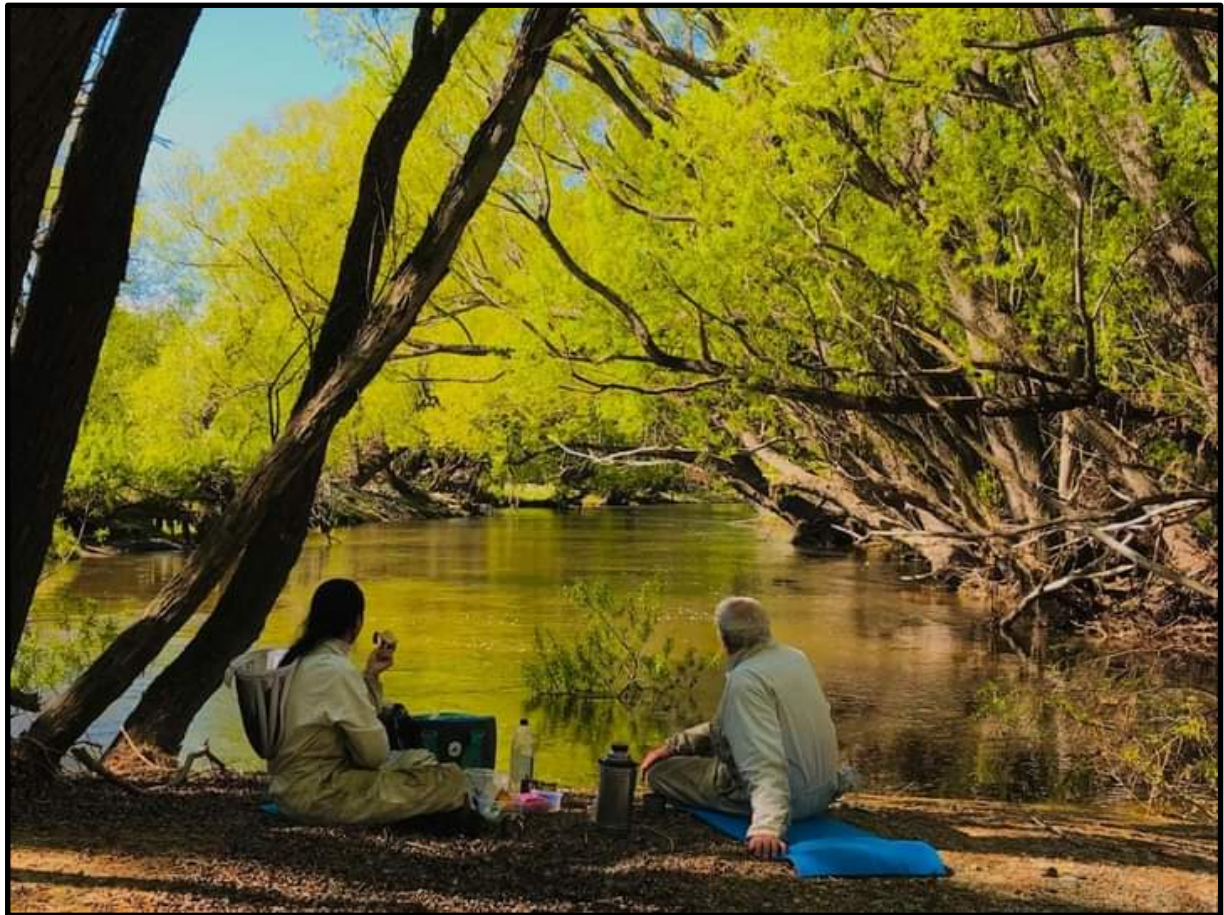




KELLOGG
RURAL LEADERSHIP
PROGRAMME



Women in beekeeping: how to champion ladies in the apiculture industry.

Kellogg Rural Leadership Programme
Course 49 - 2023

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I wish to thank the Kellogg Programme Investing Partners for their continued support.

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Executive summary.

The Apiculture industry plays a key role in the economy not only for their production itself but also for all the benefits that bees provide to the ecosystem and economy. It is also important to consider that diversity and inclusion are not a trend or an item on the governmental agencies agenda, but it is one of the goals of the United Nations to achieve sustainable development by 2030. This report will focus on female beekeepers and will delve into their experiences in the New Zealand's Apiculture Industry.

Key findings

The nine interviews provided valuable insights and the semi-structured questions were thoughtfully organized into thematic groups that facilitated the subsequent thematic analysis of qualitative data. To maintain focus and coherence, the identified themes will be kept for in-depth exploration and analysis.

Representation: female beekeepers see the industry as a place where they are under-represented.

Support: Mentoring was key, and life-changing support was received. The support they did not receive but was needed, is diverse; varies from one beekeeper to another greatly.

Barriers, Uncovering Biases and Advancing Gender Awareness: the most mentioned were gender-based bias and queen bee syndrome.

Women+: Work flexibility is especially important for employed beekeepers as well as for self-employed, this perk is fundamental in attracting more women into the industry and increasing retention.

Recommendations.

Increase women's representation:

- Annual women's meeting at the beekeeping conference.
- More female speakers at conferences.
- Showcase the ladies that represent the industry.

Biases, gender awareness and harassment: things to keep in mind on the way to gender bias-free interactions are: Question your bias, address inappropriate behaviour and act against "bad" behaviour.

Improve Gender Equality in job promotions: Ask Why? Why are women not applying for a position?

Keywords: Women, Gender-awareness, Diversity, New Zealand, Apiculture.

Acknowledgements.

Special thanks to my family, especially my sister [Belle Tejada](#), who played an instrumental role in making this challenge possible. Her support was invaluable, She and my mother are the ones that are always there when education is involved and, in all ways, imaginable.

To my best friend and only family in New Zealand, thank you for being there every time I needed you in this challenging year. You were the one that never let me stay in my comfort zone and pushed my boundaries to grow towards development and enlightenment.

To the whole team of Rural Leaders, my deepest gratitude for the opportunity and the support always received, for your constant support and willingness to share and take me out of our comfort zone. Especially for their guidance in becoming better leaders throughout the process of developing the final project and the previous research.

To Patrick Aldwell, a shout-out for his constant support even at weekends and whenever needed. It was not only helpful, but it was also truly inspiring and motivating when the load of work felt like too much.

I am most grateful to the women who answered the questionnaire and even greater to the brave ones who accepted being interviewed. Their honest, candid, and openhearted contributions to this research were invaluable. I hope to give back to you the tools you were looking for and activate actions in the industry with this project.

To my fellow Kelloggers (K49), you are all such amazing people with so much to share and give, the support received from each of you made me feel a little more at home. You will be cherished for the rest of my life.

Last but not least, thanks to my dad, who showed me that hard work goes a long way.

