers in general, don't make big investments and don't make business plans, neither do they plan the growth of their business or anything. Small beekeepers start catching swarms, start a hive, then another," said beekeeper Monica Rodriguez. "So, with all the European Union's requirements, everything you have to do is very expensive... In this way, we have to bring the barrel [of honey] directly to the middleman and there it stays" (Rodriguez 2013).

In the overall context, Chile's agricultural sector is in the beginning stages of development. It wasn't until the 1990s that schools, advisors, or even Chile-specific publications started to appear. "Historically, there was no policy of promotion, or advisory or training," explained Misael Cuevas of the Red Nacional Apícola. "It

was only recently that we have organized as a sector. We carry with us a 'historical backpack' which holds us back; a situation of weakness and lacking" (Cuevas 2013).

Cooperativism

One beekeeper, Aurelio Marchant explained it this way: "There's no organization. We can't get together very well, because of the fear that if one person has propolis or honey shampoo, another person will immediately come out with the same. We fear this, the copying" (Marchant 2013). The lack of *cooperativismo* or *associativismo* were two re-occurring themes when I talked with beekeepers and stakeholders about challenges to the industry. Without delving into too much detail, this lack of trust in unions or cooperatives is thought to be in part, historical baggage from Chile's former socialist government and then the repression of unionists that followed.

"It reflects the reality of our country. There was a time in the 60s in which cooperativism was strong but then between the 1970s and 1980s, it began to disappear," explained apicultural consultant Rodrigo Donoso (2013). Unlike many other Latin American countries, there is still a stigma attached to cooperatives and associations in general, and according to beekeepers a mistrust and "egoismo" that is often explained with phrases like, 'es muy Chileno'. It's very Chilean, meaning 'it's just the way we are'.

False Honey

There is also the problem of false honey being sold on the national market. Some beekeepers or vendors sell a product that is a mix of sugar syrup, for example, adding a little honey to it. In general, when the honey is very liquidy, when it is not viscous, it is likely a fake. Any adulteration along the supply chain

puts the integrity of the whole industry at risk. This is indeed a problem worldwide.

Recently, the website Food Safety News reported that more than three-fourths of the honey sold in U.S. Grocery stores isn't actually honey — meaning its pollen content has been ultra-filtered, a high-tech procedure done to prevent source identification (Schneider 2011). This is because much of this honey continues to come from China despite a recent ban. As seen in the research being done in Chile, pollen is like honey's DNA, the building blocks that reveal botanical and geographical origin.

GMOs and Increasing Standards

In the last ten years, the international honey market has demonstrated major instability. Successive environmental problems — the closing of the European market to honeys from China because of contamination — and market politics — North American "anti-dumping" measures enacted against Argentinian honeys — have created a supply problem internationally and increased prices significantly (ABA Consultores).



Figure 23: The EU's ruling on GMO pollen effectively shut out Chilean honey in 2011 and has significantly raised standards for exportation

But nothing was more impactful for Chilean beekeepers than a decision in September of 2011, in which the Court of Justice of the European Union ruled that honey and food supplements containing pollen derived from Genetically Modified Organisms (GMOs) cannot be marketed without prior authorization in the European Union. The official limit was placed at 0.09% — no honey can enter the European Union that has more than 0.9% GMO pollen (Bablok 2011). This meant that bulk honey destined for the EU was literally re-routed in some instances to be sold for less money in the United States (where the standard is a little more lax at 0.1%). Although this doesn't close the EU market completely, it established a new category of honey: "GMO-free" and new requirements for certification as such.

The blockade on honey with GMO pollen affected all beekeepers who sell internationally because of the mixing and homogenizing that is standard practice in the international market. My colleague Gabriel Nuñez explained it simply: "With respect to GMOs, there were people that didn't have GMOs in their honeys and they sold to the exporter. The exporter mixed the honey and detected GMOs. Those who were left guilty were all the beekeepers who sold honey" (Nuñez 2013).

GMO crops in Chile are widespread — by they are not grown for human consumption, only for eventual sale as seeds to companies like Monsanto. GMO canola or rapeseed (*Brassica napus*) is the biggest problem because it is very attractive to bees while in bloom. Beekeepers these days have access to a computerized tracking system named the National Geographic System for Apiculture Consultation managed by the Servicio Agrario y Ganadero (SAG), Chile's USDA equivalent. The program is basically a database in which all of the "semilleros" or GMO seed growers are put into Google Earth. Beekeepers are then encouraged to use the map to find suitable areas to stage their hives that are far

enough from the GMO crops and transgenic pollen — recommended 5 kilometers or about 3 miles — so to lessen the possibility of contamination.

Many are advocating GMO-free zones for the sake of Chilean apiculture, including Professor Montenegro. She said at a talk in the O'Higgins region "In this zone they produce such good honey that it should be a zone free of GMOs. The cultivars are annuals, fortunately we do not have perennial GMOs. We have to work together to concentrate GMOs in a zone where there isn't apiculture" (Montenegro 2013).

Monofloral Honey as Added-Value

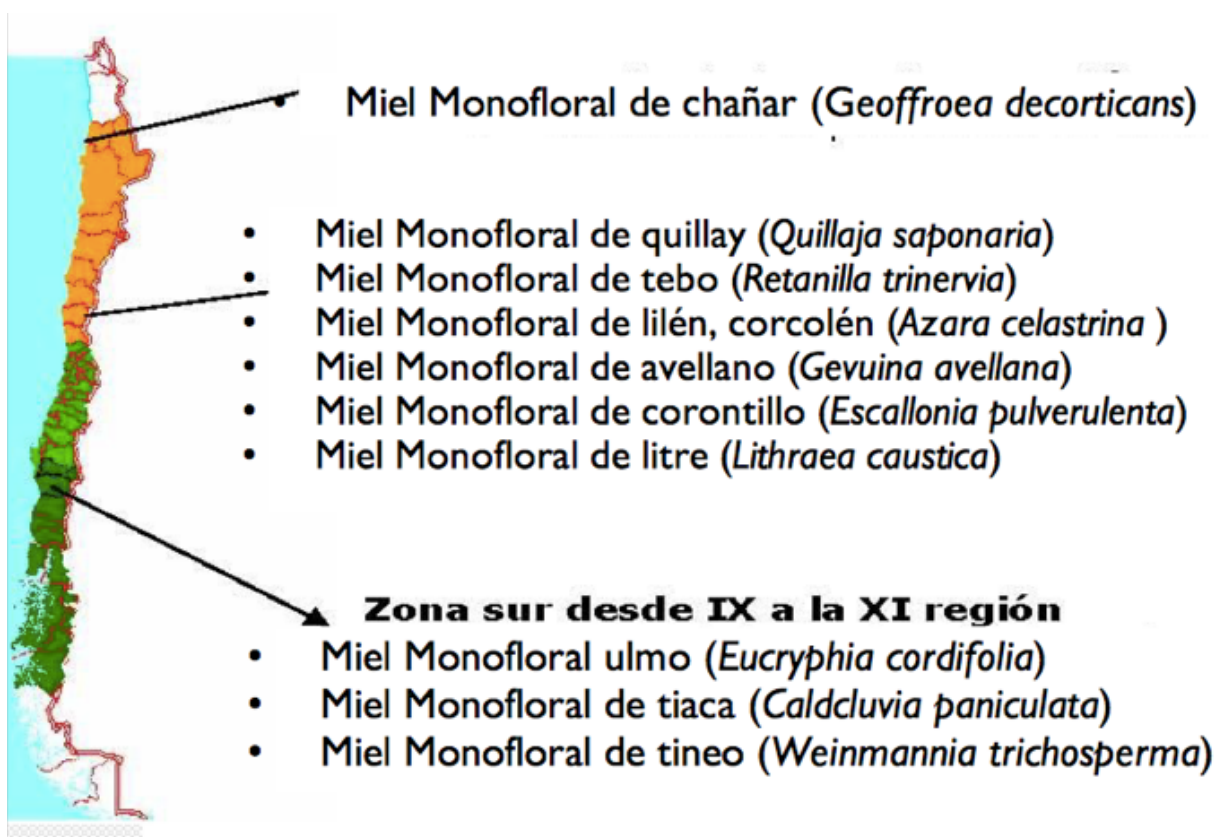


Figure 24: Chart showing occurrence of monofloral honeys from native plant species (PUC)

Gloria Montenegro is well-known for developing a national standard for "monofloral" honey, defined as honey with a particular plant pollen making up more than 45% of total pollen identified (Montenegro, Gómez, Díaz-Forestier, et al. 2008). The terms monofloral, bifloral (two majority plant species, which together comprise more than 50% of pollen sampled) and polifloral (a mix in which no pollen types comprise more than 45% of total) are used to classify honey for sale and for export. Honey classification as defined by Montenegro also differentiates between honey derived from 1) endemic 2) naive 3) non-native and 4) mixed plant species.




According to Montenegro and other researchers, the differentiation of Chilean honeys on the basis of their particular botanical origins represents one way to improve their competitive value on the international market (Montenegro et al., 2008). For this reason, the Universidad Católica has been engaged in a study of the specific beneficial properties of various Chilean honeys – now specifically focused in the O'Higgins region.





Through another laboratory processes, they also test for the presence of heavy metals, transgenic (GMO) pollen, and contamination of residues (agri-chemicals). This information is then all presented to the beekeeper in the format of a certificate.



Much of her laboratory's work surrounds the development of added-value via the patenting of particular honeys for industrial and commercial use (rather than the development of regional food tastes or terroir). These industrial uses include anti-bacterial bandages, food additives and supplements, edible food packaging, anti-aging cosmetics and more.

The following are endemic and native vegetative species that are known to produce monofloral honey (Montenegro et al. 2013). These are seen as potentially marketable as uniquely Chilean honeys, with specific beneficial properties for different uses.

Table 1: Types of monofloral honey from native plants in Chile

	Plant origin	Environment	Recognized Properties
	Quillay (<i>Quillaja saponaria</i>)	Endemic species found in sclerophyll forest of central Chile and in mediterranean arid climates	Positive sensory potential; antioxidant
	Ulmo (<i>Eucryphia cordifolia</i>)	Native species dominant in Temperate “Valdivian” Forest	Anti-bacterial; anti-fungal
	Maqui (<i>Aristotelia chilensis</i>)	Native species present in sclerophyll forest of central Chile and in Temperate “Valdivian” Forest	Antioxidant capacity

	<p>Avellano (<i>Gevunia avellana</i>)</p>	<p>Native species present in sclerophyll forest of the sub-humid zone and in the Temperate “Valdivian” Forest</p>	<p>Positive sensory potential</p>
	<p>Corontillo (<i>Escallonia pulverulenta</i>)</p>	<p>Endemic species present in the sclerophyll forest of central Chile</p>	<p>Anti-bacterial</p>
	<p>Siete Camisas (<i>Escallonia rubra</i>)</p>	<p>Native species present in sclerophyll forest and in Temperate “Valdivian” Forest</p>	<p>Anti-bacterial</p>
	<p>Tevo (<i>Retanilla trinervia</i>)</p>	<p>Endemic species dominate specifically on north-facing slopes of sclerophyll forest in Chile Central</p>	<p>Anti-bacterial</p>

	Tiaca (<i>Caldcluvia paniculada</i>)	Native species of the temperate “Valdivian” Forest	Anti-bacterial, anti-fungal
	Tineo (<i>Weinmannia trichosperma</i>)	Native species of the temperate “Valdivian” Forest	Anti-oxidant and anti-fungal

Beneficial Properties

To test for beneficial properties, in her laboratory students test each honey sample's effectiveness against specific bacteria: *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Streptococcus pyogenes*. Montenegro is in the process of patenting extracts from particular honeys found to be especially effective against these bacteria for industrial and medical use: syrups, soaps, mouthwash, sanitary wipes, disinfectants, topical creams and extracts -- and even bandages with honey extract.

She also examines anti-oxidant capacity. While many consumers are aware of "super-fruits" -- blueberries, acai, elderberry, noni, maqui, etc -- the concept of "super honeys" is in the beginning stages of development. However, in the preliminary stages of Montenegro's research analyzing the phenol levels of pollen

extracts, she's shown that extracts from the following plants have rivaling levels of anti-oxidant goodness: introduced-species Corcolén (*Azara celastrina*) and Molle (*Shinus latifolius*); as well as endemic Quillay (*Quillaja saponaria*), and Ulmo (*Eucryphia cordifolia*) (Montenegro & Ortega 2012).

Apicultural Biozones

"Biozonas Apícolas" is a term used to describe geographic clusters that represent areas capable of producing especially interesting, potent and/or beneficial apicultural products.

Montenegro's project seeks to identify these "Biozones" or "representative typologies" in order to "implement sustainable management strategies for differentiation and the development of new apicultural products" and to establish management guidelines for:

- The preservation of safety and clean production of apicultural products
- The detection of agrochemical residues and GMO pollen
- Advise in the reforestation of melliferous plants
- Disseminate and transfer innovative capacity in regional apiculture, starting with the formation of professionals trained in the differentiation of bee products.

I Currently there are 322 beekeepers participating in Montenegro's "Biozonas" program. Innovation, entrepreneurship and competitiveness; these are words repeatedly used to explain the expected impact of the project. It's basically about capturing the value of differentiating apicultural products according to their botanical origin and properties, in order to generate new business opportunities through added value from differentiation and from the development of new products derived from apicultural products from the region.

