

UBC Social, Ecological Economic Development Studies (SEEDS) Student Reports

**The Moon Noodle Bar**

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LFS 450

April 2010

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# **Scenario 5- Exploring Ways to Lighten AMS Food and Beverage Department's Ecological Footprint**

## *The Moon Noodle Bar*

**LFS 450**

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## Abstract

The University of British Columbia Food System Project (UBCFSP) is a collaborative community-based project between the Faculty of Land and Food Systems (LFS), Social, Economic, Ecological Development Studies Program (SEEDS), and various partners part of the UBC food system, which are working towards a sustainable campus food system. The aim of group 7 is to decrease the ecological footprint (EF) of The Moon Noodle Bar, an AMS food outlet. Our research consists of information from past LFC reports, information on seasonality and locality of produce used at The Moon Noodle Bar, interests of our community contact, and suggested resources by the LFC teaching team. As a result, we decided to develop two stir-fry recipes, for the month of July, with a lower ecological footprint. To test the feasibility of selling the proposed menu items, we conducted a sensory panel. Positive results were revealed for desirability to purchase, taste, and visual appeal. From our findings and results, we propose some recommendations for future LFC students and interested parties to continue to find ways to decrease the ecological footprint of the AMS Food and Beverage Department. We hope for the continuation of the past and current project efforts and recommendations to further lighten the ecological footprint of all AMS food outlets.

## Introduction

In 2001, The University of British Columbia Food System Project (UBCFSP) was initiated by the collaboration between the Faculty of Land and Food Systems (LFS) and the Social, Economic, Ecological Development Studies Program (SEEDS). This has become an ongoing project for fourth year LFS students, continuing the findings of the previous years' classes. The main aim of the UBCFSP is to create a living model of shifting the current food system into a sustainable system that will respect social, economic, and ecological issues (UBCFSP Scenario, 2010).

The UBSFSP incorporates students and the teaching team in LFS with partners that are connected to the UBC Food System (UBCFSP Scenario, 2010). This paper will concentrate on The Moon Noodle Bar, an AMS food outlet located at the Student Union Building on campus. The Moon Noodle Bar (The Moon) is a Chinese take-out outlet that serves a variety of dishes such as stir fries and rice bowls. Their slogan is “fresh food,

fast!” and they encourage customers to bring their own containers in exchange for a discount on their meal (UBC AMS Businesses, 2010).

In 2007, the UBC AMS council passed the Environmental Sustainability Policy as a commencement for the sustainable movement to solve an escalating global ecological crisis (AMS Sustainability; UBCFSP Scenario, 2010). A year later, this initiative developed into the AMS Lighter Footprint Strategy (AMS Sustainability; UBCFSP Scenario, 2010). Our scenario, *Exploring Ways to Lighten AMS Food and Beverage Department’s Ecological Footprint*, concentrates on decreasing the ecological footprint (EF) of menu items of The Moon through the incorporation of lower EF ingredients and the introduction of lower EF recipes (UBCFSP Scenario, 2010). The *Sustainable Produce Procurement Liaison Report* (2009) recommends using B.C. sustainably grown produce for the AMS food outlets, which is why we decided to focus on incorporating vegetables grown locally at the UBC Farm into the recipe we created for The Moon. The UBC Farm, a student-driven model farm, is located on south campus of the university and integrates sustainable land management and food production practices with research, innovation, education, and community outreach (UBC Farm, 2010). The UBC Farm already supplies various fruits and vegetables to multiple AMS Food Outlets around campus, including The Moon.

An emerging trend in our communities is the local eating movement of the 100 Mile Diet. The 100 Mile Diet, which started in 2005, focuses on consuming foods grown within a 100 mile radius of the individual – in short, locally grown foods (100 Mile Diet, 2010). The 100 Mile Diet website reached 15 000 members in 2006 and from this, it is safe to assume there is much interest in consuming local foods in our community (100 Mile Diet Vancouver, 2010). Recently, the 100-Mile Society and the Centre for

Sustainable Food Systems at the UBC Farm have joined together to help reduce climate change and care for the environment using sustainable agriculture.