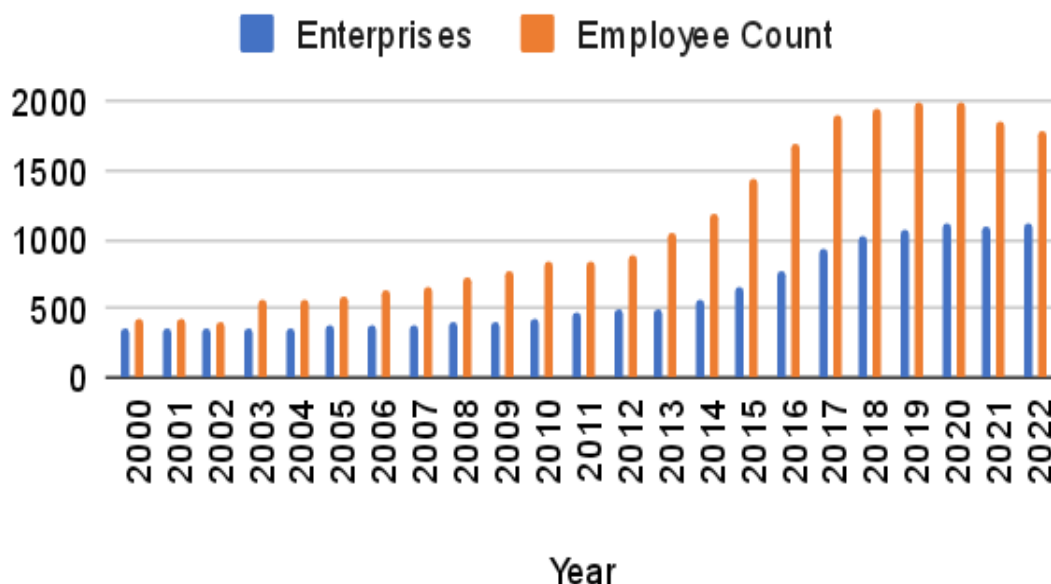
1. Introduction.

Bees are vital for the survival of the world as we know it. Bees, and not only honeybees, are known for their role as pollinators as they offer essential ecosystem services for biodiversity and vegetables, fruits, and crop pollination. Beekeeping is the occupation of breeding and keeping bees which has been an activity that has endured for thousands of years.

In New Zealand, the apiculture industry holds a significant value estimated to be worth \$ 5 billion dollars a year (News and Information - Wellington City Council, 2021). There are around 632,000 (April - 2023) beehives in the country, and honey's production in 2021/22 was approximately 22,000 tonnes. (Apiculture New Zealand, 2023).

Despite the scale of the industry, beekeepers are struggling to have a viable business. The price of honey (non-manuka) now is lower than the costs, making this unprofitable for the beekeepers. Because of the low financial returns, beekeeping companies are under stress and are financially challenged. Comparing 2022 to the previous year, it is possible to observe that the number of hives has reduced. Beekeepers decided to consolidate apiaries to save costs. Hive numbers have further reduced after the impact of the losses after cyclone Gabrielle (pers. comm.).

Beekeeping industry



Graphic n: 1 - Enterprises and Employee count in the Apiculture Industry

In 2022, the total number of employees employed in the Apiculture Industry was 1800 (StatsNZ). Even though, a distinction between genders could not be found.

The Apiculture industry plays a key role in the economy not only for their production itself but also for all the benefits that bees provide to the ecosystem and economy. In this scenario, it is also important to consider that diversity and inclusion are not a trend or another item on the agenda of governmental agencies. It is one of the goals of the United Nations to achieve sustainable development by 2030.

This report will focus on female beekeepers, to delve into the women beekeepers in New Zealand's experience in the Apiculture Industry.

“Gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous, and sustainable world. There has been progress over the last decades, but the world is not on track to achieve gender equality by 2030.” - United Nations

2. Objectives.

The desired objectives of this research project are as follows:

- Quantify the number of women beekeepers in the beekeeping industry. Determine the percentage of the total workforce, which is composed of women.
- Review literature and compile information about the beekeeping industry and the role of women in it.
- Identify the reasons for women beekeepers to exit the industry.
- Identify barriers and obstacles for new women beekeepers to join the industry.
- Compile a list of suggestions and needs from the women beekeepers with the potential to help them to stay in the industry.

3. Method.

The way to approach this research was with a literature review, a web-based questionnaire, and a series of unstructured interviews conducted with volunteers.

3.1. Literature review.

The literature review is an analysis of the related bibliography that can contribute to the analysis. Is a critical evaluation and previous warm-up and preparation towards the interviews with the knowledge needed to be able to reduce to a few concepts the women beekeeper's experiences.

The reading done before the development of the questionnaires and interviews were:

- Books: “Influential Woman: A Fresh Approach to Tackling Inequality and Leading Change at Work.” - by Dion Johnson (Johnson, 2020) and “Lean In: Women, Work, and the Will to Lead.” - by Sheryl Sandberg. (Sandberg, 2013).

- Beekeeping reports related to the impact of the inclusion of women in the industry.
- Ministry for Women website and reports.

3.2. Phase 1, web-based questionnaire:

The first instance was contacting female beekeepers using the Facebook group "Commercial Beekeeping NZ." Also, sending emails to all the female beekeepers known, to expand the list and contact more female beekeepers.

A [web-based survey](#) was run to get information about the women that volunteered, 33 answered the survey and 9 interviews were completed. The consent form was provided and signed by the participants and asked them to provide a day and time to have an interview if they agreed. The questionnaire was designed to get information about the participants concerning demographics and personal data. This was to understand the location, age range, number of hives they owned or owned by the company they were working for, and if they were self-employed or permanently employed beekeepers. The questionnaire's goal was to allow saving time during the interview and filtered automatically to establish a target group.

The questionnaire was created with google forms which allowed to generate a spreadsheet automatically, intending to process the data easily after the interviews,

Once the beekeepers provided a date and time, the interviews were scheduled on Zoom. Flexibility was offered and the interviews were done at any time they needed.

3.3. The participants (targeted group).

The focus was on self-employed and employed semi-commercial and commercial beekeepers, referred to as beekeepers from now on. Hobbyist beekeepers were excluded as they are not part of the target sample because their main source of income is not beekeeping.

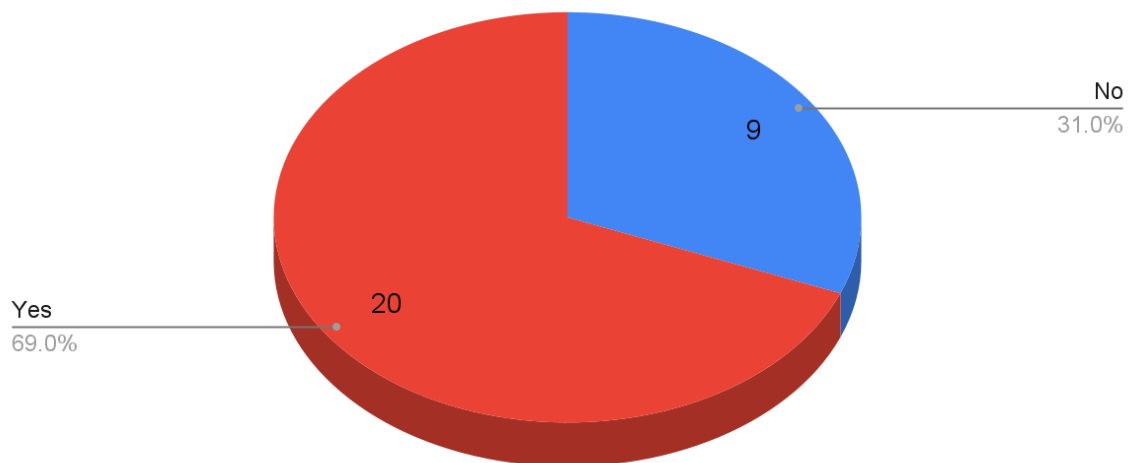
Only female beekeepers were targeted, even though hobbyists could answer the web-based questionnaire, they could not make an appointment to be interviewed. Female beekeepers who exited the industry were targeted but interviews could not be set up with them.