Regional Profile

One tourist brochure describes O'Higgins like this: "With comfortable temperatures, celebrations in all seasons and with the tranquility of the country — its always a break to city life."

"Wrapped in native forests of Roble, Peumo, Quillayes and Cyprus, the cordillera of the Libertador General Bernardo O'Higgins Region offers mountains, lakes and volcanoes. Its mineral wealth is source for thermal baths and soils that hide the site of the largest reserve of underground copper in the world. It's pleasant mediterranean climate makes for mild winters and optimal conditions for producing wine, stone fruits and beekeeping.

In between the Andes mountains and the Pacific Ocean are two distinct ecosystems: First, the *Secano Costero*, the arid coastal highlands known for forests of introduced eucalyptus and pine. Second, are the valleys — the Colchagua and the Cachpoal. Just a step from Santiago (90 kilometers), the Cachapoal valley is the passageway to this region and representative of *huaso*, or cowboy culture and identity in Chile. Locals work the fields, the vineyards, make local crafts and celebrate important events like the National Rodeo Championship. A little further south, the valley of Colcahagua is fertile land in which Chile's premier wines and fruits are produced.



Figure 28: O'Higgins region is located in Central Chile, south of Santiago

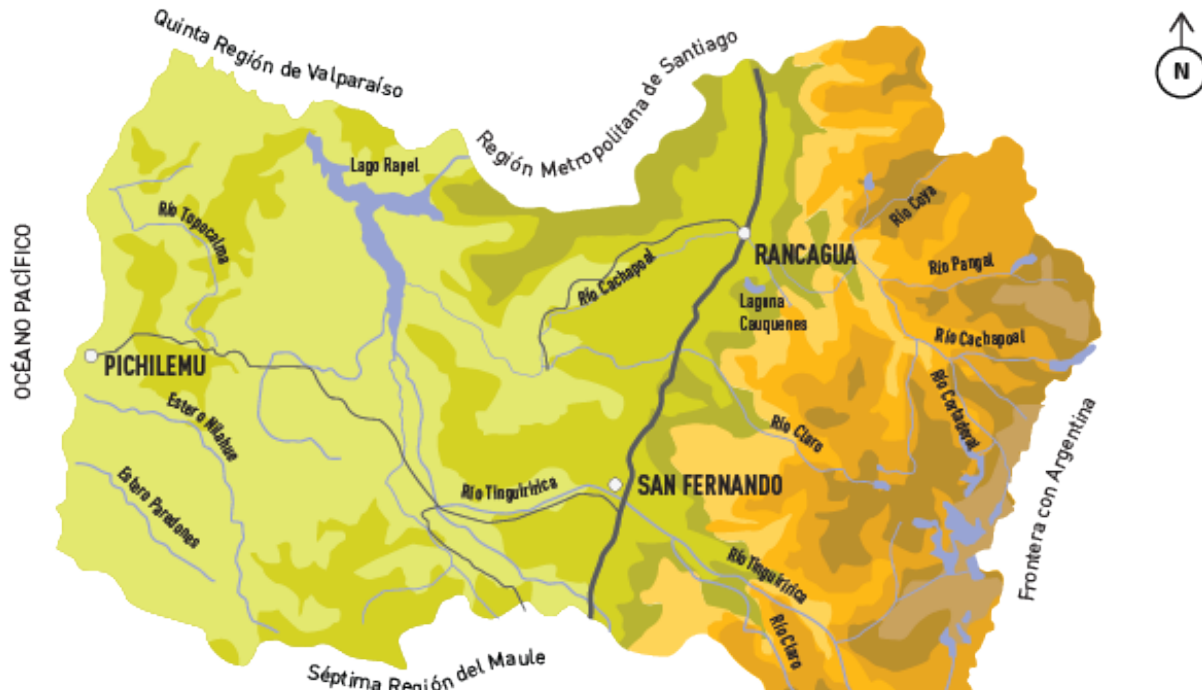


Figure 29: From the coast to the Andes mountains, O'Higgins represents several distinct bioregions









Although, beautiful and fertile, O'Higgins is largely a working, agricultural landscape, not known for tourism. Lonely Planet, perhaps the world's most used tourist guidebook, dedicates two pages to the region, describing like this: "Most of the large settlements here are agricultural service towns; though they're not filled with tourist sights, they make good bases for excursions to the hinterland" (Raub et al. 2012). Meaning, besides the occasional winery tour — there's not a whole lot of interest to the average tourist.

There's another reason O'Higgins isn't known for tourism. This part of Central Chile is also known as the epicenter of the 2010 earthquake. Traveling through small towns and even regional cities, one sees the crumbled churches, the collapsed houses and the reduced tourist options in an area that is largely focused on rebuilding. But this fact makes regional economic development even more relevant.

Honeys of O'Higgins

With respect to the production of honey in the O'Higgins region, the period of production takes place between October and March. Depending on the climate and timing of the blooms from year to year, beekeepers usually harvest first in November, then in January and/or February -- for a total of two or three harvests, using traditional-sized equipment.

"We have a good system of production, flora and climate. If there's not honey here the beekeepers can pollinate, these are the big advantages," said Christian Osorno, beekeeper and former president of APIUNISEXTA of the O'Higgins region. "Because of the climate they can produce genetic material for other regions: bees and queens" (Osorno 2013). He mentioned specifically the possibility to market monofloral Quillay honey as an available plant resource with a distinctive taste. To date, Montenegro's lab has found the presence of eight monofloral honeys in the O'Higgins region:

<p>Table 2: Th</p>	<p>Quillay (<i>Quillaja saponaria</i>)</p>	<p>Corcolen / Lilén (<i>Azara celastrina</i>)</p>	<p>Tebo (<i>Retanilla trinervia</i>)</p>
<p>Endemic Species</p>			
	<p>Arrayan (<i>Luma apiculata</i>)</p>	<p>Litre (<i>Lithraea caustica</i>)</p>	<p>Sauce (<i>Salix chilensis</i>)</p>
<p>Native Species</p>			
	<p>Galega (<i>Galega officinalis</i>)</p>	<p>Alfalfa (<i>Medicago sativa</i>)</p>	
<p>Introduced Species</p>			

REFLECTIVE OBSERVATION

La Ruta de la Miel

The idea La Ruta de la Miel emerged from the Apicultural Biozones concept. A tourist route based on different honey types had been thrown around the Botanical Laboratory at the Universidad Católica for some time. But there were no solid ideas about what this route should be, who should be included, or how it would work – let alone an analysis of the roadblocks that would have to be addressed before really moving forward. This was the topic of the bulk of my reflective observation. Based on my knowledge of Apicultural Biozones and interactions with laboratory personnel, I developed this early definition of La Ruta:

A tourist food route that highlights the Apicultural Biozones and associated differentiated apicultural products based in biological properties dependent on their botanical and geographical origin. The honeys are identified through laboratory analysis and integrated within a wider vision of tourism related to natural resources and existing tourist infrastructure.

My objective was to expand upon this definition with the input of the beekeepers themselves, future participants and leaders of the project. Then I would combine that information with wider research into models and relevant concepts.

Honey Terroir Concept

*It was not until I had seen the fields of New York white with buckwheat, admired the luxuriance of sweet-clover growth in the suburbs of Chicago, followed for miles the great irrigating ditches of Colorado, where they give lift to the royal purple of the alfalfa bloom, and climbed mountains in California, pulling myself up by grasping the sagebrush, that I fully realized the great amount of apicultural meaning stored up in that one little word--**locality**." --W.Z. Hutchinson, *Advanced Bee Culture**

Exploring the concept of distinct honey types via rural tourism is intimately connected with promoting a honey *terroir* culture. Holly Bishop, author of the book, *Robbing the Bees* said, "A colony of bees is like a sponge, soaking up the pools of smell and taste from the flavorful landscape and season in which it is immersed" (Bishop 2005).

When you are tasting honey, you are literally tasting the place — a central concept of *terroir*. The original French term "gout du terroir" translates as "taste of place". Long-since associated with wine, "Terroir is the story of the plants, animals, soil, geography, and climate of a place. It's the unique mark Mother Nature leaves on the color, aroma, and flavor of all agricultural products produced in a clearly defined area," according to C. Marina Marchese & Kim Flottum in their book *The Honey Connoisseur* (2013).



Figure 25: Honey sample in Pumanque

Honey *terroir* is very much in its infancy. The aforementioned 2013 book is really the first attempt at explaining this particular niche for a wide audience. The authors explain, "The composition of honey varies depending on the source of the nectar and the type of soil, climate, wind, and sun that the plant is exposed to during a season" (Marchese & Flottum 2013). Honey acquires its unique characteristics — flavors, aroma, nutrient content — of the plant (the nectar, pollen, and sometimes the resin) from which it is derived, making it possible to produce apicultural products that can be found nowhere else.

In general, *terroir* products are perceived as natural and authentic because they pertain to a defined area where natural conditions and know-how of producers provide unique characteristics to the product (Aurier et al. 2005). In this way, it is very much connected to the "local" food movement, the promotion of specific food identities and an alternative to mass-produced "industrial" food; a differentiation that designates added-value for the consumer.

The concept is arguably more complicated with honey than other products — because of course this product is made by countless living insects. A honey bee colony that collects nectar from a field of clover can produce a different honey from one year to the next. This is often because of the presence of other blooming plants and the way in which the bees mix the nectar inside the hive (Marchese & Flottum 2013).

Important for the concept of added-value, *terroir* places value on growing conditions and production methods in a market where typically low prices reign supreme. *Terroir* in simple terms is a way for producers — in this case beekeepers — to earn more for what they produce. On a larger scale, *terroir* is seen as a device to help restore and protect rural communities because if producers can earn more money, they are more likely to stay on the land (Black 2007). In her book on the subject, author Amy Trubek explains, "*Terroir* has been used to explain agriculture for centuries, but its association with taste, place, and quality is more recent, a reaction to changing markets, the changing organization of farming, and changing politics" (Trubek 2008).

International Models of Api-tourism

There are only a handful of examples of api-tourism or honey-based tourism in the world. One example is in Tenerife, the Canary Islands. Called, “La Ruta de la

Miel” this route represents a one day hiking event which takes visitors into the mountains from apiary to apiary in order to interact with beekeepers and try different honeys. It is a physical activity based on walking from place to place.

Until very recently there was an intriguing non-profit organization in rural Turkey called Balyolu (www.balyolu.com). This organization worked specifically with women in a region famous for honey and brought most American tourists to Turkey for a high-end foodie experience, featuring traditional cuisine and focusing on honey. The experience was based on interactions with small-scale beekeepers, trying different honeys and also walking from place to place on a defined route.

In the provinces of Guadalajara and Cuenca in Spain, exists a relatively “famous” honey – La Miel de La Alcarria. This honey is certified on a national and



Figure 31: Certification seal for Miel de la Alcarria D.O.

international level as Denomination of Origin (D.O.). La Alcarria refers to the region that is famous for high-quality honeys: monofloral rosemary honey (*Rosmarinus officinalis* L.), monofloral Spike lavender honey (*Lavandula latifolia* M.) and polifloral honey called “Milflores” or a thousand flowers. This Ruta is a defined roadway along which it is possible to find many different honey types – all from

different producers, with different labels, but all certified D.O. with a seal in common. To be a part of this Ruta, one needs to follow certain certification guidelines. La Ruta de la Miel in La Alcarria region of Spain is a tourist experience directly related to a certification that works to promote the honeys of the region as products of high quality and integrity (Alimentos de Guadalajara 2013).



Figure 32: Continuous Ruta design examples from La Alcarria region, Spain

Just as with La Ruta del Alcarria in Spain, it seems as though the next step -- after identifying beekeepers with interesting offerings or honey types -- is identifying and mapping cultural, historical and agricultural sites of interest and seeing where these points come together to identify nodes, or starting points for exploration. As Ines Zamora put it, then “we can see where the biggest concentration of things that tourists can go and see and take advantage”. This represents work to be done in the future action stages.

Observations and Interviews: Expanding the Definition of La Ruta



Figure 33: Hector Abarca has 150 hives on land belonging to the state mining company in Machalí

When I was traveling around evaluating potential for La Ruta de la Miel and gauging interest amongst beekeepers, I often had to explain what La Ruta was exactly. Usually, I bounced the question back at the beekeeper: ‘What does a tourist route based on honeys in O’Higgins look like to you?’ I’d ask.

Beekeeper Juan Carlos Cerón said it simply: “I think the point is to demonstrate that not all honeys are the same... it’s like wine. Just like wine”.

Juan Carlos and his wife Francisca operate Colmenares Tikan, a medium-sized operation within view of Lago Rapel. Many Chileans travel to the lake in the summertime, and Carlos said that they already receive drop-in visitors curious about their honey.

Hector Abarca has 150 hives in a beautiful, removed spot near Machalí, in the Rancagua region. He is an expert of his local environment, a capable guide to plants and animals, and a willing participant in La Ruta. His ideas reflected his interest in showing visitors his practices his economic interest in participating in the project, saying:

“The idea is to have all of the beekeeping implements here and if the people come they can get to know the whole process. Not only can they go to the apiary, they can know how to work the wood, in what season we work, and I can demonstrate to them where the propolis extract is prepared – and why not sell hive products?”

