



LFS 350

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Project Proposal

February 5, 2016



ASSESSING THE
APPROPRIATENESS OF
ENTOMOPHAGY &
INSECTICULTURE



IN RILEY PARK-LITTLE MOUNTAIN

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Introduction

The City of Vancouver is active in fostering a just and sustainable food system as seen in the development of the Vancouver Food Strategy (City of Vancouver, 2013b). One goal of this strategy is to foster food-friendly neighbourhoods by enabling and supporting food production through all forms of urban agriculture. The proposed study was established with the aim of promoting further community involvement in food production in Vancouver by stimulating developments in the urban agriculture model. We will conduct a survey in a neighbourhood active in urban agriculture in order to learn about community members' opinions surrounding the topics of *entomophagy*, the practice of eating insects, and *insecticulture*, the practice of growing insects for self-consumption. In addition to potentially generating conversation and curiosity around these topics within this community, this study will help determine answers to three inquiry questions including whether:

1. Community members are aware of entomophagy and insecticulture
2. They are open to participating in these practices, and their reasons why or why not
3. Their openness to participate aligns with their current practices in urban agriculture

Background and Significance

One of the primary goals within the Vancouver Food Strategy is to support and enable all forms of urban agriculture. Many citizens of Vancouver have demonstrated a motivation to foster sustainable food systems through their participation in urban agriculture practices such as community gardens, farmers' markets, backyard hens, and beekeeping (City of Vancouver, 2013b). Along with these assets, the practice of entomophagy, or consuming insects as a part of one's diet, is also developing in areas of Vancouver, likely due to its numerous benefits (e.g. UBC LFS, n.d.; William-Ross, 2015). Insects offer an efficient source of high-quality protein, iron, and zinc, while requiring significantly less water and feed than the same amount of protein from other livestock (FAO, 2015; van Huis, 2013).

In past literature, the advantages of entomophagy (e.g. FAO, 2013; van Huis, 2013) have been studied independent from the social and environmental benefits of urban agriculture (e.g. Pearson, Pearson, & Pearson, 2010), despite their shared goals in developing sustainable food options. Thus, the premise behind this study is to identify the potential appropriateness of insecticulture as a sustainable addition to Vancouver's urban agriculture model. However, the

integration of entomophagy into the urban food system may be hindered by a lack of cultural acceptance in Western society (Shelami, 2015). Therefore, the first step is to listen to Vancouver residents to determine whether their interest in urban agriculture may extend to include the practice of raising and eating insects.

The Riley Park-Little Mountain (hereafter, RP-LM) community, in particular, has shown a notable interest in sustainable food initiatives. This neighbourhood is host to a community garden, two orchards, a farmer's market, and a community kitchen (City of Vancouver, 2013b). While there is no official data with regards to beekeeping and backyard hens, our group's ongoing observations confirm the presence of these practices as well. RP-LM community members may therefore provide a unique perspective on the practices of raising and eating insects as a way to extend current sustainable agriculture practices in Vancouver.

The objective of the proposed study is to assess the perceptions and attitudes towards entomophagy and insecticulture within the Vancouver community of Riley Park-Little Mountain. More specifically, the proposed study will address whether:

1. These community members are aware of entomophagy and insecticulture
2. They are open to participating in these practices, and their reasons why or why not
3. Their openness to participate aligns with their current practices in urban agriculture

Methods

Data Collection & Analysis

A survey (see Appendix A) will be conducted at a farmers' market and a grocery store in the RP-LM neighbourhood over two days in March, as outlined in the timeline (see Appendix B). At least 20 participants will be surveyed and their answers will be audio-recorded. As an incentive, four food samples will be provided: three with insects in various forms and one without (see budget in Appendix C).

For qualitative data analysis, survey responses will be transcribed from the recordings. The answers to the inquiry questions will be coded from the yes-or-no questions, and key themes will be derived from the open-ended questions (see Appendix A).