3.4. Phase 2:

The series of unstructured interviews with the beekeepers took place from the 20th of March 2023 to the 15th of April 2023.

Not all the beekeepers that answered the web-based questionnaire were interested in being interviewed. As is possible to see in the following graphic (Graphic n: 2), only twenty expressed that desire.

Would you like to be interviewed?



Graphic n: 2 - Willingness to be interviewed.

The focus of this project were the twenty-nine beekeepers shown in the previous graphic.

Most of the interviews were conducted on Zoom, but because of a lack of good coverage sometimes, some phone calls were the method of communication. There was one case in which the phone interview offered flexibility and was done while the beekeeper kept doing the chores of the house and was fulfilling her role of caregiver. Flexibility was key and even an exclusive condition.

The interview was 40 minutes long, and it was possible to go straight to the point, after the introductions. During the interview, notes were taken from the answers of each beekeeper to each question, those answers were then transcribed and grouped by theme. The themes were Support (received), No support (received), Barriers, Bias, and Women+¹. There was a time at the end of the interview in which the interviewees were allowed to share something that they thought was important or something that they wanted to share or add. An email and phone number were provided just in case they would like to contact the author or discuss something else.

¹ In the Manuka Honey production, it is possible to use UMF (Unique Manuka Factor) which indicates the quality of the honey and the + is use after the number assigned (5+, 10+, 15+, etc.). The plus was used to indicate how to increase the number of women in the industry as is used in Manuka.

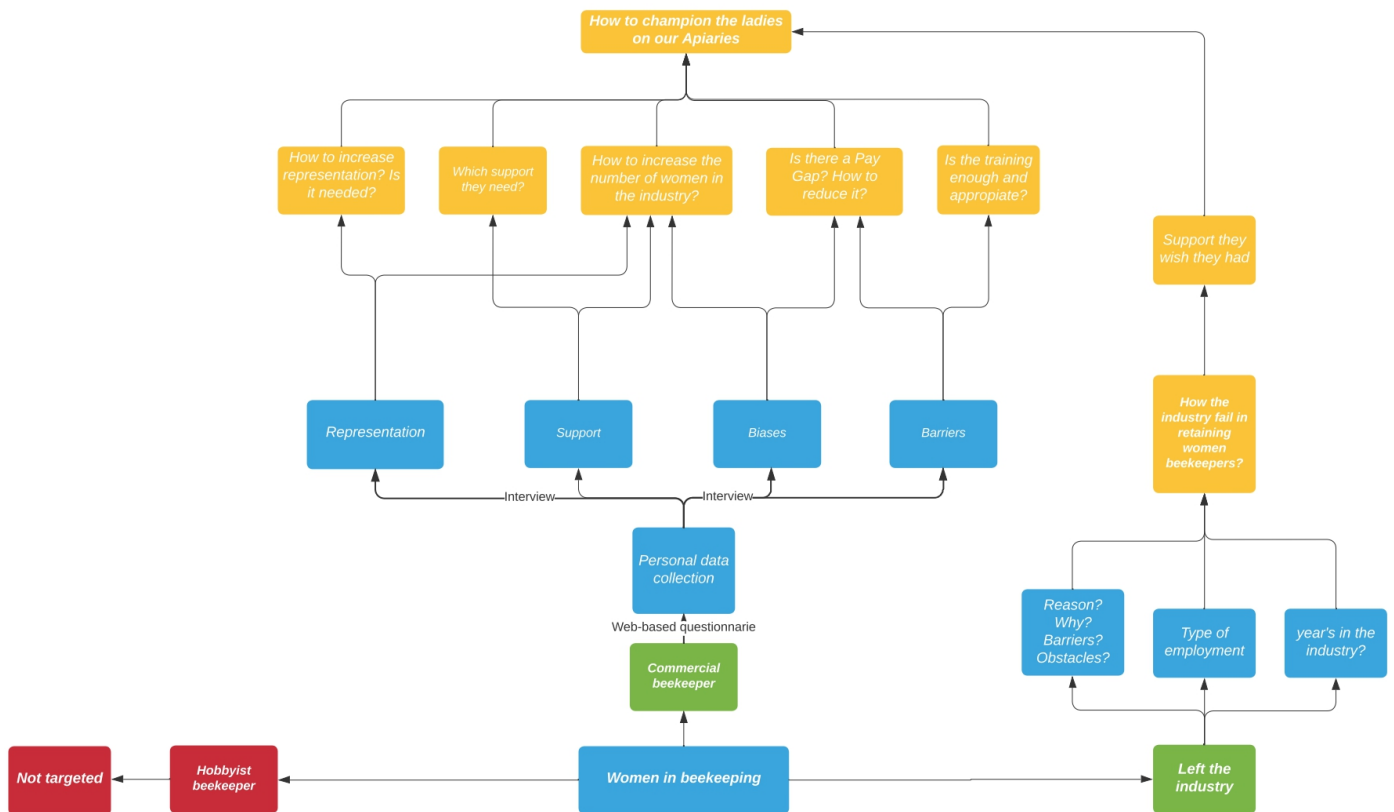


Figure 1: Question tree. The focus group was the first thing identified from there going up the question tree was the tool to create the interviews, objectives and aims.

3.5. Data processing

To the spreadsheet which automatically is created from google forms, five columns were added with the answers to the questions. After the thematic analysis of the qualitative data was done. Each answer was separated with commas as a way of placing them automatically using the functionalities that Excel offers, each answer ended up in one column, and several graphics and tables were created.

3.6. Data analysis

The data collected was qualitative and quantitative and so Excel was used to create graphics and tables. The web-based questionnaire ([Appendix 1](#)) included qualitative and quantitative data like contact details, gender, age range, type of beekeepers (Hobbyist, Self-employed or Employed), number of beehives, and products targeted.

During the interviews ([Appendix 2](#)), semi-structured questions were used as a guideline. The data obtained was qualitative and included women's perception of the support received to become beekeepers and during their career, the support they wish they had and did not receive, barriers to joining the industry, biases they perceive, and suggestions on how to attract more women to the industry. At the end of the interview, time was provided to allow them to express anything they wish to share on this report or would like to change in the industry. Networking and community

building were crucial to get them to accept the interview. Trust was key in the interviews.

After collecting the information from the web-based questionnaire they were asked if they wanted to participate in an interview, to which they needed to set up a day and a time. Flexibility was given the set up any time in a two-week period that got extended until the 15th of April 2023 and I started the interviews on the 20th of March 2023, a month. There were a few interviews that were done on the phone because of the limited internet connection and because the beekeepers were interviewed while they were doing chores in the house or commuting.

Thematic analysis of qualitative data was the technique used.