Interestingly, Hector mentioned that participating in Católica’s certification program has already made a difference in his bottom line. He has honey customers in Santiago that are willing to pay 500 pesos (one USD) more per kilo because of his *impending* certification. He said,

The people are curious. If you talk about different flavors, of different honeys, they’re interested in exploring this unknown world. It’s like wine. If you don’t show them, don’t demonstrate, nobody knows. Tourists sometimes ask me how I know that the honey is Quillay. And what do I say? I could demonstrate a certificate!

Monica Rodriguez has around 200 hives on her property near San Luis. She currently exports 90% of her product, but has a wide array of products for sale in Chile. She markets monofloral Tevo honey as well as polyfloral honey from native plants. She sells capsules of pollen and propolis, propolis tincture, creams, soap,



Figure 26: Monica Rodriguez in San Luis has 220 hives

shampoo, honey liquor and more. Laboratory analysis of her honey certify that some have a strong antioxidant and also antibacterial capacity.

She often hosts school groups or friends from Santiago, and has a keen interest in formalizing an api-tourism scheme in the region, saying: “My idea is to have different trees and put on them the name and the origin for when children come,” reflecting a desire to use bees and honey as a platform for broader environmental education.

Monica’s apiary in San Luis is not an easy place to get to. On an auxiliary road with little public transportation, this is an example of a component that must be weighed in the overall Ruta design.

Luis Riveros has around 200 hives close to San Fernando in a traditional wine-growing hamlet called Alto Patagua. A large part of his beekeeping business is pollinating the citrus and peach orchards in the surrounding area. As a result, he proudly produces *miel de azare*, or monofloral citrus honey, among others. Luis has planned to incorporate tourism into his business for sometime. He built a small *cabaña* or cabin to receive guests on his acreage and has a vision for a tasting and sales room or a *salon de ventas*. He also has a rustic, wood-fired Jacuzzi that is part of the package.

Envisioning his participation in La Ruta, he said:

“The idea of my *salon* is to have all of the honeys nicely labeled, with a glass case... Homemade bread with honey for example, *tortilla de rescoldo*...



Figure 35: Luis Riveros is building infrastructure to host tourists in Alto Patagua

Above here is a lagoon, we receive people passing through, if they want they can come here and camp...”

Luis envisions having the different honeys that he produces side by side for visitors to taste. He also makes special products with like the traditional open-fire-baked *tortilla de rescoldo* and even an invented cocktail involving local liquor *aguardiente* and *arrope* – a syrup made from reducing honey over heat. The location -- proximity to the Casa Silva winery and steps away from attractions in the mountains including thermal baths -- his distinct culinary offerings and aptitude and attitude as an enthusiastic entrepreneur make Luis’s place a perfect stop on La Ruta de la Miel. Laboratory results show that Luis can produce monofloral honey of Quillay, an endemic species of interest.



Figure 36: Carlos and Benedicta Navarette own and operate an api-tourism attraction near the popular resort town of Pichilemu

When researching beekeepers who would be appropriate ‘stops’ on La Ruta, I was surprised to find one established ‘api-tourism’ operation in the O’Higgins region. Near the popular beach town of Pichilemu, Carlos and Benedicta Navarette are beekeepers who decided to turn their home and property into a museum and showcase of everything apiculture. They only actually have 65 hives, but make their living by charging a small admission fee to their property.

They have playgrounds with big bee statues, hives with glass-sides, examples of traditional beekeeping equipment and hives and other educational and recreational displays. Apiturismo Las Comillas is relatively simple, with a store on site and a kitchen offering traditional foods over fire. They sell some special items

not found anywhere else, like *cocadas*, a spin-off of a traditional Chilean cookie that Benedicta makes with pollen and propolis. She is also a licensed apitherapist and treats a limited number of clients on site.

Apiturismo Las Comillas is a great example of api-tourism; they are innovators and produce a diverse offering of products from the hive. They are nearby to other attractions. Nearby are salt flats where sea salt is harvested in a traditional manner. Quinoa is also grown and available in the area. Nearby is a reserve where it is possible to see the endangered Black-Necked Swans. For these reasons, Las Comillas could serve as a major attraction on La Ruta de la Miel.

Many emphasized that quality must be a priority when organizing stops on La Ruta, “The important thing is that if I go and do the route, when I arrive I want the offering to be worth it; worth the effort to have done the route and arrived at the place,” said Ines Zamora, an apicultural consultant with the Dayenu firm in San Fernando.

Sergio Vallebenito is a stakeholder who is interested in eventually participating in La Ruta. But he and his family no longer have beehives, instead they are middlemen, exporting honey from small-producers in the *Secano Costero* region to Europe. They also make honey alcohol, called *hidromiel*, and live in a town popular with mountain bikers, located close to the Cordillera. After I explained the Ruta initiative, they immediately began to brainstorm about how exactly they could participate, saying that they



Figure 37: The Vallebenito family in Rio Negro buy honey from small producers

needed to improve their ‘offering’ before signing up to receive tourists. “The ability to receive people, converse with them, to be able to make a presentation, what we need to strengthen is the attraction, what they come to see... it’s not just ‘here is honey’, that is not interesting,” said Sergio over honey liquor at his dining room table.

Finally, some expressed that La Ruta should not be repetitive, that each location on the map be unique-enough to be of interest when grouped together as a single experience. Hector Abarca noted the importance of individual innovation when imagining one’s participation in La Ruta. “The idea is that all over they see different things because nobody cares about more of the same,” he said. But to do this, he noted, beekeepers would have to work together to coordinate their distinct offerings.

What emerged from these conversations were also two practical requirements each participant of La Ruta de la Miel: that the beekeeper offer high-quality honey produced locally (preferably certified by the Universidad Católica) and that the beekeeper offer some kind of experience to the visitor. This could mean anything from a storefront with local honeys and other foods to an educational component to a campground for guests. But high-quality honey and a loosely-defined experience were defined as a baseline for participation in La Ruta.

Added-Value

The problem is that although Chilean beekeepers are capable of producing spectacular honeys – that are absolutely distinct and in every way a reflection of nature and of its biodiversity; that each have distinct flavors, textures, properties, and stories behind their production – the great majority are exported from Chile as simply ‘honey’. This identity-less honey is simply a commodity. But when honey starts to have an identity that separates it from the rest, based on botanical origin,

organic or fair trade certification, geographical origin, or based on a producer's identity; this honey can be worth more to a consumer. This is added-value.

The analogy that I always used with the public was that 30 years ago, wine was exported in bulk from Chile as simply wine, without concern for origin, or grape, or family history, or management practices – and now, there is a wide pantheon of wines that are priced according to quality and their defining characteristics. There is also a wine culture associated with differentiation; the idea of being an expert, knowing how to pair wines, etc. is the result of essentially a campaign by winemakers to promote distinct products that are more than just 'wine'. Chilean wines are not only enjoyed worldwide, there is also a blossoming domestic market for fine wines – and an associated tourism route.

An explicit goal of the Apicultural Biozones project and La Ruta de la Miel is to capture the value of differentiation via botanical origin in order to generate new business opportunities, entrepreneurship and innovation within a traditionally marginalized agricultural sector.



Figure 38: Medicinal-quality monofloral Manuka honey from New Zealand

Making Honey Famous: The Manuka Example

The case of monofloral honey from Manuka (*Lepstospermum scoparium*) is an especially interesting example. A native of Oceania, this tree commonly known as the tea tree is part the Myrtaceae (myrtle) family. When bees visit its large white and pink flowers during the Australian summer, they produce world-famous medicinal honey. Today doctors

around the world write prescriptions for manuka honey for patients suffering from a variety of illnesses (Marchese & Flottum 2013).

But Manuka honey did not become famous by itself. The company Manuka Health has worked for decades to demonstrate scientifically the effectiveness of its products, now patented as products such as MGO Manuka Honey (trademark), B1030 (trademark), New Zealand Propolis, etc. In order for a honey to be labeled as Manuka, at least 70 percent of its pollen content must come from the plant. The honey is also ranked with a number known as the Unique Manuka Factor (UMF), which measures the potency of its anti-bacterial properties. The UMF ranges from 10+ to 40+. The higher the number, the higher the concentrate, and the more expensive the honey (Marchese & Flottum 2013). Manuka honey sold as “Medihoney” sells for 35 Australian dollars per kilo, versus 7 Australian dollars for a common honey (Montenegro & Ortega 2012).

Chilean scientists look to Manuka's success story as a model for their own efforts to develop value-added honey products. Several monofloral Chilean honeys



Figure 39: Tineo active 20+ is a new Chilean product marketed in Europe for its natural antibiotic properties



Figure 40: Chilean active +10 "rainforest" honey is marketed in Europe as a mask to stop aging

— Ulmo, Quillay, Maqui and Tineo — are in the beginning stages of development as the next “super honey”, scientists are exploring their comparative ability to kill a range of human and agricultural pathogens, with promising results (Montenegro & Ortega 2012).

Researchers are also interested in the antioxidant activity of these honey and pollen extracts. This emphasis makes sense in a country where honey is already associated with medicinal use. But with both biological activity and antioxidant ability, each apicultural product tests differently according to its botanical origin and geographical location (Montenegro & Ortega 2012). This means that monofloral Quillay honey is different from place to place — making it important to test a wide-array of products to find if there are in fact "hot spots" or zones that it would make sense to set aside as honey-producing regions.

Rich Picture and SWOT

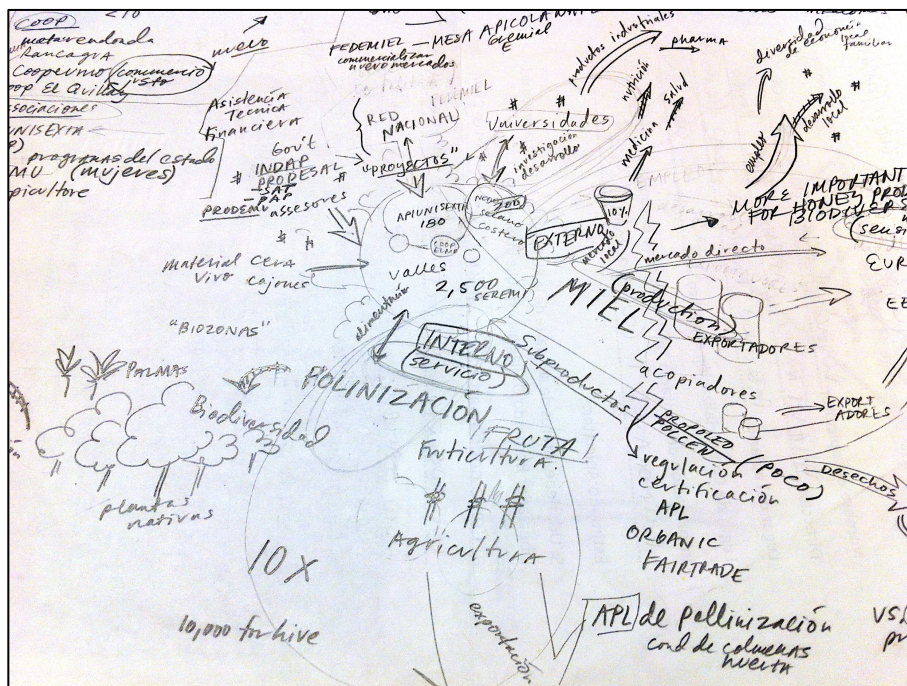


Figure 41: Rich Picture developed along with a small group of beekeeper-stakeholders

I used the Rich Picture tool to identify the complexity of multiple interacting relationships in the honey supply chain as a whole in Chile. As a researcher in a new environment, it was helpful to sketch everything out and constantly add to it as I uncovered more information.

To evaluate the challenges and opportunities associated with the "Ruta de la Miel", I asked potential participants about the strengths and weaknesses they perceived and I analyzed the potential from my perspective as an international visitor to the region. I came up with this SWOT analysis:

Table 3: SWOT of La Ruta de la Miel in the O'Higgins Region

Problematic situation: create a tourism route based on beekeeping and products in the Bernardo O'Higgins region of central Chile.