Ethical Considerations

Before commencing with questions, participants will be informed of the subject of the survey and of their freedom to discontinue the survey at any time. They will be offered a consent form

to complete, as our results will be published online. Furthermore, as entomophagy may be novel to most participants, their boundaries and preferences will be respected when offering food samples. All ingredients and allergy warnings will be communicated before samples are offered, verbally and in print. Lastly, complete confidentiality and anonymity will be assured by excluding identifiable information such as names, birthdates, and addresses.

Success Factors

The success of the proposed study will be assessed by the level of survey participation, whether key themes are identified in the responses, and if community conversation around entomophagy is generated. The aim is to obtain at least 20 survey responses and be able to identify key themes from the open-ended questions (see Appendix A). In addition to the yes-or-no questions, these key themes will enable a more comprehensive understanding of the perceptions around entomophagy and insecticulture in RP-LM. Lastly, participants will be asked how likely they are to discuss entomophagy with others in order to assess if further conversation has been sparked.

Survey participation will be encouraged with a friendly and approachable demeanor, by conducting the survey at appropriate times, and by providing professional and intriguing visual materials. The free food samples will provide incentive to participate in the survey, and may also leave impressions about entomophagy that encourage participants to continue the conversation with their peers. Additionally, clear and specific open-ended questions (see Appendix A) will increase the likelihood of key themes emerging from the data. Lastly, the project team will work together to ensure open communication, understanding, and accountability, enhancing group cohesion, and a strong sense of respect for each other and for community members.

If successful, this study may inspire further movements towards integrating insecticulture into Vancouver's urban agriculture. On a smaller scale, survey participants may be encouraged to participate in entomophagy and insecticulture. On a larger scale, future LFS 350 groups could expand on the project, such as by creating insecticulture guidelines that the City of Vancouver could make available to the public, similar to those for backyard hens (City of Vancouver, 2013a).

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Appendix A

Survey Questions

1. Have you ever heard about **entomophagy** (the practice of eating insects)? (Y/N)
2. Would you be interested in consuming insects as a part of your diet? (Y/N)
3. Why or why not? (*Open-ended*)

4. Have you heard about **growing insects** at home for self-consumption? (Y/N)
(*If responded 'no' to Q2, skip to Q7 now.*)
5. Would you be interested in growing insects for self-consumption? (Y/N)
6. Why or why not? (*Open-ended*)

7. Have you ever participated in any of the following in Vancouver? (Y/N)
 - i. Community gardens
 - ii. Backyard food garden
 - iii. Backyard hens
 - iv. Beekeeping
 - b. *If yes:*
 - i. Why are you motivated to participate in this/these practice(s)?
(*Open-ended*)
 - c. *If no:*
 - i. Have you ever wanted to participate in any of these practices? (Y/N)
 - ii. Why or why not? (*Open-ended*)

8. Offer food samples ***Check for shellfish allergy***

9. Any comments, thoughts, or questions? (in general and/or in response to food sample)

10. Lastly, how likely are you to discuss entomophagy with any of your friends or family?
 - a. Not likely
 - b. Somewhat likely
 - c. Likely
 - d. Very likely

Thank you!!

Appendix B

Project Timeline

Survey Preparation:

- Test survey on friends and family (including audio recording; try in wind/rain)
- Adjust survey as needed; re-test if needed
- Finalize survey ***Complete by February 25th***
- Each of us to print our own hard copy as needed for survey day, and prepare notetaking sheets for participants who do not want to be audio-recorded

Consent Form Preparation:

- Prepare consent forms for our survey (found on Connect)
 - Include food sample info and allergy warnings
- Check with Adrienne; make changes as needed
- Print out enough for survey collection days ***Complete by February 25th***

Poster Preparation:

- Decide poster design/wording as a group
- Draw up poster ***Complete by February 25th***

Food Sample Preparation:

- Purchase ingredients for test batches
- Test out each recipe & modify/change as needed
- Purchase all ingredients ***Complete by February 25th***
- **On February 26th**: Bake food samples for survey day on Feb 27th
- **On March 4th**: Bake food samples for survey day on Mar 5th