3.7. Limitations of this research

Of the volunteers, some requested an interview and never showed up to the meeting on Zoom. Follow-up emails were sent, with mixed success to organise an interview. The internet connection in remote areas and technology knowledge caused some of the issues. There was a time constraint limitation because of the household duties that women tend to oversee.

The results of the web-based questionnaire and the interviews will be compared with the reports from MPI and Api NZ but not all of the employed beekeepers have hives or are allowed to have hives by their employment contract so that means that they are not registered as beekeepers, they just work for a company as a beekeeper.

3.8. Disclaimer

Even though, the author is part of the beekeeping industry, subjective experiences, and answers to the same questions as the interviewees were not added to the results of this research. The purpose was to keep this research as free as possible of the author's own bias.

4. Literature review.

As part of the literature review, some important information was discussed from the website of the Ministry for Women, [Gender Pay Gap](#) (2012) among others, two books, "Influential Woman", and "Lean In", and a report about beekeepers in Romania.

4.1. Ministry for Women

Based on a report from the Ministry for Women (Research on the Gender Pay Gap in New Zealand, 2017) even though New Zealand has the smallest pay gap in the world there's still inequity between men's and women's wages. The actual pay gap is 93 cents for every dollar a man makes, and the gap gets bigger in higher-ranked positions.

The pay gap is one of the most important indicators of the difference between women's and men's income. This indicator compares the median hourly earnings of men and women employed in full-time and part-time jobs.

There has been progress in reducing this gap since 1998 but it seems to have stalled in the last ten years. The stagnation of the pay gap indicator is based on all the "unexplained" factors behind it, like biases (conscious and unconscious). Biases are extremely difficult to identify, and they are deeply rooted in our mindset, are not easily changed, and have a significant impact on the success of women in the workplace.

Biases influence the behaviours of men and women, they are very subtle and can influence the development and career of any employee, from "gender delegation" (assign activities by a mindset of who should be doing what, based on their gender), who is hired based on their gender or age (might be a mother soon). Most of the time, these biases are not acknowledged by the person that possesses them. Fast thinking (as the website of the ministry points out), is the base of this type of thinking which can also be expressed by attitudes, biases, and behaviours, which are all interrelated.

Another way of gender segregation is by choosing a career where their gender is a majority. A clear example of this is nursing and construction, both occupations are composed of women or men, not by a diverse group of individuals. How to break this cycle? Breaking the cycle of gender segregation in career choices requires a multifaceted approach involving key influencers and can be tackled by offering women study choices in any area of non-traditional occupations. Understanding that the behaviour of these key influencers can affect the future and permanence of the women in non-traditional occupations which can easily be discouraged from a study or work experience.

Last but not least, harassment (sexual, moral, physical, personal harassment - bullying), and others (Most Common Types of Harassment: 8 Types, n.d.), being sexual harassment the most common. It persists in the work environment and several factors need to be addressed. The target of harassment tends to be in a weaker and more vulnerable position, the aggressor tends to have a sense of entitlement to do it.

"...the occasional shoulder massage, calling women "sweetie" or "honey," or making suggestive comments is also wrong. Men who are older tend to fall into this category." - (Getting Men to Speak Up, 2018).

A second factor, the belief that the victim will not speak up and will not report it, gives the perpetrator a sense of security that will not be caught. But younger generations are less likely to keep quiet.

The third factor and most important, harassment (of any kind) persists mainly because of the complicit assent, not calling out bad behaviour.

4.2. Romanian beekeepers.

Apiculture has been an activity around the world, mostly in more vulnerable economies, that allowed people to feel empowered. It was proven by several projects from the UN and other NGOs that it is an amazing tool to empower women. A similar project was done in Romania where beekeeping was a male-dominated

activity. This report was chosen as some similarities were found but we should also consider that there are differences between Romania and New Zealand.

Beekeeping characteristics made it so appealing to empower women as there is no need for a lot of resources (land, access to credits, etc.) and can be practiced at home. The various products that can be obtained from the hives have high market potential and help families as a source of food increasing food safety. That is one of many the reasons why beekeeping has been promoted as an activity for rural development as its impacts are monetary, nutritional, and social.

Between 2008 and 2011 more women became involved in beekeeping activities thanks to a Heifer International program that encouraged equal participation of women and men. They called it "*passing on the gift*" and its main goal was to determine the effects of the program on the women beneficiaries. In order to do this, they collected quantitative and qualitative data that was analysed later on.

They interviewed,

- Thirty women
- Located in Nine villages (Someș River Valley)

Even though there was an improvement in women's income and participation, they still focused on subsistence farming and beekeeping remained small-scale. It was found that there were two types of female beekeepers, one group that worked on their beekeeping independently and another group that relied on help from male family members. The first group expressed that beekeeping can be physically challenging (as there is a need to move heavy hives) but was compensated by all the benefits. They found it easier and less demanding than raising livestock and they were able to balance it with their house activities. Another benefit for women was a sense of empowerment that increased their sense of pride in themselves as related to increased choice and dignity. Beekeeping helped them be more connected locally.

This project highlights the significance of fostering empowerment and building connections among women, leading to positive outcomes that extend beyond the individual. By empowering women, the project has the potential to create a ripple effect that positively impacts the entire family unit.

4.3. Books: "Influential Woman: A Fresh Approach to Tackling Inequality and Leading Change at Work" - by Dion Johnson and "Lean In: Women, Work, and the Will to Lead" - by Sheryl Sandberg.

These two books were chosen among many others because they complement each other even though the subject is the same, empowering women.

Dion Johnson addresses inequality, as a source of real distress to the person that experiences it. This point is raised as their elimination has an increased impact in reducing poverty, and unequal distribution of resources and opportunities. She suggests asking ourselves the following questions (just a few are shared):

"-How are things going in your industry?"

-How are you and the people you lead in your organization doing when it comes to serving and meeting needs?...

-What needs are going unmet in the current system?...

-Does your business embrace diversity?

-Does that result in inclusion in your corner of the global marketplace?" - (Johnson, 2020).

While Sandberg focuses on women in leadership positions at work and their struggles, Johnson delves more on the women's internal conflicts when they are exposed to leadership and pressure, the "leadership pressure" as she mentions it.

They both agreed that there is some winning territory in the battle for a more equal world but there is still a long way to go and cannot be achieved as if it were a fight that needs to be fought by the disadvantaged people. Responsibility is conveyed to everybody.

While Johnson focuses on the inner work to become a "Queen Influencer", which seems quite appropriate by the nature of this project focused on beekeeping, no Queen Bee success relies only on herself.

Key points in becoming this Queen Bee influencer:

- **Radical authenticity:** Who are you?
- **Repowering our womanity:** What is a woman?
- **Reconnecting with your spirit²**
- **Reclaiming wholeness:** Healing process.
- **Reframing:** why am I going through this?
- **Relevance building:** so, what?
- **Showing respect**

On the other hand, Sandberg's book (Sandberg, 2013) calls attention to the tendency of women to remain in the background, encouraging women to show up when opportunities arise, speak up and express their willingness to take a challenge. Leadership is not an inner attribute; it is a learned and developed skill.

Some of the key points in this construction towards leadership are:

- **Empowering Women:** like the title expresses LEAN IN, show up, speak out, express your willingness to lead, and accept the challenge.
- **The Confidence Gap:** this is something that even Work and Income is trying to address, are strategies to overcome self-doubt and empower, gaining confidence in the process.
- **Leadership Skills:** no one is born a leader, each of these skills can be learned.