Strengths	Weaknesses
<ul style="list-style-type: none"> - Still Produced in Small Quantities in Chile, Artisanal Product - Most beekeepers are small-scale, approachable - Region Close to Santiago - La Ruta del Vino and Existing Agri-tourism - Diversity of bee products; honey types found - Honeys with beneficial properties (ongoing studies) - Diversity of beekeepers, identities - Gastronomy/other products of Interest: Salt, Olive Oil, Wine, Quinoa, Fruits - Communication: A Functioning Regional Organization - Leaders and Innovators 	<ul style="list-style-type: none"> - Low Consumption of Honey in Chile - Production Takes Place in Remote Areas - Honey origin and properties inconsistent over time - O'Higgins not a "sexy" tourist destination - Not known for honey; no 'famous' honeys -- yet - Presence of plantations and industrial agriculture, chemicals

Opportunities	Threats
<ul style="list-style-type: none"> - Popularity of Local Foods - Honey is Ancient Food, Practice, Medicine - Internal Market -- room to grow (presence of natural pharmacies; spaces for natural products) 	<ul style="list-style-type: none"> - Do Tourists Want to Get Close to Bees? - Sanitation Requirements Prohibitively Strict for Small Producers to Participate - Too Specialized, Small Niche - Low Levels of Associativity / Collectivism - Political and Group Infighting

The Rich Picture and the SWOT were useful tools for defining my research, however I did not have the opportunity to facilitate these tools in a formal workshop setting. Instead, I had beekeepers and other stakeholders give me feedback on both the SWOT and Rich Picture in individual interview environments – thereby gradually creating a composite scenario. The discussions around these activities were ultimately more worthwhile than the end products. However, through further analysis and reflection on these tools, I came up with following key issues surrounding La Ruta de la Miel:

ABSTRACT CONCEPTUALIZATION

Key Issues

Strength: Existing Rutas in O’Higgins

There are two existing tourist routes of interest in the O’Higgins region: the Camino Real, based on an original Inca trading route, and the Ruta del Vino or the Wine Route. The Camino Real has two branches: one that follows the coastline, the Secano Costero, and one that traverses the agricultural valleys, the Camino

Real de Corregimiento de Colchagua. They are not walking trails, but specially designated highways that connect small towns of historic interest. The Camino Real is described in one tourist brochure as "an invitation to go back in time, away from the noise and speed of modern life. You will go through an area surrounded by a peaceful rural environment, just close your eyes and you will hear the sounds of nature carried by the wind".

But probably the biggest tourist draw to the region, certainly with respect to agro-tourism is the wine industry. There are organic and biodynamic vineyards like Emiliana where you can get a tour and event have a gourmet organic picnic. There's Viu Manent, a third-generation family-owned vineyard where you can take a carriage tour through the vineyards. The wineries work together to some extent to promote La Ruta del Vino, a designated route for wine tourism, which can be sold as a package deal wherein you visit many wineries in one day. Although currently out of service for repairs, there was also the Tren del Vino, the Wine Train, a old steam-engine that used to also transport wine tourists from San Fernando to Santa Cruz, stopping at vineyards along the way.

That these exist certainly represents a strength to the Ruta de la Miel idea and there are certainly opportunities to combine La Ruta with existing rural tourism infrastructure and routes currently in place.

Threat: Expanding the Niche

Do Chileans or international tourists care enough about honey to travel to see how it is produced? The fact that Chileans consume relatively little honey and therefore arguably have little connection to the process behind the product may present a challenge. But looking at the example of the Ruta del Vino, the Wine Route, a Chilean “foodies” and international visitors seem to be the principal participants.

Another unexplored possibility is to connect La Ruta with health tourists and regional spas and hot springs. In general, expanding the honey niche into the tourism sector will require 1) greater demand for honey in Chile and/or 2) a marketing campaign targeted at international visitors.

Weakness: Limited Culture of Added-Value or Marketing Strategy

The fact is that for the time being, most beekeepers are producing honey for export. Honey is regarded largely as a commodity, even by the beekeepers themselves. “Because 90% of producers, they are going to present a 300 kilo barrel, or at most a plastic kilo; they have this to offer [the tourist],” said consultant Rodrigo Donoso. This was certainly evident in my travels to visit far-flung, small-beekeepers. It might be high-quality honey, but there was no way to tell. Each small beekeeper presented their offering in the ubiquitous plastic container without labeling or distinguishing between varieties. To make La Ruta a success, the offering must be more interesting, requiring innovation and differentiation. Each beekeeper must be prepared to market their honey by telling a story about their honey and about themselves as producers.

Weakness: Associability

Beekeeper Monica Rodriguez explains the individualism of her sector this way: “Beekeepers are far away from each other and because our work is this way, the further away you are the better”. But she says, working on a tourist route will require working together, greater associability.

Beekeeper Jose Lopez put it this way: “I don’t know, it could be a problem with our culture, maybe it could be part of our idiosyncrasy, maybe we are

untrusting? I don't know.” Jose was the beekeeper that told me that everyone he knows uses flea-repellent intended for dogs to fight varroa mites, even though it is an unpermitted substance.

When approaching this topic with beekeepers, I noticed that many were resistant to share ideas, for fear others would copy or steal them. Infighting is a major concern, the inability for certain personalities to work together. For example, APIUNISEXTA, the region association changed leadership – the old president was pushed out several months after my arrival in Chile. The beekeeper-members were split as far as their allegiances, and discrimination and prejudice were a real concern. This makes associability a major weakness considering the current state of affairs.

Root Definitions of La Ruta

After gathering information about the phenomenon or situation, and structuring this information via a SWOT analysis; some root definitions of La Ruta de la Miel evolved. In Soft Systems Methodology, in order to make models of purposeful activity – and identify relevant systems of transformation – it is important to have a statement describing the activity system to be modeled (Checkland & Poulter 2006). These descriptions are known as Root Definitions and they simultaneously answer the questions: What? How? And Why? My Root Definitions for La Ruta are as follows:

1. A tourist experience to connect visitors with beekeepers in the O'Higgins region, by creating a brand and map concept, in order to give consumers

descriptive, scientific and spatial information about the special characteristics of locally-available honeys.

2. A tourist experience to connect visitors with beekeepers in the O'Higgins region, by highlighting the ecosystems that are the source of unique honeys, in order to bring attention to the conservation of pollinators and their environment.

3. A food system in which Chilean honey is consumed in Chile, by identifying and promoting distinct regional honeys, in order to create added-value for bee products and make viable alternatives to exportation.

Although I may use the term “experience”, I am still referring to a *system* of human activities that describes interactions among multiple stakeholders -- primarily beekeepers and tourists – but also government and University officials, farmers, community members etc. These diverse human actors interact then with hard systems: the transportation system, the international trade system, the import and export system and so on.

These Root Definitions express just what transformations are necessary to achieve the desired outcome. These are 1) the creative marketing of local honeys via 2) the specific development of a map tool. The third, loftier, big picture goal is also connected to the general concept of promotion. La Ruta de la Miel emerged as a specific method to create synergies between producers and consumers for their mutual benefit. With these Root Definitions defined, it was clear that my contribution would be a marketing concept to promote distinct honeys of the region.

But there is an important caveat: these Root Definitions and necessary transformations are very much the product of my own world view. The problems

associated with the beekeeping industry are numerous – as I describe in earlier sections. My prioritization of marketing and tourism development is as a result of understanding these issues more clearly than some of the other more technical problems. As in earlier stages of my research, my worldview – my competencies and interests – influence greatly the emphasis from this point forward.

REFLECTION ON (CASE-SPECIFIC) RESEARCH QUESTIONS

In order to answer the research question: ‘What is the potential for rural tourism based on differentiated honeys or "api-tourism" in the O’Higgins region of Chile?’ I investigated concepts of rural and agri-tourism in Latin America generally, I searched for examples currently in place in the O’Higgins region, and I looked at examples of honey-based tourism elsewhere in the world. Through this review of relevant literature and examples, I found that the potential for api-tourism is high based on the following pre-existing conditions: the presence of high-quality, unique honey varietals (natural resources); the tourism infrastructure (new and preserved man-made resources), and the interest among beekeepers and other stakeholders (innovation capacity).

I found in my conversations and own experience as a traveler that the O’Higgins is simultaneously just close enough and just far enough away from the main population center in Santiago – where a local foods culture is emerging – that there is a real possibility to attract weekenders who would be curious to experience something different and new. The diversity of options outside honey tourism, the other natural and cultural points of interest, also make attracting tourists a realistic scenario. The attractions in the region, although affected by the 2010 earthquake, are widely accessible by road. According to my research into existing models worldwide, the concept of tourist route based on *different* honeys from within the

same region is without precedence. The fact that La Ruta de la Miel would be something new and novel, specific to this region in Chile, could attract wider attention from international visitors.

I also found that the beekeepers of O'Higgins were extremely interested in participating in something new, adding-value to their product, and pursuing tourism as an additional source of income. The social challenges ahead for the beekeepers include working together to coordinate the creation of La Ruta. Although the structure of the honey supply chain can be seen as a challenge to other proposals requiring cooperation for standardization, the disperse and diverse nature of the beekeepers in this scenario is found to be a positive attribute. However, there is a need for coordination of individual activities to avoid repetition and promote La Ruta as collection of beekeeping attractions.

There are six native and/or endemic monofloral honeys found to exist in the O'Higgins region (Montenegro, Gómez, Díaz-Forestier, et al. 2008). The natural conditions exist, and beekeepers possess the knowledge and ability to produce honey varietals. However, because the perception is that consumers do not value different honeys and because it is easier to sell the honey in bulk to a middleman, beekeepers seldom market honey varietals. To change this scenario is the biggest challenge to the proposed La Ruta de la Miel.

This problematical situation is as a result of both structural and attitudinal constraints. Montenegro and others see certification of botanical origin as a necessary step towards changing this scenario – a high-tech solution that addresses the attitudinal constraints by attempting to add-value with scientific intervention. La Ruta de la Miel would address these same attitudinal constraints by bringing consumers closer to the production process. Through publicity and marketing, La Ruta de la Miel can introduce a culture of terroir to the Chilean and international public.

Therefore, I focused the action portion of my research on publicity and marketing concepts that I would later propose to beekeepers as pilot concepts. This active experimentation process combines my in depth research on the strengths, weaknesses, opportunities and threats – as well as the root definitions that emerged - to examine the research question: what would La Ruta de la Miel look like?

ACTIVE EXPERIMENTATION

In what represents the active experimentation portion of my research, or the converging and planning part of my learning process, I present my specific proposals for future action. What could be? What is the future-wanted "Ruta de la Miel"?

These are the objectives of La Ruta de la Miel:

- Offer a unique tourist experience based on different types of honey
- Increase the demand for differentiated honeys – especially those that highlight endemic plant species
- Attract national and international attention to high-quality Chilean honeys
- Increase consumption of honey nationally
- Foster cooperation among researchers and beekeepers; and among beekeepers themselves
- Highlight the agricultural culture and biodiversity of the sixth region
- Attract more visitors and contribute to economic development of the region

Practically speaking, La Ruta is first and foremost a map. A tool by which the curious consumer can access information about beekeepers, their products and relate them to a particular place – and even find them if they so desire!

Product: The Map

At this stage, I began to design a pilot La Ruta de la Miel. A preliminary map is organized via nodes of interest. These nodes could be used as starting-points to discover specific outlying attractions: beekeepers, their products and activities as well as existing tourist resources.

The idea of “nodes” arose from conversations with beekeepers and development professionals. Independent consultant Ines Zamora described nodes as center points from which several beekeepers are connected; “points that are also associated with another offering, for example La Ruta del Vino”.

I originally sought to combine information on Apicultural Biozones – geographic areas in the region that are abundant in melliferous plant resources and in which particular honey varietals are produced – and nodes of interest with respect to the beekeepers themselves. Where are there collections of beekeepers

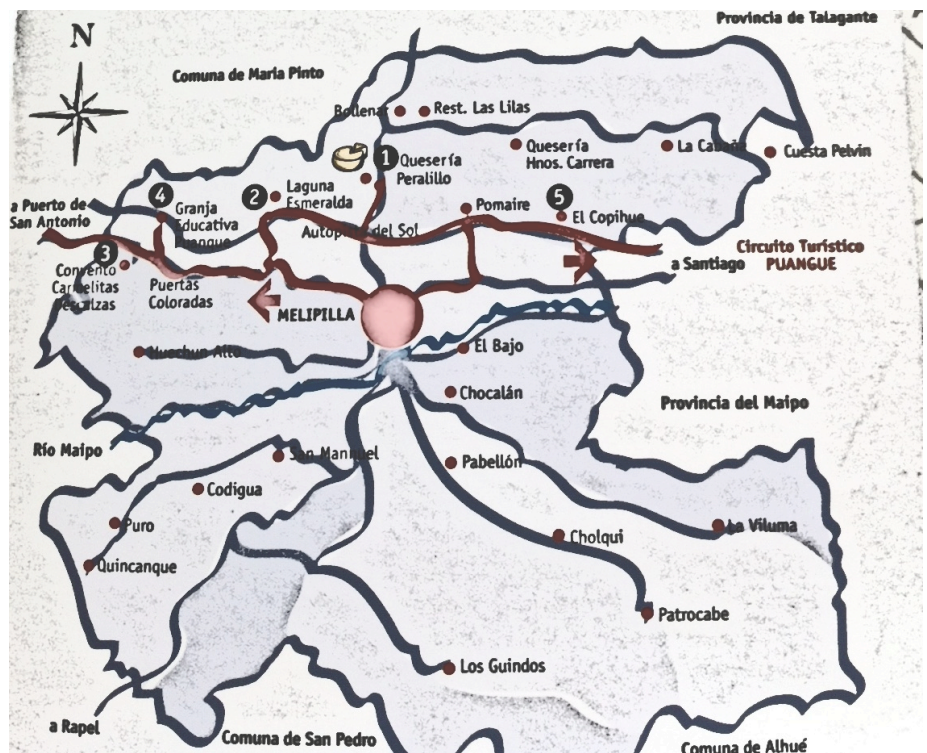


Figure 42: La Ruta del Queso in the Metropolitan Region

who are willing participants in La Ruta, who have high quality products and can provide an experience? Then, how do these layers overlap with already-existing cultural or tourist resources? One model I referenced was La Ruta del Queso – exemplifying the “nodes” concept -- which was a cheese-based tourist experience in the Metropolitan Region of Chile that is no longer operational. I also looked at any examples I could find from around the world.