This paper will explore the interactions of the local food system of UBC and explain and utilize the concept of ecological footprint in relation to The Moon. Based on our results, we will provide new menu items and recommendations to The Moon, AMSFBD, future AGSC 450 students, and Food Project Coordinators.

## **Problem Definition**

The quantity of arable land is shrinking as the world population escalates at an increasing rate. The Ecological Footprint (EF) concept was developed and introduced to quantify the effect we have on our environment. It is a measure of the amount of productive land and marine area needed to produce the resources consumed by an individual or a group of people, and absorb the resulting waste (Doherty, 2008). Currently, the world population uses an estimated 1.4 Earths worth of resources and absorption of our waste, which translates to one year and five months of regeneration to offset what we use in one year (Global Food Network, 2010). Based on moderate UN scenarios, with our current population and consumption trends continuing, our EF will be 2 Earths by the middle of the next decade. When resources are turned into waste faster than the waste can be turned back into resources, it is called a global ecological overshoot (Global Food Network, 2010). We are exploiting the very resources that biodiversity and human life depend upon.

Surprisingly, the food industry is a large part of the problem. While it is true that agriculture is far more efficient now than it has ever been, there continues to be a large cost to the environment associated with the food production and transportation (UBCFSP,

2010). According to *Small Farm Permaculture and Sustainable Living* (n.d.), modern monocultures, imported food, and highly packaged goods greatly contribute to the EF due to high acreage, pesticide, fuel and energy usage and high carbon emissions.

Consequently, one response to higher EF is to purchase locally produced foods. This will decrease carbon emissions by reducing the distance for transportation and fuel cost associated with longer travel. Purchasing local products also supports local farmers and businesses in your community (UBCFSP, 2010).

UBC recognized that food procurement and food choice is one of the limitations of sustainability. The AMS, a UBC organization, initiated the Environmentally Sustainable Policy, which is a guideline for sustainability. This has led to the creation of the AMS Lighter Footprint Strategy, which has supported our scenario of decreasing the EF of AMSFBD food outlets.

Developed from UBCFSP in 2008 and 2009, the LFS students introduced the Local, Organic, and Vegan (LOV) line (UBCFSP, 2010). Our group continued with LOV when developing new lower EF recipes for The Moon. Currently, The Moon does not offer menu items that follow the LOV guidelines. We believe an advantage of introducing LOV items to The Moon is that it will decrease the EF. Additionally, we believe that it is important to create a model for other food outlets, on and off campus, for the integration of lower EF recipes into their menus.

## **Vision Statement**

The UBCFSP is conducted with the overall goal of increasing the ecological and social sustainability, which are outlined in the seven principles of the Vision Statement.

Our group took time to consider all of the principles and evaluate their importance in contributing to the AMSFBD Lighter Footprint Strategy.

We agree with the seven principles because they place emphasis on the sustainability food system as a whole. We feel that it is easy to overemphasize one aspect of food such as food safety, nutrition, locality, or affordability. In fact, these narrow views are what the reductionist science instills in us as thinkers. For a truly sustainable food system to be possible, we must rise out of reductionism and view the food system as a whole.

Along with the general principles outlined in the Vision Statement, we developed a few extra guidelines to determine our goals for The Moon. These include focusing on local foods over organics from afar and to include the economic and social aspects of sustainability. Many of our decisions stemmed from the unanimous agreement that we feel good about eating foods grown from our home gardens, the UBC Farm, and local farmers markets. We also feel that by buying from local producers such as the UBC Farm, there is a greater sense of trust as our food is coming from members of our community. As Michael Pollan puts it, “shake the hand that feeds you” (Pollan, 2009).

Ideally, we believe that the UBC food system would be based on what is seasonally produced in the BC Lower Mainland. This led to our decision to make a seasonal vegetable-based dish from produce available at the UBC Farm.