² The book says reconnecting with your god, but to this project, the scope is important to go beyond religions and beliefs.

- **Work-Life Balance:** she says “...do not leave before you leave”, she mentions how motherhood or its planning, can affect the development of a women’s career because she tends to step aside on the race up the ladder. Also, she remarks on how a partner and the dynamics in the household affect women.
- **Building Supportive Networks:** mentorship is fundamental on a career path and should be encouraged at all levels (vertical and horizontal) no matter the gender of the one involved.
- **Pay Equity and Bias:** Pay gap, she suggests that women should be prepared to negotiate their wages or salaries because there is a tendency to be paid less than their male colleagues and urges women not to accept the first offer but to make a counteroffer.

Both books focus on the inequity issue from different angles but share the purpose of empowering women and fighting back against biases.

4.4. Discussion

The literature review has main topics in common like the pay gap, gender segregation in career choices, biases and harassment, but leads to the importance of empowering women.

Beekeeping has proven to be a great skill to empower women, there is no need for land and lots of resources but can have a massive impact on a household. Historically around the world has been a male-dominated knowledge and industry, even though, for women is easier and less demanding than other farming activities.

From the food safety point of view, it can provide several nutritious products and pollination can increase the production of other vegetables and fruits in their family veggie gardens.

The beekeeping products have a market already established and they can easily be traded in, impacting the financial situation of a family, and having an extra source of income.

Another benefit for women is that beekeeping, helped them to be more connected to the local community which also creates opportunities for doing business, knowledge exchange and support.

The impact of beekeeping is monetary, nutritional, and social, as a result of empowerment the women feel pride in themselves which is also a key role model for their families. There is inner and external work to be done, to become an empowered woman. Leadership is not an inner attribute; it is a learned and developed skill.

Highlighting the significance of fostering empowerment and building connections among women leads to positive outcomes that extend beyond the individual. By empowering women, there is potential to create a ripple effect in society.

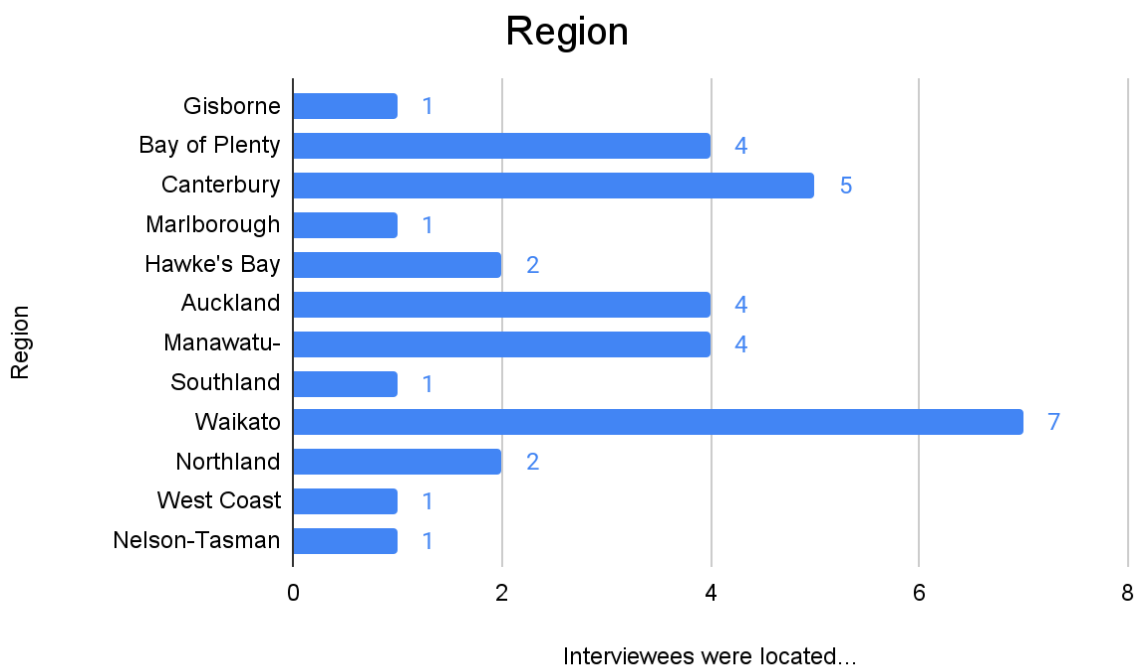
5. Analysis.

In total, thirty-three answers were received from different regions across New Zealand (Graphic n: 2). The age range was varied, which was truly enriching for this project, it is possible to visualize that in the following table (Table n: 1).

Table 1: Beekeepers' age range

Age Range	Q
20 - 29	7
30 - 39	9
40 - 49	9
50 - 59	6
60 - 64	1
Over 65	1
Suma total	33

They were based all around New Zealand,



Graphic n: 3 - Location of the beekeepers.

From the questionnaire, it was possible to notice that most of the ladies that wanted to be interviewed were self-employed.

Table 2 - Type of beekeeper willing to be interviewed or not.

	Can you please indicate if you would like to be interviewed for this report?	
Please, indicate if you are...?	Yes	No

	Can you please indicate if you would like to be interviewed for this report?	
Employed beekeeper	9	6
Self-employed beekeeper	11	3
Suma total	20	9

But not all interviews were completed. There were surprising situations like No show, even though flexibility was offered and an email to set up another interview was sent.

Table 3 - Reasons why an interview was not done even when expressed willingness to participate.

Yes, but...	Reason
Incorrect email	1
No reply to set up the appointment	3
No show	4
Out-of-date range	3
Suma total	11

Of the volunteers, twenty requested an interview and because of these different situations, only nine interviews were completed.

The semi-structured interviews were processed using thematic analysis of qualitative data.

6. Key findings and discussion.

The nine interviews provided valuable insights, and the semi-structured questions were thoughtfully organized into thematic groups, which facilitated the subsequent thematic analysis. To maintain focus and coherence, the identified themes will be kept for in-depth exploration and analysis.

6.1. Representation

From the interviews, it was possible to find out that female beekeepers see the industry as a place where they are underrepresented. Interviewees feel that women are not well represented in different industry bodies, as speakers at the beekeeping conference and on the beekeeping clubs and hubs.

Nevertheless, two sources assure that women are well represented but are in the background, no data was found to confirm either of those observations.

Based on the data collected, seen in Table 4 two people did not answer the question and four feel underrepresented; two feel underrepresented and a third think that women are underrepresented but is their responsibility.

Table 4 - Do you feel women are represented in the apiculture industry?

Representation	Total
----------------	-------

N/A	2
No	3
Yes	4
Suma total	9

But are they? Are women underrepresented or are they in the background? Why? The literature review can be applied here and might be related with the confidence gap or the tendency to lean back and not take a protagonist role. One of the sources commented that this might look like the situation because of the particular way that beekeeping companies are formed in New Zealand. Most of them are family businesses owned by couples, the male takes charge of certain activities while the female takes charge of others, this is gender delegation. This type of separation of activities responds to stereotypes about which tasks are better for each gender.