When I traveled around meeting beekeepers, gauging interest, looking into existing possibilities, and interviewing many about the concept of La Ruta, I took pictures and detailed notes about each location. These pictures were geo-referenced using UTM coordinates via GPS on my cell phone.

At the finish of my field study period, I uploaded all the coordinates into Google Maps and designed a custom La Ruta de la Miel map.

When you press the bee logo symbolizing each beekeeper’s apiary or home, the following descriptive information appears in Spanish (soon to come is an English version):

- Information about each beekeeper
- The products and services they offer
- If their honey is certified via the Universidad Católica and relevant results
- Information about the natural and cultural environment and surrounding sites of interest

See the Digital Appendix for a link to the La Ruta de la Miel map and to explore it on the web.

On the map you notice the diversity of beekeeper in the O’Higgins region, from young entrepreneurs to established beekeepers with more than 30 years of experience. There are an abundance of women, and some children who are also featured in the profiles. There are a wealth of interesting stories, the exporter of

queen bees to Canada; the homemade liquor and campsite by the lake. There are beekeepers who export their product to other countries, and a wealth of very small-scale participants in PRODESAL, a rural development program that trains resource-poor *campesinos* to keep bees. It is questionable if all of these very small-scale producers will continue to exist after their technical and financial assistance is weaned away. But there are some examples of successful business people who have started this way.

Geographically, it's hard to say there are trends at this point. But there are a collection of beekeepers around Ranco Lake in the northwest part of the region. There are also a number of beekeepers near Parque Nacional Las Palmas de Cocalán, which is a private reserve in which the endangered Chilean wine palm (*Jubaea chilensis*), one of the world's southernmost palm species. There have been recent trials in nearby parks to produce Chilean wine palm monofloral honey as a way to bring awareness to the tree species and encourage its protection (Howitt 2008), and this could be a future possibility for beekeepers near the reserve in O'Higgins.

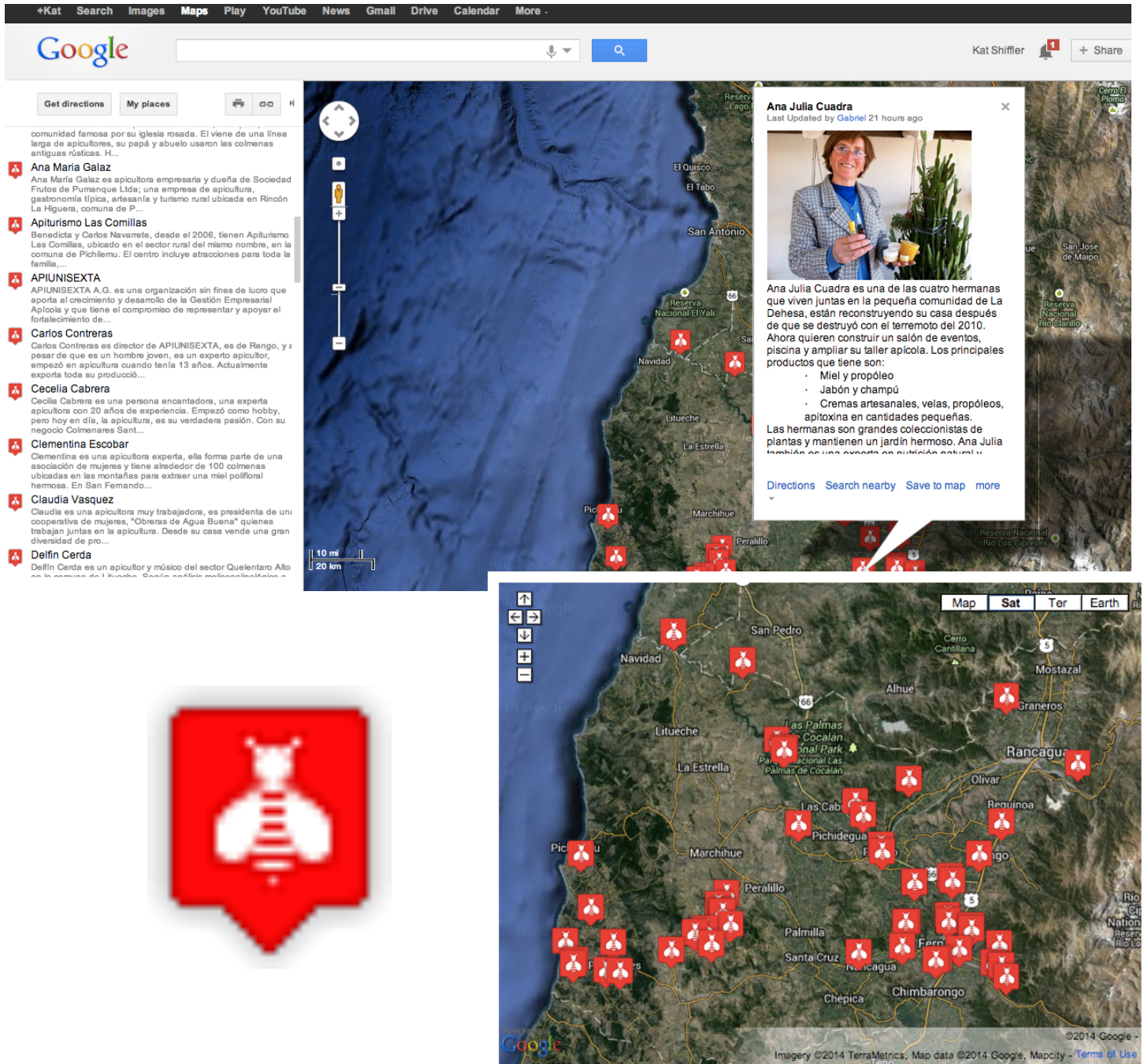


Figure 43: Screenshots from the Google Map tool. Each beekeeper is identified by a red bee and when clicked-on reveals a photo and descriptive information about their operation and products available.

The Brand Concept

This is the text that I developed along with Chilean colleagues, beekeepers and other stakeholders, to accompany La Ruta de la Miel:

From the cordillera of the Andes, to the valleys of wine and fruit, to the dry lowlands of the *Secano Costero*, we invite you to try the distinct flavors of the O'Higgins region.

The honey is produced by bees who consume the nectar of flowers. It is a natural food, derived directly from nature. The recipe doesn't change, only the flower, the nectar, the season and the environment in which it is collected. These are the factors that make every honey unique in color, aroma and flavor.

This is an artisanal product made on a small-scale. It has been certified free of GMOs and chemicals by the Universidad Católica of Chile.

To learn more about each product, its beneficial properties and the life stories of the beekeepers that dedicate their time to harvest each unique honey, we invite you to explore La Ruta de la Miel.

Come with your family and learn more!

As far as the marketing of La Ruta, we thought it was important to provide basic information about what makes honeys different from one another, emphasizing that it is a natural and artisanal product made on a small-scale.



Figure 27: Bee Local, a hyper-local honey company in Portland, Oregon

I drew much inspiration from a gourmet honey company in Portland, Oregon called Bee Local. The honey in this case is sourced from different neighborhoods in Portland, and marketed in small batches with a hyper-local appeal: taste the flavors of your immediate surroundings, or better yet, try them all! This is a brand concept that applies to hip, urban populations and the Bee Local niche has tremendous added value – selling for the equivalent of \$60 a kilo! I was very inspired by their design concept and the manner of ‘writing in’ names and batches that represented different neighborhoods / varietals, while maintaining a common brand identity (Bee Local 2014).

I started out with preliminary sketches of an idea that combined the marketing of “micro-batch” honey with a common brand identity for the beekeepers participating in La Ruta de la Miel – with a high-tech twist to make the product connect directly to the map.

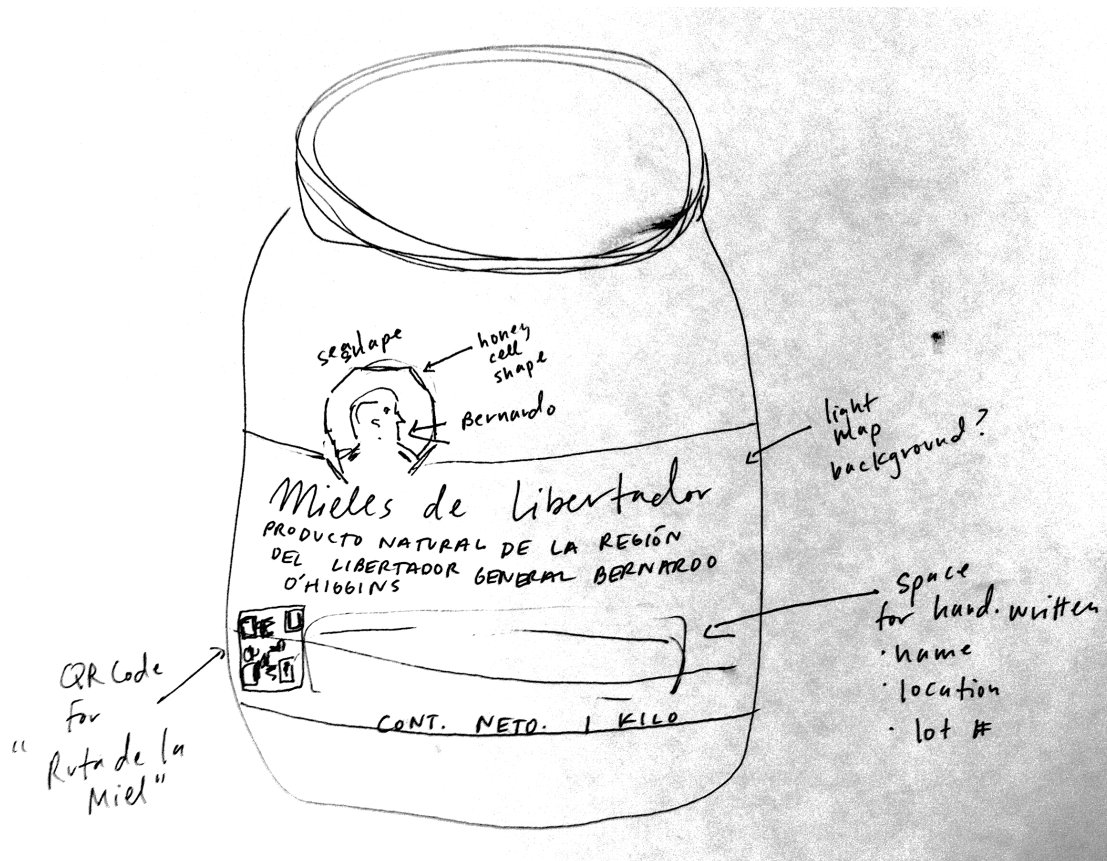


Figure 45: Preliminary sketch of marketing concept



Figure 46: Final marketing concept, a common brand identity and label designed by Drew Frist

I sent the early prototype along to New-York based designer Drew Frist, who came up with a prototype for a common label for Ruta participants’ honey. The text reads: “Certified Bee Honey” and features the Universidad Católica’s seal. Below it reads: “Explore la Ruta de la Miel”. And the space in the middle is room for individual beekeepers to write-in their name, their location and the type of honey being sold. Similar to Portland’s Bee Local, there is a uniform identity, adding

credibility to a large pool of otherwise generic honey. But the added-value of individuality is still central to the project.

Also featured on the common label is a QR code. This is a commonly-used marketing tool and can be found in everything from flyers on the Santiago Metro to a bottle of water. The function is that when you scan the code with a smartphone you are taken to a particular website. It functions like a hyperlink. In the case of La Ruta de la Miel, scanning the QR code transports the consumer to La Ruta de la Miel, for now on the Google Maps platform. The product, the honey, is like the key to the treasure chest.



Figure 47: QR Code is used to link the product to the map



Figure 48: Label used for generic plastic containers and QR code used by Ruta participants who have an individual brand identity

In cases where individual beekeepers sell honey in generic containers, the label can be a step towards specifying and professionalizing their product (left). Other, often larger beekeepers, already have their own labels. If they wish to participate in La Ruta de la Miel, they can simply place a smaller seal featuring the QR code (right). That way their operation and product can also be connected to the map.

Taking cues from Bee Local and other examples of gourmet varietal honeys, the marketing message is clear:

- Honey is an all-natural product that is a true reflection of our natural surroundings.
- There are many different kinds of honey. One way to experience Chile's natural landscape is by tasting it. Literally.

Marketing of La Ruta



La Ruta de la Miel

Figure 49: Design concepts for marketing of La Ruta, by Drew Frist

It is important to develop a brand-identity and a certain “look” to the Ruta concept. In the future, each participating beekeeper could have a sign identifying their apiary, home or store. Some of the design concepts we developed include images of bees, stylized maps and of course, General O’Higgins himself.

To market these products, it is important that they are widely available. I propose that the honeys be available for sale on site, from individual beekeepers, as well as in *cameras de turismo*, or tourism offices across the region. Every city and town has a small office and the opportunity exists for an educational display on La Ruta de la Miel, a print-out of the map, and honey for sale. From there, the customer-tourist buys their ticket to explore the honeys of the region at their own pace.