### **Identification of Value Assumption**

Our group consists of 6 members of various ethnicities, upbringings, fields of study and experiences which has given us all a unique set of personal values. However, being



interested in food is what ties us all together, and we share a passion for good quality food that we hope to pass on to the greater UBC community through the UBCFSP.

We agree that it is imperative that our food supply system becomes more sustainable as we try to feed a growing world with dwindling resources. The main goal of our work is to produce a menu item with a lighter EF that fits with the three values of local, organic and/or vegan. As students, environmental resources are not the only concern. Budget constraints do cause students to make less sustainable food choices. Therefore we tried to reconcile having a lighter EF at UBC food outlets with an increase in social and economic sustainability. In order for a new dish to be successful at The Moon, it must be affordable and convenient for students; to borrow terms from a definition of food security, the food must be appropriate and accessible (Bomke et al, 2008).

As students of food and nutrition, we are aware of the connection between healthy, local agriculture and nutritious foods. We wanted to keep nutrition as one of our key values, since we believe it is an important factor in overall social sustainability. Thus, the main principles that guided our development of the lighter footprint menu item are:

- Local production
- Organic production
- Vegan and/or vegetarian emphasis
- Affordability
- Convenience
- Nutrition

## Methodology

Our community-based research report was conducted using a variety of methods to fulfill the goal of our project which includes the AMS food service, The Moon restaurant, classmates and teaching assistants.

### *Background Research*

During the first few weeks, all group members performed background research, starting by reviewing previous papers with specific interest in their recommendations from past UBCFSP projects. These reports were found on the S.E.E.D.S. website. Research on popular recipes from The Moon was conducted to discover the quantity of product used in order to determine their present EF. Academic sources were viewed to further research the EFs of various types of ingredients used by The Moon. For example, the rice, pork and vegetable produce were researched to assess what season they were grown and where they were coming from. Alternate suppliers of local food produce for The Moon were also researched. We obtained and examined the transfer list provided to us to start proposing recipes that were able to meet the LOV standards with produce frequently used by The Moon. We researched other local food outlets (identified as Amuse Bistro and Bishop's Restaurant) that are dedicated to lowering their EF. We were able to gather ideas from these food outlets and consider how we could use their models of sustainability to lower the EF of The Moon.

### *Community Contact*

On March 9th, 2010, two meetings were organized with the head of the AMS food service Nancy Toogood to discuss various ideas for the project and to make sure every partner was in agreement with the project goals.

Questions proposed to Nancy Toogood and The Moon:

1. Is there a (low selling) menu item you would like to see altered or replaced?
2. Is there a dish you would like to add?
3. Is the AMS central food store the only source of ingredients?
4. Would it be possible to source a single (or few) ingredients elsewhere? (eg. free range poultry, organic meat)
5. Would you consider using (organic) brown rice if there was shown to be a demand and willingness to pay for it? (change LOV to LOV'N, N for Nutritious)
6. What local/organic ingredients are currently available at AMS central outlet?
7. What is minimum quantity for ordering a given local/organic ingredient? (may depend on ingredient, quantity required, source, etc.)
8. Is brown rice available at the AMS central outlet?

To promote agriculture on university grounds and to minimize the EF of produce used at university food outlets, we chose the UBC farm as our primary source of produce for The Moon. We researched seasonal locally grown produce and correlated that with the production capacity of the UBC farm. We also chose to do a summer recipe (July) because Nancy recommended that it would be easiest to implement a new recipe during quieter months on campus. Initially, we wanted to organize a meeting with the manager of the restaurant; however, Nancy informed us that because of a language barrier and time constraints, it would be best to use her as our main community partner for our project.

### *Recipe*

By using the list of seasonal produce grown in July and the list UBC farm sent us of the specific produce they grow, we formulated two different stir-fry recipes to cook and sample. The mentality towards brainstorming different recipes was to be able to make the dishes quick and easy and with ingredients The Moon already purchases. We also wanted to make sure that the recipes agreed with current dishes, for example, using similar amounts of ingredients and maintaining a relatively short prep time. The recipes were found in online databases and were modified to have a balance of seasonal vegetables in order to maintain a reduced EF.