6.2. Support: analysing the gap between support received and unmet needs.

When it comes to support, we all like to feel supported. The way that we can find support or need to be supported can vary depending on our needs at that moment. The survey question was based on past experiences: What support did you receive?



Something curious and worth mentioning, mentoring was the one topic that kept repeating from the beekeepers that are the longest in the industry. They mentioned they received extraordinarily strong mentorship from other beekeepers (most of them were men). As mentioned in Sandberg's book "Lean In" (Sandberg, 2013) a healthy mentorship programme is something that helps all employees succeed in their careers, especially for women there is a gap in mentorship related to biases.

Mentorship should be encouraged vertically and horizontally; a lot of learning can come from our peers and especially in the beekeeping industry sharing knowledge and experiences can help anyone to become a better beekeeper because it is a skill that can be improved and mastered by repetition.

Networking is another key support that is extremely linked to the following two. This type of interaction based on sharing professional experiences and contacts can be really helpful and they benefited from it. As most of them mentioned, knowing the beekeepers in your area can bring a lot of opportunities, to help each other when needed and also even as a business contribution.

The support tools that are at the same level are training and community, which are interrelated and as mentioned are linked to networking too. For the scope of this research, the beekeeping community tends to gather in beekeeping clubs that are more focused on the inquiries and the need for shared knowledge of hobbyist beekeepers. Some of the beekeepers interviewed mentioned that some beekeeping clubs are not a useful source of advice and training, based on the different ways of working the hives, the scale, and the different problems they need to solve. They need to meet other commercial beekeepers to find the answers they are looking for.

Api NZ offers [hubs](#) for commercial beekeepers and the annual beekeeping conference is the biggest event that attracts beekeepers from all over the country to gather and exchange, provides a technical update and is the opportunity for different industry bodies to train and keep beekeepers updated with the latest research and sanitary requirements.

Flexibility was mentioned by two employed beekeepers, but the self-employed beekeepers mentioned that as “one of the good things of being a beekeeper”. The self-employed beekeepers did not consider that as support as it was not a perk, it was intrinsic to their job definition. Those that are self-employed consider flexibility as a value add it from their way of working. The flexibility allowed them to balance their job needs with their household chores and caregiving responsibilities.

In the following table, we can find how many people mentioned these concepts and many more as support received:

Table 5 - Concepts mentioned by the number of persons that mentioned it.

Support	Appeared
Mentoring	6
Networking	5
Training	3
Community	3
Support	2
Flexibility	2
Solidarity	1
Self-financing ³	1
Resources	1
Knowledge Sharing	1
HR support	1
Family support	1
Family business	1
Collaboration	1

³ Possibility to pay for supplies at the end of the season when the hive products were harvested.

When talking about the support they wished they had received or they needed and was not provided, experiences get diverse. This project might not be enough to solve these issues but might be a way to start unravelling and addressing them. Support is key to creating a positive work environment as the lack of it can undermine motivation.

Table 6 - Missed support by persons that mentioned it.

No Support	Appeared	Comments
Visa-induced job insecurity	2	Mistreatment or exploitation because of their immigration status.
Training	2	Related to apiculture (levels 3 and 4 difficult to access if not in the industry - vicious circle) or activities considered male activities (tow or back a trailer. safely load a truck or UTE, woodwork)
Isolation	2	This involves two situations: mistreatment because of isolation no easy access to communicate the situation and safety awareness about the exposure to assaults
Financing	2	Lack of loan availability is perceived as gender-based bias
Unsupported	1	A general feeling of not being supported.
Unaware of how physically demanding was	1	No one ever mentioned how heavy
Queen-bee syndrome	1	*See barriers
Physical strengthening needed	1	Looking forward to the next season, training to be fit and strong.
Networking	1	Depending on location difficult access to beekeeper groups
Neglect	1	Hiring to train and ended up being neglected
Negativity	1	Discouragement when expressing the desire to be a beekeeper.
Micro-management	1	Each hive and activity done, extremely supervised and overseen
Lack of opportunities	1	Lack of opportunities for females to find an entry-level position without beekeeping knowledge
Harassment	1	Work and moral harassment
Disrespect	1	Any unprofessional behaviour
Criticism	1	Related to negativity,

6.3. Breaking Barriers: Uncovering Biases and Advancing Gender Awareness in the apiculture industry.

Barriers are blockages to persons accessing options and opportunities related to their gender or ethnicity.

As a starting point, the focus would be on biases perceived in the industry. The two main ones are grouped because sexism is in general grouped under the category of gender-based bias. These types of biases are often unconscious, and this is one of the reasons why they are so difficult to identify and eradicate. From Table n: 7, we can appreciate that eight out of 9 perceived a bias based on their gender when working as a beekeeper. This was shown by people from the industry.

This is followed by a male-dominated industry, and we can refer here to the representation in the industry, even though data was not available the perception of being underrepresented is seconded here as seeing the industry composed mostly of men rather than women. Also, the idea is that men are going to be preferred when the option is available to be offered a job.

Gender delegation is another gender-based bias because it is associated with the assumption that activities and chores are assigned to a specific gender which is directly associated with household activities but also impacts career development. Here it is important to note that as Sanbergh (Sandberg, 2013) mentioned and the report from Romanian beekeepers (Pocol & McDonough, 2015), women spend more hours during the day on household and caregiving activities than men. This situation puts women at a disadvantage in education and career development.

Table 7 - Biases by persons that mentioned them.

Biases	Appeared
Gender-based bias	5
Sexism	3
Male-dominated industry	2
Gender delegation	2
Pay-gap	1
Patriarchy	1
Sexual over-perception bias	1
Maternalism	1
Male-ego	1
Intra-gender bias	1
Gender-based favouritism	1
2nd guessing of men	1

Biases are not exclusively one gender towards the other, any gender can have unconscious bias and can judge their own gender with it. The perceived threat was

mentioned and is considered from a gender awareness approach because it was perceived between women. This one is related to the queen bee syndrome.

Table 8 - Gender awareness by persons that mentioned it.

Gender awareness	Appeared
Perceived threat	2
Gender discrimination	2
Underrepresentation	1
Superwoman syndrome	1
Security peril	1
Scrutiny	1
Safety apprehension	1
Prejudice	1
Narrow-minded	1
Discrimination	1
Appearance-based discrimination	1
Activity predominantly masculine	1



Queen bee syndrome is particularly interesting to discuss because the name itself is inspired by the dynamics of a hive when two queen bees are present. This syndrome is harmful, in a hive the queens will fight to death, and the survivor will rule the hive. The foundation on where this syndrome stands is the idea that those who broke the glass ceiling will not promote women or whoever is perceived as a threat.

This syndrome damaged the image of women in the workplace in the past because they were the ones that traditionally received this tag. The queen bee was seen as someone who exerts unhealthy competition, bullies coworkers, and subordinates, and gets in the way of other people's career advancement. In this context, the collaboration between beekeepers can be undermined and avoided perceiving a "competitor" as a threat. Another curious fact, this type of behaviour was seen in colleagues over their 50's, which correlates with Johnson (Johnson, 2020) as she mentions is more like old-fashioned behaviour.

Table 9 - Barriers by persons that mentioned them and comments.