RESEARCH IN ACTION

While in Chile, I was able to share the general concept of honey terroir and tourism based on honey, as well as specifically present the marketing and branding concepts outlined above. Action and outreach took several forms:

Honey Tastings



Figure 50: Honey tasting at the Rural Expo in Santiago

I conducted three honey tastings in Santiago. The first was at a large three-day event called the Expo Rural, a small-agriculture trade show and celebration organized by the agricultural development institute (INDAP). I did this in conjunction with the Universidad Católica's table at the event. At this massive event, we educated the Chilean consumer public on what honey is, and that there are in fact different types – this was basic information reflecting basic general knowledge of the subject.

The second was with three up-and-coming Chilean chefs and an American food blogger in Santiago. I had the guests taste six different honeys — representing

diverse tastes of the O'Higgins region — describe the taste of each and come up with ideas for potential uses in dishes. I was able to promote not only the use of local honey, but also the idea that there is a great diversity of flavors resulting from different botanical origin. The third tasting was a part of a presentation I gave at the U.S. Embassy. In this case, I brought nine distinct honeys and talked about the honeys of Chile in general.

Public Presentations

The culmination of my work on La Ruta, I presented my findings and action proposal for a regional brand at the Encuentro Nacional Apícola that took place in San Vicente de Tagua Tagua August 2 and 3rd, 2013. I was the keynote and final speaker at the International Beekeeping Meeting, where I spoke for more than 40 minutes, presented the general concept of La Ruta, reported back on my progress, presented the interactive map, and received a limited number of questions from conference attendees, representing development workers, government officials and beekeepers. I also presented at several community meetings in municipalities along with other University representatives.

Media

I did a local radio interview about La Ruta de la Miel in San Vicente de Tagua Tagua. There were several national newspaper articles about the larger project (see appendix).

Videos

I did not set out to make a Ruta de la Miel video, specifically. My videos focused on other stories of beekeepers and their differing models across the country. But in

the future, if I return, the plan is to make a video about the first group of tourists who try out La Ruta de la Miel and produce a promotional video.

Future Steps

Continuity

These project outputs were used to organize my findings and present them to beekeepers, government officials and academics who continue to pursue the project to this day. In particular the map and the videos seem to be particularly useful in explaining and sharing the general idea of added-value honey, and specifically, the nexus of tourism. This is likely because of the visual nature and common language (non-academic) that they permit. I've received wide acclaim for both project outcomes from beekeepers themselves, although they are still works in progress. A continuation of this project, a further analysis and design of La Ruta de la Miel, has turned into a Chilean masters student's thesis project.

Precisely because I was a visitor to Chile, and not a long-term resident central to any agenda for action was passing along my research to somebody who would continue to develop the concept and along with beekeepers in the region, eventually put it together. The larger Biozones project is slated to conclude in December of 2014, which is also the deadline for a trial run of La Ruta de la Miel. I hope to actually return to Chile for that trial run, and along with key stakeholders and project participants, members of the national and international press, travel an exemplary portion of La Ruta.

Luckily for me, and for the continuity of this project, I was able to pass the torch before I left. In particular, I left a long list of contacts and “centers of interest” and “areas to develop” that I identified in my travels. I continue to be in

touch with Gabriel Pantoja, the master's student who has taken over my role and it is my hope that this thesis (specifically relevant segments translated into Spanish) can be useful in transferring knowledge not only to him, but also to future participants.

I also left a document containing my initial reflections on the project, regarding technical issues with the map, more conceptual concerns regarding representation and specific future steps to be taken behind the scenes.

In presenting my work on La Ruta de la Miel to beekeeper and stakeholder audiences, I left them with list for future actions:

For Individual Beekeepers

- Put yourself on the map – inscribe and participate!
- Contact University representatives for an initial visit, to mark GPS coordinates and take pictures and honey samples
- Contribute ideas about the design and marketing
- Be ready with a diverse product offering and the experience you are willing to offer

For Stakeholders, including Beekeepers

- Organize participation in your Biozone
 - Who are geographically close and can offer something jointly
 - Meet as Nodes to coordinate
 - Incorporate existing tourism

Other Actors to Involve

- Municipalities and local tourism offices
- The Rural Tourism office of INDAP
- Complementary gastronomic resources
 - Restaurants, road-side stands, small-scale agriculture, wineries
- Lodging resources
 - Hotels, hostels and camping

For University Project Coordinators

- Figure out a way to better synthesize scientific pollen analysis and emerging Apicultural Biozones results with descriptive information of La Ruta de la Miel in a single map concept.
- Present scientific findings to honey consumers in a way that makes sense
- Figure out what scientific analysis means over time – how can beekeepers be certified from harvest to harvest, year to year, when honeys are constantly changing
- Continue to incorporate the ideas of beekeepers. More participation!

Future Prospects

Stepping back into the real world situation, I checked these visions against the key issues, weaknesses and threats originally identified.

Participation

Beekeeping technical advisor, Rodrigo Donoso dialed back some of my aspirations by saying, “To really benefit from the certification, the QR code, La Ruta de la Miel, you should form or create or organize some kind of entity or organization that does the marketing”. His point was that beekeepers were too busy to do the big picture stuff. Even if the future is an outsourcing of this role, there needs to be greater cooperation and participation from all parties, including producers, to launch the initial idea.

From the project side, in order for La Ruta de la Miel to be a success, it will be necessary for relationships to evolve and for the students and University staff to step further outside their comfort zone and spend more time in the field, listening to beekeepers and their ideas about the design and implementation of the route.

For beekeepers, the leap towards the common brand for a region’s beekeepers may be too large to tackle just now. But I do see the possibility of a scaled-back version of this idea. A common seal to distinguish honeys that are part

of La Ruta de la Miel, including the QR code, is certainly possible. Thinking about the details, how the labels will be printed, who will pay for them, and regulate them will require more input from Chilean authorities.

Broadly, I think for La Ruta de la Miel to be successful, beekeepers and other stakeholders need to do this at a bare minimum:

- 1) Meet in local groups and begin to organize
- 2) Define their offerings, what makes them interesting
- 3) Agree to a common protocol for quality and sanitation and plan for how this will be reinforced
- 4) Send representatives to meet in region-wide organizing body for La Ruta

Trial Ruta

Lastly, in planning La Ruta, I believe it is important to start slowly, by test-driving the concept in one concentrated area. Beekeepers Juan Reyes and Cecelia Guzman are very interested in working with the project to have the pilot route take place near their apiaries in Puente Negro, saying, “In the cordillera we have a group in Las Peñas and Sierra Vellavista, a beautiful sector with many attractions. The tourists would like it because besides [honey] there are little hamlets, very old parts with houses more than 100 years old.” They have offered to organize local beekeepers and create attractions for the first tourists interested in traversing the Ruta next year. “This way,” said Juan, “so not to include so much and focus the resources here and then open it up. Then you’d do a pilot and if it results, do it in another zone.”

Api-Tourism as Added-Value

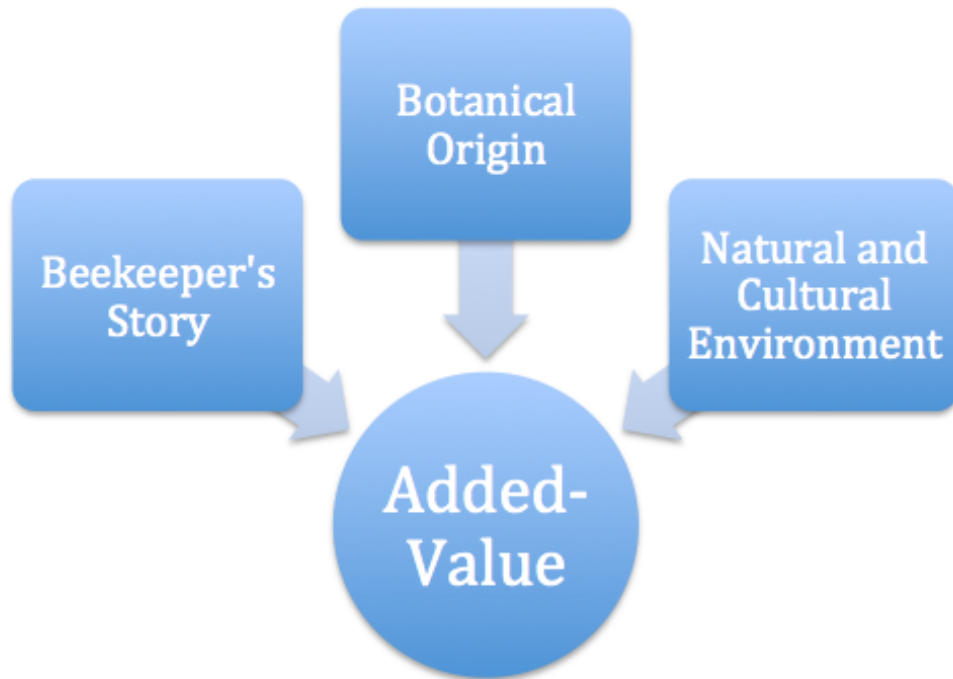


Figure 28: the components of api-tourism as added-value

What emerged from this research was a theory of api-tourism as added-value. Although specific to honey, this theory can also be a model for general agri-tourism and rural tourism schemes. For La Ruta de la Miel, there are three components that contribute to added-value. One, the opportunity to meet the beekeeper, their family, and in some cases spend time in their homes and apiaries learning about producing honey. Two, there is the added-value in knowing the details of the honey being consumed, its botanical origin, beneficial properties, etc. as defined by the Universidad Católica's certification scheme. A connection to the natural environment and the cultural characteristics of a place are the third component of added-value. The concept behind the tourism portion of La Ruta is that there are a select number of people who really want to know where their food comes from. It's a valuable experience for them to go to the source, and this

experience is worth time and money. However, as I describe in my reflections, the botanical origins component, while worthwhile, will need some redefining – from certification-based to a broader definition of terroir – in order to be a sustainably contribute to added-value.

REFLECTIONS OF BROADER RESEARCH QUESTIONS

The research questions of this study have implications beyond the study of this particular case in the O'Higgins region of Chile. How can identifying honey varieties present added-value? What is the role of certification? What are the emergent properties of such a scenario?

Certification Reconsidered

Originally, the certification of botanical origin and beneficial properties was seen as the cornerstone of La Ruta's marketing power. However, as I analyzed the difficulties of the present certification system and looked at other existing examples of added-value in honey, I concluded that the University's certification is likely not the most important component. If the story, the identity of honey as a natural hyper-local product can be promoted in another way, I see the same potential for added-value.

Important to the evolution of La Ruta concept was my participation in the SOCLA Congress in Lima, Peru – the Sociedad Científica Latino-americana de Agroecología – in which I was exposed to many other schemes for the promotion of added-value, including Sistemas de Garantía Participativa or Participatory Guarantee Systems. These are the reflective questions I was thinking about in October following the conference:

My question moving forward is how can disperse communities of beekeepers, or individuals, as is the norm here – add value without necessarily being connected to scientific analysis/Universities?

Is botanical origin necessarily the number one thing that consumers care about? Or is it more about the story of each harvest (including the plants) but does this kind of botanical individuality need to be vouched for by a third party? Perhaps only when exported?

According to Gloria Montenegro and other scientists and policymakers, certification is the means by which to achieve added-value and unlock the entrepreneurial potential of thousands of small producers with limited resources. Certification in this case requires the characterization of products through an official standard that is internationally recognized. Nutritional and sanitary certification for Chilean honey is undertaken by INTA (Chile) and CESMEC (Argentina). Organic honey is certified by IMO (Switzerland) and Fundación Chile. General certification is done by SAG — el Servicio Agrícola y Ganadero, Chile's equivalent of the USDA. And finally, Gloria's laboratory at the Universidad Católica is the country's principle certifier of botanical origin.

But, to put it simply, certifying honeys is complicated. Throughout time, the specific weaknesses of the University certification process became clear. For example, beekeeper will likely harvest multiple times a year, especially if they seek to produce monofloral honey. They may move their hives depending on the nectar flows, and travel to pollinate crops. They also likely have hives in different locations at the same time, producing distinct honeys from each apiary. The way it is now, a certification would be required for each harvest, from each apiary, every year. And the costs of the certification outside of this funded project are high – about \$80 per analysis.

At present, the prototype La Ruta de la Miel features some of the laboratory results in the descriptions. However, I foresee this component being phased out. For practical reasons: the University laboratory staff are removed from the situation and are not likely to continue to analyze honeys after the completion of the regional grant that is funding their project. It will be necessary for beekeepers to update their own map, categorize their own honey without the help of scientists, and altogether act autonomously so as to not be dependent on outside actors for the creation of added-value. Without the power to dispute the analysis, and without their own equipment, as long as beekeepers play into the international supply chain, scientific analysis does not seem to be the key to a better financial future.

But yet there is a clear need for legitimizing high-quality products and distinguishing them from the rest. As many have expressed, there are problems with the integrity of honey, reflected in concerns about false honey, contamination, and in general a trend of cheating to compete. There is certainly room for misinformation and inaccurate marketing. But if a beekeeper receives one certification saying that her batch of honey is high in antioxidants, how can she effectively use that information? Right now, there is no clear answer for how that works in the existing honey supply chain. In the meantime, what is a longer-term solution for added-value?