A simple sensory panel was set up with untrained panellists from four different UBC faculties to evaluate the final two recipes: 1) beef and snow pea stir fry and 2) leek and zucchini stir fry. Panellists were asked to refrain from coffee, tea, and food in the 30 minutes prior to the sensory evaluation (Poste et al, 1991). The two recipes were offered with steamed white rice as an accompaniment. The analysis was carried out during the mid-afternoon (3 pm) to avoid excessively hungry panellists which is known to influence sensory analysis (Poste et al, 1991).

In total, eight UBC students used to test and evaluate both recipes. The small sample size was used due to time, space, and financial constraints. Ideally, a larger sample size would be preferred, yet we felt that within the particular group, each participant was a good representative customer towards the restaurant. As a result, a survey was given to each participant testing both recipes (See Appendix A).

Lastly, posters of the new recipes were made to promote our lower EF recipes and provide awareness of the LOV line to customers. Posters were kept as simple as possible, but still eye-catching, and will serve as a visual guideline to produce future easy-to-read posters (See Appendix C).

## **Results and Findings**

### *Restaurants Offering Local Menus*

Amusé Bistro, a semi-formal restaurant located on Vancouver Island, practices lighter EFs by using locally produced and self-produced products (McAree, 2008). The objective of chef and co-owner Bradford Boisvert is to take advantage of as many local food sources as possible. “Simple is elegant” is the food philosophy of the bistro and

presenting high quality natural flavour of foods is the main target. The menu changes frequently depend on local farm supplies and seasons (McAree, 2008).

The AMSFBD has a different customer base and volume as well as different price bases. Despite the difficulty to directly compare the two food outlets, there are still practices carried out by Amusé that would benefit the EF of the Moon. For example, the practice that Amusé uses ingredients from its own garden is the connection we want to occur between AMSFBD and the UBC Farm. By providing ingredients from the UBC Farm and using them in menu items that are on campus gives the feeling of local eating, community, and sustainability.

Another restaurant offering local menus is Bishop's restaurant on West 4<sup>th</sup> in Vancouver, which is dedicated to lowering its EF by using seasonal, local, and organic produce, meat and seafood (Smith, 2009). John Bishop, restaurateur and chef, sees the importance of using farmers and fishers that produce locally and contribute to a sustainable food system (Smith, 2009). Instead of using mass wholesalers, Bishop purchases his local ingredients from about 20 suppliers (Smith, 2009). He knows all the farmers personally and therefore knows exactly what is going into his menu items and where they are coming from (Smith, 2009). By using food produced locally, Bishop understands he is cutting down on fossil fuels and greenhouse gasses associated with long-distance transport (Smith, 2009).

The AMSFBD can learn from Bishop's restaurant and use some of John Bishop's practices to lower the EF of the Moon and other AMS outlets. Bishop's, however, is a fine dining restaurant with a very different customer base than the student-run, The Moon. It may not be feasible for AMSFBD to purchase product from 20 different suppliers like Bishop does, but ordering product from one or two large supplier may

reduce the choice of more locally produced foods. Thus, restricting how much the EF can be reduced. Bishop sets a good example in that he gets to know the suppliers of his ingredients so he knows when one food is more eco-friendly than the next (Smith, 2009). We found that the people involved in the ordering of the food for the Moon did not know where the ingredients were coming from. For example, no one could tell us if the outlets were receiving vegetables from Abbotsford or Mexico. AMSFBD should support local food producers. If the people involved in the decision-making are more aware of where the food is coming from, they will be able to make informed decisions in which foods will lower the EF.

#### *Current Ecological Footprint at The Moon*

The existing menu options at The Moon were analyzed by the list of ingredients to determine an estimated EF. Factors affecting whether ingredients had a relatively high or low EF included what type of meat was used and if the vegetables were in season. Another important factor is food miles, but we were unable to gain access to information on where the meat and many of the vegetables were produced.