Barriers	Appeared	Comments
Queen-bee syndrome	2	See above
Workplace harassment	1	Work and moral harassment
Underestimation	1	Underestimation of skills and performance of women
Training	1	Difficulty to find apprenticeship opportunities
Technology	1	Limited use of technologies at work which made work harder
Strength	1	Women tend not to be as strong as men
Social ineptitude	1	Beekeepers tend to work in isolation which makes them reserved and lacks social skills
Sexism	1	*See biases
Physical barrier	1	Physically demanding activity
Patriarchy	1	System of beliefs that remains
Not having commercial beekeeping experience	1	A vicious circle of not having the commercial beekeeping experience
Networking gap	1	Some isolated areas make networking difficult
Motherhood barrier	1	This barrier is more related to the physical barrier after giving birth. The body is not that strong
Male Ego	1	-
Lack of opportunities	1	Entry-level positions and training are not as widely available for women
Lack of leadership training	1	Lack of leadership skills to deal with issues at work
Industry devaluation	1	Underestimation of female skills
Gender-based harassment.	1	Work and moral harassment
Finance	1	Not enough financing for women. Difficulty to get loans

6.4. Driving Change: Enhancing Female Representation in the Apiculture Industry in New Zealand.

The final question was open to allow beekeepers to share their ideas in regard to what can be done to increase women in the apiculture industry. The following table (Table n: 10) shows those comments:

Table 10 - How to attract more women to the industry.

How to increase women in the industry	Appeared
Work-flexibility	2
Trust	1
Support from female leaders	1

Seeking new opportunities	1
School with beehives	1
Resilience	1
Representation+	2
Promoting gender diversity	1
Program in Schools	1
Part-time seasonal jobs	1
More areas to develop	1
Mentorship	1
Mental wellbeing	1
Gender pays equity	1
Flexibility	1
Fitness	1
Curriculum inclusion	1
Confidence	1
Built stronger networks	1

We can group them by diverse needs:

- **Education** (training, school with beehives, support from female beekeepers, programme in schools, and curriculum inclusion)
- **Interpersonal** (built stronger networks, confidence, mental well-being, mentorship, representation+, seeking new opportunities, trust)
- **Inherent to work** (flexibility, fitness training, gender pay equity, more areas to develop, part-time seasonal jobs, promoting gender diversity, and resilience)

Work flexibility was mentioned again and is especially important for those employed beekeepers that look forward to future family planning as the self-employed workers do. The Brainstorming done by them contributed to finding clarification on what was useful for them at the beginning of their careers.

6.5. Reason for leaving the industry.

This was one of the questions from the question tree that could have helped this research to understand where the industry was failing in retaining female beekeepers in the industry. Further investigation should be done, and it is still a question to be answered that could be helpful. Even though ex-beekeepers were contacted, no interviews were done.

Of the interviewees, one of them was exiting the industry, and the reason was that apiculture was no longer profitable.

7. Conclusions

In conclusion, the series of semi-structured interviews with female beekeepers from the Apiculture industry in New Zealand shed light on gender-based issues. They shared the perception of being underrepresented in industry bodies, as speakers in the beekeeping conference and clubs and hubs.

Even though it was mentioned in an interview with an industry body that women are represented and are the heads of different industry bodies, the perception differs.

However, it is important to mention the lack of data available to ratify these perceptions. More research and data collection are suggested to gain an understanding of the matter.

The concerns and experiences expressed by female beekeepers need to be addressed and acknowledged to create a future industry with equity in access to opportunities by creating a more inclusive and supportive environment.

Finally, it is important to note that attitudes, biases, and behaviours are interrelated and there is an exceptionally fine line between them. There are different exercises to bring biases to the spotlight and work on them. Communication is key, expressing when there is an uncomfortable situation and exercising active listening with healthy auto criticism will go a long way.

8. Recommendations and next steps.

After reviewing this diverse set of concepts (Biases, barriers, need for support, etc.) and on the search for a more inclusive and supportive environment for the ladies in the industry and the ladies to come, some recommendations and a toolbox and resources seem a way to contribute.

This project aims to unveil unconscious biases as a stepping point to build a more equal future in the apiculture industry with the same opportunities for everybody independent of their gender.

Increase women's representation: There were requests from the interviewees.

- **Annual women's meeting at the beekeeping conference:** they said they would like to have the opportunity to network only with female beekeepers once a year. It would allow them to create stronger bonds and build a net of solidarity and collaboration when needed.
- **More female speakers in the beekeeping conference:** they mentioned that the presence of female speakers in the beekeeping conference not only makes them feel represented but also gives them motivation and gives them examples of pathways to follow. Apiculture should be seen from a wider perspective, beekeepers can be researchers, scientists, teachers and professors, government officers, and part of industry bodies and the list could continue endlessly.

- **Work on showcasing the ladies that represent them in the industry:** some industry bodies are led by ladies, but there's a perceived lack of representation, showing who those leaders are, is important, even essential.

Biases, gender awareness and harassment: working on this is an active exercise of making the often unconscious, conscious. We all carry biases, and it is not the objective of this project to point fingers at anyone, the discussion about gender awareness and inclusion is a global trend and even though New Zealand is among the better countries in the world concerning pay-gap there is still work to do.

Things to keep in mind on the way to gender bias-free interactions are:

- Be aware and check on your own biases. Educate yourself and your close ones on how to tackle them. Practice counteracting stereotypes, if you think of people participating in a non-traditional activity for their gender, how does it feel? Switch roles, and work on that until it is normal.
- Empowerment and Support for Encouraging networking opportunities, mentorship programs, and fostering gender awareness can play a pivotal role in attracting and retaining women in the beekeeping field.
- Make yourself accountable: take responsibility for your actions, practice a healthy auto-criticism and be open to listening. It is nobody's fault but everybody's responsibility.
- Encourage men to speak up and act as allies when inappropriate comments are made.
- Promote a Zero tolerance policy and outline the procedures to follow to address "bad" behaviour.
 - Anonymous and confidential hotline for reporting serious issues like harassment (of any kind)
 - Human resources and talent acquisition teams should be more employee-centric focused.
 - Active listening training can help solve many of the issues above, judgement free.
 - Conflict mediation training addresses any behaviour "under the line", sometimes is not major misconduct but... there is still something there.
 - Non-violence communication training.
- Promote a shift in the culture, which can be even at your household level.

Improve Gender Equality in Promotions: at Unilever, the manager oversees asking females why they did not apply for a higher position or express interest in a promotion. Ask why?

Promotions are offered to men based on potential and achievements to women. So here we have the first big disadvantage, women are going to be already behind in

promotions as they need to prove themselves worthy of the position even before having it. From the women's side, they do not tend to postulate themselves when opportunities arise because they feel they do not have all the skills listed but men would apply if they had 80 % of them.

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Toolbox and resources:

- <https://leanin.org/> - Lean In is a global community dedicated to helping foster leadership, advancement, & inclusion for women in the workplace.
- <https://dressforsuccess.org> - The mission of Dress for Success is to empower women to achieve economic independence by providing a network of support, professional attire, and the development tools to help women thrive in work and life.