Api-tourism may in fact be an answer if the participants in La Ruta de la Miel agree to follow certain guidelines; if association with the project is in and of itself the added value. Some kind of group branding or identity promotion is therefore necessary. This would allow the beekeepers themselves to control their own added-value via a unique marketing identity associated with quality assurance.

Further investigation of Participatory Guarantee Systems (PGSs) would be an interesting direction for the future of the beekeeping community in the O'Higgins region. The International Federation of Organic Agriculture

Movements, IFOAM defines PGSs as “locally focused quality assurance systems. They certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange” (2014).

Although the sector is not explicitly, PGSs could provide a framework for this group of beekeepers to certify natural, or high-quality products to a local or national community of consumers. There are numerous formulas for place-based added-value that incorporate the local foods, terroir concepts but do not require third-party certification.

A tourist’s experience need not hinge upon visiting beekeepers with honey that has been found to be special by scientists. Instead, according to a wider theory of rural and gastronomical tourism a tourist is looking for a broader connection to place and tradition (Barrera & Muratore 2002; Schluter 2011; Sims 2009).

Examining approaches like Slow Food and geographical indicators present more options for legitimizing honey products under one identity (Slow Food 2014a; Giovannucci et al. 2010a). This approach of highlighting terroir rather than specific beneficial properties steers the power dynamic in the direction of the beekeepers themselves.

Lessons from Geographical Indications

Addressing identity, and avoiding the very specific nature of botanical origin certification, it is certainly relevant to look at examples of label of origin systems, or geographical indications (GIs). The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), defines GIs as those that “identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin” (article 22).

GIs are consistent with the need for reinvention in Chile, meaning honey should be more widely valued for its beneficial properties and unique *terroir*. Any benefits associated with this new honey image would certainly be consistent with the objective of adding value. Authors Giovannucci et al. describe a cultural reinvention “as new levels of consumer understanding and sophistication trigger changing demand” (2010). Place-based certification and associated tourism could ultimately be more valuable than an outside certification.

There are many levels of intellectual property with respect to origin claims, but a GI or related scheme could possibly open the door to a more general form of legitimizing the quality and locality of honeys from O’Higgins, associating them with a place-based identity that is constant, rather than botanical origin, which changes from harvest to harvest and is dependent on external inputs in so far as it is an expensive service done by scientists in Santiago.

Lessons from Slow Food Designations

Also there is one example from the Maule region of Chile, about four hours south of O’Higgins, in which a community of beekeepers is organizing a Terra Madre food community, in Spanish a *Comunidad Alimentaria*. The Terra Madre is a project of Slow Food, an initiative “to give a voice and visibility to the small-scale farmers, breeder, fishers and food artisans whose approach to food production protects the environment and communities”. A food community is defined by Slow Food as “a group of these small-scale producers, defined by a place of origin and reflecting a new idea of ‘local economy’ based on food, agriculture, tradition and culture” (Slow Food 2014).

In a valley near the small town of Coronel del Maule, 26-year old Eduardo Meza is working with Slow Food representatives from Chile and Italy to achieve the food community designation for a cooperative of beekeepers that produce

Mardon or Corontillo honey (*Escallonia pulverulenta*), derived from an endemic plant species. But more than promoting the specific honey, along with Slow Food Chile, they are promoting their unique, pristine location, its rural culture, associated crops and traditional foods and a wine found nowhere else on the planet.

The beekeepers of Coronel del Maule are not just marketing their honey products, but the image of their special surroundings. They eventually hope to have Madron honey be a part of the Ark of Taste – *Baluartes* in Spanish -- a catalogue of unique heritage products that are in need of preservation. There are 23 honeys from around the world currently included in the Ark of Taste, from Melipona bee Honey from Argentina to Wenchi Volcano Honey from Ethiopia to Tupelo Honey from the American Southeast (Slow Food 2014a).

Slow Food International does not require organic or other specific certifications to be part of the network or the Ark of Taste (Slow Food 2014b). In approaching certification of botanical origin of honeys, it seems from the promotional materials from the Cauquenes beekeepers, that identifying typologies or honey varieties, would be the responsibility to the beekeepers themselves. When representatives from the Slow Foods headquarters in Rome visited this corner of Chile, they left these questions for a future market analysis that are pertinent to the larger context of ‘making Chilean honey famous’:

- 1) What typologies of honey are produced in the region?
- 2) What is the quantity of honey produced in the region?
- 3) How much honey is consumed in the region?
- 4) Does the honey meet sanitation requirements for sale?
- 5) Is the honey available in fairs, markets, schools, hospitals, public cafeterias, restaurants, hotels, and embassies?
- 6) Are sub-products commercially viable: propolis, beeswax, etc.?

This is a particularly interesting proposal in a zone that is heavily forested and in which pollinator biodiversity is threatened by monoculture pine and Eucalyptus plantations. It is the hope of these beekeepers to promote beekeeping as an alternative to deforestation – and they feel an international recognition from Slow Food could help them make this vision a reality. (To learn more, see the digital appendix for a video about Eduardo and la Comunidad Alimentaria de Miel de Madron and their struggles to produce this world-class honey despite threats of deforestation.)

Terroir as an Alternative to Certification

During my time in Chile I had the opportunity to work with a family of beekeepers, Gabriela Weil and Armando Morales of Sociedad Colmenares Flora Nativa who produce premium-quality honey varietals for a Chilean market. Based in Limache, with apiaries in the far-south of the country, they market a handful of monofloral honey varietals: Ulmo, Tiaca, Peumo, Litre, Lilén, Corontillo, Quillay and multifloral mixes from wild grasslands.

They have developed the skills to differentiate between floral blooms and also use special equipment to harvest more concise amounts, to take advantage of nectar flows. Using these specific practices, combined with a knowledge of their natural surroundings, and credibility as professionals, they do not need to certify their honey through a third-party. This is also due to the fact that Gabriela is working to create descriptors of each of the honeys she produced. For example, Peumo has the aroma of chocolate; Litre, more tropical notes; Corontillo, the essence of caramel and vanilla. To distinguish between their offerings, Colmenares Flora Nativa present their honeys side by side, emphasizing their difference in color and taste – with some standard words to describe each honey. Instead of promoting the scientific certainty of each honey, they are working to promote a

general terroir culture. Maybe this year wasn't a good year for monofloral Tebo honey, but the story behind the harvest explains what is happening in the larger natural environment. Why isn't the Tebo predominant in the mix this year? What's different about this year than the others. Promoting the overall uniqueness of Chilean honeys rather than promoting specific varieties that may not be consistently available, creates a more resilient, more secure market environment. (To learn more about Colmenares Flora Native and their model of added-value see the digital appendix.)

This example brings up the perhaps obvious point that a beekeeper must know their natural surroundings, and be able to distinguish between nectar flows – most experienced beekeepers inhabit these skills. But a new skill for most is the ability to talk about the differences using descriptive language. Just as a vocabulary was developed to describe one wine compared to another; the *terroir* of honey is beginning to come up with its own language: there are woody, floral, fruity varieties with special nuances (Marchese & Flottum 2013; Montenegro et al. 2008). Now, the challenge is for beekeepers to develop their tastes and adapt the language that makes their honeys special.

Future Scenarios

In my effort to analyze the potential of La Ruta de la Miel, I have found a high likelihood of success. I have outlined to a certain extent what *could* happen as a result, what the project could look like and its projected impact. I have high-hopes that a scheme like La Ruta de la Miel can make a difference in the lives of beekeepers, bringing the following benefits:

- Honey sold at higher prices; added-value
- New markets / less dependency on international markets and commodity prices

- Strengthen innovation in honey sector
- Strengthen rural economies overall

The larger question is: What happens when Chileans and international consumers and visitors place value on a style of beekeeping that is based on specialized, artisanal or natural products? These are questions left to another future research project.

My research process did not include the opportunity to facilitate a formal visioning session. But I hope this thesis, with its emphasis on models and ideas, can serve as a foundation for an upcoming community visioning activity with beekeepers in the O'Higgins region. Until then, I can use my worldview and my knowledge of the current situation to envision several future wanted scenarios.

Production Practices

Adding value to these products would make it possible for beekeepers to keep small — make more profit while managing fewer hives. This potentially makes for better management decisions. I would also argue that if consumers start to value high quality honey, beekeepers will respond to this new market by emphasizing more natural, cleaner hive management.

Landscape Changes

If honey products are seen as a natural product that is a reflection of nature, beekeepers and other stakeholders will take more seriously the conservation



of their surroundings. There is already a reforestation effort underway to provide for more melliferous plants — notably Quillay. If a premium is placed in high-quality honey — uncontaminated honey — and demand increases, there will have to be greater cooperation between beekeepers and agroindustry. If in a future scenario, high-quality monofloral or polyfloral honey in fact has more value than export avocados, maybe the chemical-intensive fruit industry will be uprooted for a large-scale return to native forest. Checking in with reality, that doesn't seem likely anytime soon, but it is certainly a future wanted scenario.

Cooperation with Farmers

The standard line that is repeated is that approximately one-third of all cultivated food crops require the presence of bees for farmers to realize the sizable harvests they have come to rely upon, and the world's hungry have come to need (Bishop 2005). Eliminate honeybees and the pollination services they provide, and the economic and social upheaval that would result from the massive loss of yields among affected crops would be staggering. What is not often discussed, however, is the important role that agriculture plays in sustaining the beekeeping industry

European honey bees cannot live off of forest alone, the important plant species in the region include cultivated and non-native plants. An interdependence exists between the world of the honey bee and the plant kingdom directly impacts the relationship between farmers and beekeepers.

One objective of the Biozones project is to identify important plant species and basically promote unique products derived from native/endemic plants. But a change in landscape must also incorporate the visions of farmers within the system (Conrad 2007)

CONCLUSION

Role of My Research

In the beginning of my research, I focused broadly on understanding the biggest challenges of the honey trade as a whole. I determined that for industry leaders – exporters, big companies, trade executives – the top concerns are sanitation and contamination. There is considerable research funding for these “hard” technical issues, and many scientists involved in solving these problems deemed important by leaders at the top of the honey supply chain.

But in comparison, when asking beekeepers about the top challenges of their profession, the answers included: marketing, cooperativism and professionalism. These are related to less quantifiable aspects of the industry -- human relationships, tastes, attitudes, values, knowledge and culture. There is little emphasis on research that addresses the problems of Chilean apiculture as interconnected human activity systems – economic, environmental and social. La Ruta de la Miel is my attempt at addressing these “sticky” or “soft” problems through research as well as action.

In reflecting on my ability to accomplish the objectives of my research, I concede that I had hoped for a more participatory process throughout. Instead, because of the constraints of time, language, and access I ended up working in more of an advisory role – observing, interviewing and interpreting, rather than facilitating a multi-stakeholder analysis. However, I researched a topic – apitourism -- that to my knowledge has never been researched formally in any discipline, let alone from an Agroecological perspective. The outcome was that I came up with specific proposals for action and a prototype of La Ruta de la Miel, which will be open to the public in some capacity in December of 2014.

Emergent Property: Interdisciplinary Collaboration

Perhaps the most emergent property from my research process was that I was able to infiltrate a group of scientists and to a certain extent facilitate a more holistic perception of their work. For the first time, they are working *with* the beekeepers they study. I feel like the botanists and agronomists whose job it is to analyze pollen all day now understand how a social scientist fits into their work. In an email to me, my botanist colleague Gabriel Nuñez, said the following:

The vision that you have about things really opened the minds of the people in the laboratory (because sometimes we are strange in the laboratory and are not able to see much farther than these walls). Thank you for giving us your experience and of course for sharing with us the days in the office and in the field, traversing the country for samples of honey.

My involvement with the Apicultural Biozones project was a great opportunity to work in an interdisciplinary team and also to bridge the gap between biological science and social science. I believe that I influenced graduate students and laboratory staff to think about the “big picture” of honey production in O’Higgins and the benefits of working with beekeepers to co-create projects so that they have an impact long after the research portion is completed.

In the course of my work, I made a key connection with the regional beekeeper association, APIUNISEXTA. Previously, the University and APIUNISEXTA were not collaborating because of conflict between some of the



Figure 29: Apiary at Emiliana vineyard in O'Higgins region

personalities involved. My work with La Ruta de la Miel necessitated making as many contacts as possible and so I leaned heavily on APIUNISEXTA, leading to meetings and an eventual partnership where there was previously a conspicuous lack of communication. Now the leadership is very excited about collaborating with the University and the potential outcomes of a tourist route involving their organization.

Apiculture in Agroecology

Vermont beekeeper Ross Conrad states that "Honey bees and the people who care for them will be an essential component in the development of local and regional food systems, which will be required in the future to provide for our long-term food security and maintain a sound, sustainable basis for economic activity" (2007). Indeed, bees are the preeminent pollinators of the Americas, and a keystone species group – meaning a large number of other species are dependent on them for survival. Pollinators are also indicator species, meaning the health and wellbeing of pollinators provides a snapshot of the health and well-being of the entire ecosystem (The Xerces Society 2011).

For these reasons, more discussions about bees and pollinators in general should be happening in the academic field of Agroecology. This thesis is an attempt at using the lens of Agroecology – specifically the Soft Systems Methodology -- to understand the whole picture of apiculture as and productive agricultural activity; influenced at once by the surrounding environment, by market forces and by the attitudes of producers and consumers. Looking at the whole allowed for the prioritization of a specific niche within this problem situation. I chose to address the niche of apitourism because I felt I was uniquely qualified to investigate this concept as an outsider and tourist.