3rd Blog Post March 11th

Survey Collection

- Farmers' market: **Feb 27th**
- Grocery store (choose one in RP-LM neighbourhood): **Mar 5th**
- To bring on survey day:
 - Poster
 - Consent forms & pens
 - Hard copy of survey in a sheet protector in case it rains
 - Audio-recording device (fully charged or with backup batteries)
 - Food samples
 - Umbrellas in case it rains

Data Processing & Analysis

- Listen to and transcribe all interviews
- Perform data analysis to answer inquiry questions:
 1. *Are community members in RP-LM aware of entomophagy and insecticulture?*
 - Tally up Y/N answers to questions 1 & 4 in survey
 2. *Are community members in RP-LM open to participating in these practices?*
 - Tally up Y/N answers to questions 2 & 5 in survey
 3. *Their reasons why or why not*
 - Analyse answers to questions 3 & 6 in survey
 - Organize into key themes
 4. *Does their openness to participate align with their current practices in urban ag?*
 - Of all the participants that said Yes to Q7, count how many also said Yes to Q1, Q4, or both

4th Blog Post April 1st

Report Writing

- Group discussion to determine next steps and to generate outlines for presentation and final report
- **Presentation on April 4th**
- **Report due April 11th** (submit via TurnItIn)

Appendix C

Food Sample Budget

- | | |
|-------------------------------|---|
| 1. Dry Roasted Crickets | <i>2 batches for community (survey) +</i> |
| 2. Chocolate Covered Crickets | <i>1 batch for class (final presentation)</i> |
| 3. Chocolate Chip Cookies | |
| 4. Chocolate Cricket Cookies | |

| Sample | Cost per Batch | Number of Batches | Total Cost per Sample |
|---------------------------------------|----------------------|-------------------|-----------------------|
| Dry Roasted Crickets | \$3.05 | 3 | \$9.15 |
| Chocolate Covered Crickets | \$4.71 | 3 | \$14.13 |
| Chocolate Chip Cookies | \$3.24 | 3 | \$9.72 |
| Chocolate Cricket Cookies | \$27.14 | 3 | \$81.42 |
| Total Cost (not incld. taxes): | \$38.14 + tax | 3 | \$114.42 + tax |

1. Dry Roasted Crickets:

| Ingredient | Amount Needed | Cost | Cost per Batch |
|-----------------|---------------|-------------------|----------------|
| Crickets | 60 | \$25/500 crickets | \$3.00 |
| Salt | 5 ml | \$2.87/500g | \$0.04 |

2. Chocolate Covered Crickets:

| Ingredient | Amount Needed | Cost | Cost per Batch |
|------------------------|---------------|-------------------|----------------|
| Crickets | 60 | \$25/500 crickets | \$3.00 |
| Chocolate chips | 160 g | \$3.22/300g | \$1.71 |

3. Chocolate Chip Cookies:

| Ingredient | Amount Needed | Cost | Cost per Batch |
|--------------------------|---------------|----------------|----------------|
| Brown Sugar | ½ cup | \$2.27/1kg bag | \$0.23 |
| White Sugar | ½ cup | \$2.47/2kg bag | \$0.12 |
| Egg | 1 | \$3.98/dozen | \$0.33 |
| Vanilla (pure) | ½ teaspoon | \$4.74/460mL | \$0.26 |
| Applesauce | 3 tablespoons | \$1.57/796mL | \$0.09 |
| All Purpose Flour | 2 cups | \$3.18/1kg | \$0.80 |
| Salt | ½ teaspoon | \$2.87/500g | \$0.02 |
| Baking Soda | ½ teaspoon | \$1.13/500g | \$0.01 |
| Oats | ½ cup | \$3.77/1kg | \$0.31 |
| Chocolate Chips | ½ cup | \$3.22/300g | \$1.07 |

4. Chocolate Cricket Cookies:

| Ingredient | Amount Needed | Cost | Cost per Batch |
|------------------------|---------------|------------------------------|----------------|
| Same as above, plus... | | | \$3.24 |
| Cricket powder | 1/3 cup | \$25/500 crickets = \$0.55/g | \$23.90 |