- <https://www.workandincome.govt.nz/products/a-z-benefits/mana-in-mahi.html> - Mana in Mahi - Strength in WorkTake part in Mana in Mahi to get paid while you train to do a job you love.
- <https://www.careers.govt.nz/jobs-database/farming-fishing-forestry-and-mining/agriculture-horticulture/beekeeper/> - How to find a new job or choose a new career.
- <https://www.workandincome.govt.nz/work/job-interviews/courses-to-help-you-get-a-job.html>

10. Appendices

Appendix n: 1 - Web-Based Questionnaire.

1. The consent form, sign, and personal data collection.

2. Demographics

1. Are you a...?

- Male (END)
- Female

2. Please, tick the box that indicates your age range.

- 0 -14
- 15 - 19
- 20 - 29
- 30 - 39
- 40 - 49
- 50 - 59
- 60 - 64
- Over 65

3. Please, tick the box that indicates in which region you are located.

- Northland
- Auckland
- Waikato
- Bay of Plenty
- Gisborne
- Taranaki
- Manawatu-Wanganui
- Hawke's Bay
- Greater Wellington
- Nelson-Tasman
- Marlborough
- Canterbury

- West Coast
- Otago
- Southland
- Work-related
 1. Are you a beekeeper?
 - Yes
 - No (END)
 2. Please, indicate if you are...?
 - Self-employed beekeeper
 - Hobbyist beekeeper (1-50 hives)
 - Employed beekeeper.

If you are a hobbyist...

3. How many hives do you have?
 - 5 hives or less
 - 6 to 50 hives

Do you know more women beekeepers? Might they be interested in this research, please share this questionnaire (add link)

END

Self-employed beekeeper...

4. How many hives do you have?
 - 5 hives or less
 - 6 to 50 hives
 - 51 to 500 hives
 - 501 to 1,000 hives
 - 1,001 to 3,000 hives
 - >3,000 hives
5. Can you please indicate if you would like to be interviewed for this report?
 - Yes

- No (END)

6. What do you produce?

Semi-structured interview questions (SEE BELOW)

An employed beekeeper (If you work for a company...)

7. Do you work for a company?

- Yes
- No

8. How many hives does the company have?

- 5 hives or less
- 6 to 50 hives
- 51 to 500 hives
- 501 to 1,000 hives
- 1,001 to 3,000 hives
- >3,000 hives

9. What area of beekeeping do you work in?

- Queen Rearing
- Honey production
- Administration
- other, please, specify:

10. What is your job role in the company? _____

Appendix n: 2 - Semi-structured interview questions.

Self-employed beekeeper:

1. Do you believe that women are well represented in the Apiculture industry?

Support

2. Please describe which support you needed and received to achieve your goals as a beekeeper.

3. Please describe which support you needed but still need to receive to achieve your goals as a beekeeper.

Bias

4. Please describe how you felt in the apiculture industry as a woman.
5. Can you identify a situation where you were treated differently for being a woman in the apiculture industry?
6. Please list the issues you feel are most important concerning gender awareness in the industry.

Barriers

7. Please, describe any barriers to your professional development in the beekeeping industry. (Self-employed)

Women+

8. What support is needed to increase the number of women on the field (front-line beekeepers)

Employed beekeeper.

9. Do you believe that women are well represented in the Apiculture industry?

Support

10. Please describe which support you needed and received to achieve your goals as a beekeeper.
11. Please describe which support you needed but did not receive to achieve your goals as a beekeeper.
12. Please describe which support you need to achieve your next position.

Bias

13. Can you identify a situation where you were treated differently for being a woman in the apiculture industry?
14. Please list the issues you feel are most important concerning gender awareness in the industry.

Barriers

15. Please, describe if you ever identified a barrier in the industry to develop as a beekeeper and access senior positions. (Employed beekeeper)
16. Please list the issues you feel are most important concerning gender awareness in the industry.

Women+

17. Please, describe what is needed to increase the number of women beekeepers in the industry

14. Glossary

Word	Meaning
Gender equity	<p>The process of being fair to men and women, boys and girls, and importantly the equality of outcomes and results. Gender equity may involve the use of temporary special measures to compensate for historical or systemic bias or discrimination. It refers to differential treatment that is fair and positively addresses a bias or disadvantage that is due to gender roles or norms or differences between the sexes. Equity ensures that women and men and girls and boys have an equal chance, not only at the starting point but also when reaching the finishing line. It is about the fair and just treatment of both sexes that takes into account the different needs of men and women, cultural barriers and (past) discrimination of the specific group.</p>
Gender equality	<p>The concept is that women and men, girls and boys have equal conditions, treatment and opportunities for realizing their full potential, human rights and dignity, and for contributing to (and benefitting from) economic, social, cultural and political development. Gender equality is, therefore, the equal valuing by society of the similarities and the differences between men and women, and the roles they play. It is based on women and men being full partners in the home, community and society. Equality does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female.</p> <p>Gender equality implies that the interests, needs and priorities of both women and men and girls and boys are taken into consideration, recognizing the diversity of different groups and that all human beings are free to develop their personal abilities and make choices without the limitations set by stereotypes and prejudices about gender roles. Gender equality is a matter of human rights and is considered a precondition for, and an indicator of, sustainable people-centred development.</p>
Empowerment	<p>Refers to increasing the personal, political, social or economic strength of individuals and communities. Empowerment of women and girls concerns women and girls gaining power and control over their own lives. It involves awareness-raising, building self-confidence, expansion of choices, increased access to and control over resources and actions to transform the structures and institutions which reinforce and perpetuate gender discrimination and inequality.</p>

	The core of empowerment lies in the ability of a person to control their own destiny. This implies that to be empowered women and girls must not only have equal capabilities (such as education and health) and equal access to resources and opportunities (such as land and employment), but they must also have the agency to use these rights, capabilities, resources and opportunities to make strategic choices and decisions (such as is provided through leadership opportunities and participation in political institutions).
Gender-based constraints	Constraints that women or men face that are a result of their gender.
Gender bias	Making decisions based on gender that result in favouring one gender over the other which often results in contexts that are favouring men and/or boys over women and/or girls.
Gender awareness	is the ability to view society from the perspective of gender roles and how this has affected women's needs in comparison to the needs of men. Gender sensitivity is translating this awareness into action in the design of development policies, programs and budgets.
Gender gap	Disproportionate difference between men and women and boys and girls, particularly as reflected in the attainment of development goals, access to resources and levels of participation. A gender gap indicates gender inequality.
Gender indicators	Criteria are used to assess gender-related change in a condition and to measure progress over time toward gender equality. Indicators used can be quantitative (data, facts, numbers) and qualitative (opinions, feelings, perceptions, experiences).
Gender indicators	Criteria used to assess gender-related change in a condition and to measure progress over time toward gender equality. Indicators used can be quantitative (data, facts, numbers) and qualitative (opinions, feelings, perceptions, experiences).
Intermediate barriers/causes	Intermediate barriers and causes of gender inequality, also commonly referred to as 'gender bottlenecks', determine

	options and opportunities available to persons according to their gender.
Structural barriers/causes	Gender inequalities in social structures, based on institutionalized conceptions of gender differences. Conceptions of masculinity and femininity, expectations of women and men, judgements of women's and men's actions, prescribed rules about the behaviour of women and men – all of these, and more, create and maintain gender inequality in social structures. Social and cultural environments, as well as the institutions that structure them and the individuals that operate within and outside these institutions, are engaged in the production and reproduction of gender norms, attitudes, and stereotypes.