More investigation is needed to decide if schemes like La Ruta de la Miel in fact represent a win-win-win scenario for producers, the environment and rural economies. But the process alone has opened up important dialogue amongst stakeholders who are not usually at the same table, and created at least a few new honey connoisseurs in Chile. Reality may not permit exactly the future scenario laid out here, in practice it will likely be scaled-back to accommodate some of the key issues and challenges of the industry at large.

At the present moment, La Ruta de la Miel is an attempt to increase the profile of honey as a value-added product, and change the image of honey from an export industry to an artisanal craft intrinsically connected to nature. La Ruta de la Miel is a response to an attitudinal problem – consumers are disconnected from the source, the environment in which honey is produced and therefore do not ascribe appropriate value to Chile’s unique honeys. The proposal of api-tourism and the more general theme of added-value in honey products can be seen as a way to continually draw attention to the big picture: honey bees, native pollinators and their unique habitats in Chile. I argue that this vision is a more appropriate one for an industry that is made up of thousands of small producers. Its strengths exist in its diversity — both biological and human — so it makes sense to pursue a regional production strategy that places more value on these strengths.

As beekeeper Francisco Rivero said, “This is the idea, but you have to struggle to make it. You have to go making it little by little... to be able to give added-value to honey; to our honeys.” With more work on the ground, La Ruta de la Miel will open up a new world of information, strengthening ties between consumers and beekeepers, demonstrating to the world that honey is not just honey.

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Interviews

Name	Organization	Date / Place
Paulina Cáceres	Concorcio Apicola	3/15 Valdivia
Lucia Ruiz	RAP-AL (Pesticide Action Network - Chile)	3/19 Santiago
Italo Bozzi	FEDEMIEL	3/20 Santiago
Gloria Montenegro	PUC	4/9 La Estrella
Luz Aurora	Beekeeper	4/13 Las Cabras
Elena Pinto	Beekeeper	4/13 Las Cabras
Juan Carlos Cerón	Beekeeper	4/15 Lago Rapel, Las Cabras
Luis Riveros	Beekeeper	4/22 Alto Patagua
Hugo Valenzuela	APIUNISEXTA	4/22 San Fernando
Christian Osorio	APIUNISEXTA	4/22 San Fernando
Christian Osorio	APIUNISEXTA	4/15 Las Cabras
Gregorio Cunill	Beekeeper	5/2 Riconada, San Vicente
Monica Rodriguez	Beekeeper	5/3 San Luis
Ines Zamora	Dayenu Consultants	5/7 San Fernando
Sergio Vallebenito	Organic middleman; beekeeper	5/15 Puente Negro
Aurelio Marchant	Beekeeper	5/21 Limahue, Pelequen, San Fernando
Francisco Rivero	Beekeeper	5/22 Peumo
Jose Lopez	Beekeeper	5/23 Lo Moscoso
Juan Reyes Paredes	Beekeeper	5/25 San Fernando
Cecelia Cabrera	Beekeeper	5/25 San Fernando
Misael Cuevas	Red Nacional Apicola	5/31 Concepcion
Hector Abarca Abarca	Beekeeper	6/6 Fundo Sauzal, Rancagua
Rodrigo Donoso	Territorio Consultores (former ABA Consultores)	6/6 Rancagua
Ana Maria Menares	Independent Consultant	5/27 Litueche

Appendix 1: The Preliminary Beekeeper Survey

Programa de Desarrollo de Biozonas Apícolas para la Valorización de su Cadena Valor

Nombre del apicultor.....

Provincia.....

Lugar del apiario.....

Lugar de Comercialización al publico

.....

Información de Contacto (Teléfono/ Correo electrónico)

.....

.....

Estimado Apicultor:

Si Ud. tiene interés de ser parte de la RUTA DE LA MIEL de la Región del Libertador Bernardo O’Higgins, explique brevemente

a) Como podría participar

.....

.....

b) Que productos puede ofrecer a los turistas

.....

.....

.....

c) Cuales son los sitios de interés que circundan su apiario.....

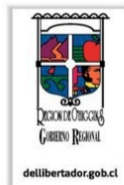
.....

.....

.....

Los saluda cordialmente Profesora Gloria Montenegro, Coordinadora del Proyecto FIC-R Biozonas Apícolas y Katharine Shiffler, Coordinadora Ruta de la Miel
CONTACTO DE KATHARINE: 9899 2649

Appendix 2: The PUC Certification



PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
FACULTAD DE AGRONOMÍA E INGENIERÍA FORESTAL
GOBIERNO REGIONAL REGIÓN DEL LIBERTADOR GENERAL
BERNARDO O'HIGGINS

Proyecto FIC RID 30126395-0
Programa de desarrollo de Biozonas Apícolas
para la valorización de su Cadena de Valor

CERTIFICACIÓN DE ANÁLISIS DE MIEL
SR. JOHNNY MUÑOZ
Apiario ubicado en San Fernando, VI Región

Gloria Montenegro
Profesor Titular y Coordinador del Proyecto
Laboratorio de Botánica y de Productos Naturales
Facultad de Agronomía e Ingeniería Forestal

ABRIL 2013

Apicultor:
Johnny Muñoz

Código Ingreso : FIC6MSF028
Producto : Miel
Cantidad : 1 kg
Fecha Cosecha : Enero 2012
Comuna : San Fernando
Localidad : Sierra de Bellavista
Coordenadas UTM : 19 H, E 339030, N 6147970

Análisis realizados

I. Origen Botánico

Método: De acuerdo a la Norma Chilena Oficial NCh2981.Of2005 “Denominación de origen botánico mediante ensayo melisopalinológico”

MUESTRA FIC6MSF028				Rango 95% confianza		
Especie	Nombre Común	n° granos	Porcentaje	+/-	Min	Max
<i>Kageneckia oblonga</i>	bollén	5	0,998	0,870	0,128	1,868
<i>Eucalyptus sp.</i>	eucalipto	7	1,397	1,028	0,369	2,425
<i>Trevoa quinquenervia</i>	tralhuén	8	1,597	1,098	0,499	2,694
<i>Schinus sp.</i>		10	1,996	1,225	0,771	3,221
<i>Rubus ulmifolius</i>	zarzamora	11	2,196	1,283	0,912	3,479
<i>Acacia sp.</i>		12	2,395	1,339	1,056	3,734
<i>Brassica sp</i>	yuyo	16	3,194	1,540	1,654	4,733
<i>Luma chequen</i>	chequén	17	3,393	1,585	1,808	4,979
<i>Medicago polynorpha</i>	hualputra	20	3,992	1,714	2,278	5,706
<i>Medicago sativa</i>	alfalfa	21	4,192	1,755	2,437	5,946
<i>Galega officinalis</i>	galega	32	6,387	2,141	4,246	8,528
<i>Azara sp.</i>		38	7,585	2,318	5,266	9,903
<i>Aristotelia chilensis</i>	maqui	42	8,383	2,427	5,956	10,810
<i>Lithraea caustica</i>	litre	83	16,567	3,256	13,311	19,822
<i>Retanilla trinervia</i>	tevo	179	35,729	4,196	31,532	39,925
Total		501	100,000			

Cuadro 1. Total de granos de polen y porcentaje correspondiente de especies halladas en la fracción polínica.

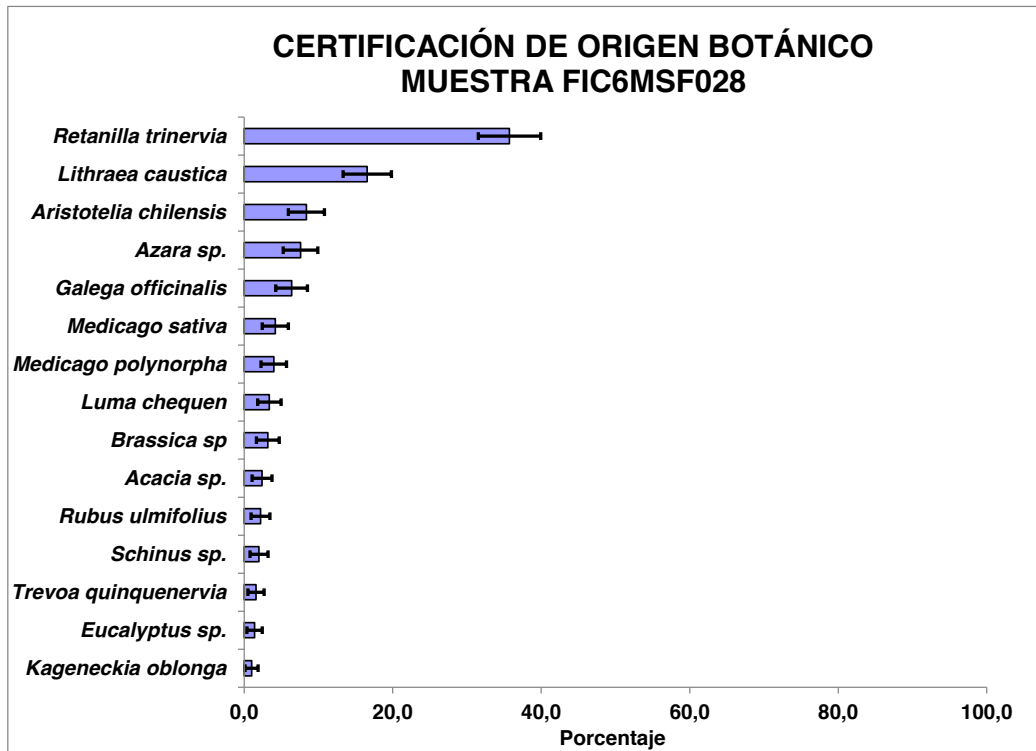


Figura 1. Gráfico de porcentajes de participación, donde se muestran las especies cuyo polen fue detectado.

Interpretación:

La miel analizada corresponde a una muestra de miel **Polifloral Endémica**, ya que ninguna especie alcanza el 45% del total de granos de polen en la muestra analizada ni tampoco dos especies que dominen en conjunto. Su origen se clasifica como Endémico, debido a que sobre el 54% de los granos de polen identificados en el análisis corresponden a especies endémicas de Chile, como *Retanilla trinervia* (Tebo), *Lithraea caustica* (Litre), *Trevoa quinquenervia* (Tralhuén) y *Kageneckia oblonga* (Bollén).

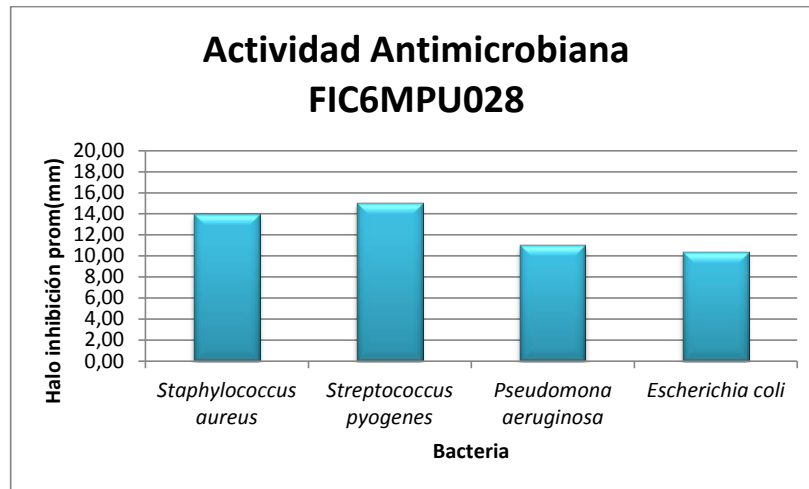


Figura 2. Gráfico de mm de inhibición del crecimiento de las bacterias

Interpretación:

La miel analizada mostró un control significativamente importante sobre el crecimiento de los 4 patógenos puestos a prueba bajo el método de difusión en agar en que se realizaron los ensayos.

Staphylococcus aureus es una bacteria gram positiva que provoca enfermedades cutáneas infectando heridas que se producen en el cuerpo.

Streptococcus pyogenes es una bacteria gram positiva y es la causa más frecuente de faringitis bacteriana, además de enfermedades potencialmente mortales que comienzan con infecciones de las vías respiratorias y de la piel.

Pseudomona aeruginosa es una bacteria gram negativo que es común en ambientes intrahospitalarios apareciendo en las infecciones postoperatorias.

Escherichia coli, gram negativa, es una de las bacteria más estudiadas por el ser humano. Se encuentra presente en el intestino animal y cuando es ingerida por error en cantidades altas, por ejemplo en alimentos crudos contaminados con esta bacteria, puede provocar infecciones urinarias, estomacales y diarreas.

Digital Appendix

La Ruta de la Miel Google Map : <http://goo.gl/maps/Bp3pE>

Video

Tierra Madre in Chile: Madroño Honey in Cauquenes:
<http://youtu.be/NIuMWQBCmEE>

Organic Beekeeping and Saving the Bees:
http://youtu.be/U_NwgoxTfBo

Flora Nativa, My Apprenticeship with Beekeepers in
Limache: <http://vimeo.com/73957554>