Out of the types of meat used at The Moon, beef has a higher EF than both pork and chicken (Wageningen University, 2010). Beef contributes to the most carbon dioxide equivalents due to a greater requirement for land area and fossil fuel inputs (Wageningen University, 2010). Chicken is shown to have the least impact on the environment out of the three types of meat (Wageningen University, 2010).

Vegetables not in season can not be grown locally and thus need to be imported, which contributes to an increase in greenhouse gas emissions from transportation. All the vegetables in the three current menu items are not grown in BC in March (when the menu items were available). Below is a list of vegetables used in the menu items and their respective growing season in BC:

Vegetable	Growing Season in BC
Peppers	July – October
Onion	August – October
Broccoli	July – October
Green Beans	July – October
Cauliflower	June – November
Carrot	July – November

*Source: BC Association of Farmer's Markets*

Based on these factors, we have listed in order the highest EF menu item (1) to the smallest footprint menu item (3):

**(1) Beef Chop suey: HIGHEST Ecological Footprint**

Ingredients: broccoli, red and green peppers, onions, green beans, beef

**(2) Sweet and Sour Pork:**

Ingredients: green pepper, onion, pork, sweet and sour sauce

**(3) Chicken Chop suey: LOWEST Ecological Footprint**

Ingredients: broccoli, cauliflower, carrot, onion, chicken

The beef chop suey dish had the highest footprint because it contained beef and the lowest footprint dish was the chicken chop suey. Since all the vegetables were not in season, the type of meat used was the deciding factor.

*Ecological Footprint of Proposed Menu Items*

The EF of a food is generally comprised of many factors. However we chose to simplify the equation by placing emphasis on the proximity of production (local), farming methods (organic), and presence or lack of animal products (vegan).

The UBC farm is the ideal in local production for the UBC food system, therefore in terms of food miles there would be a limited EF for foods produced at the UBC farm and prepared at The Moon. While the UBC farm is not certified organic, it practices

sustainable agriculture and is likely to produce a smaller EF than a larger scale, so-called “industrial organic” farms which are becoming commonplace (Guthman, 2004). We believe that the UBC farm produce fits the bill in principle, if not officially, for the organic production factor. These two factors, local production and low-ecological impact farming methods, are the keys to declaring our menu items to have a lighter EF, in comparison with current offerings at The Moon.

The beef and snow pea recipe (see Appendix D) is noted to have a higher EF than the leek and zucchini recipe (see Appendix D), since beef is known to have a high EF (Wageningen University, 2010). However, in comparison to the current beef dish offered at the moon, our beef and snow pea stir fry is lighter footprint, since the vegetables it uses are seasonal and local. This dish’s EF can be reduced further by replacing the beef with chicken or removing the meat component completely. On the other hand, our rationale for using beef in our lighter footprint menu item was based on the knowledge that beef dishes are some of the most popular menu items at The Moon and students will demand a beef component regardless of the EF. Over time, people will begin to fully comprehend the beef system’s negative environmental impact and will chose to support a more sustainable food system. In the meantime, we chose to lower a high-EF dish as best we could by targeting other parts of the dish (e.g. the vegetable component).

#### *Taste Panel Results*

The leek and zucchini recipe scored strongly on likely to buy and visual appeal and moderately well on overall quality, taste and texture (Appendix A). Comments from the panellists indicated that the dish requires more flavour and colour, which would be remedied by the addition of another component like a spicy element, another vegetable, or a stronger tasting and thicker sauce. Another comment was that the vegetables used were on the soft side. Many panellists agreed that a crunchier vegetable would complete



the dish. We suggest adding red pepper as it is a local seasonal vegetable available in July.

Although both recipes were scored similarly on visual appeal, the beef and snow pea recipe was higher on taste, overall quality and likely to buy (Appendix A). Comments from the panellists indicated that there was a familiar taste to the dish, the beef was well complemented by the choice of vegetables, and that there was a nice balance of colour in the dish.

#### *Preparation and Cooking Time*

Preparation and cooking time for the beef/snow pea and leek/zucchini stir fries were similar at 18 and 19 minutes, respectively (Appendix A, Table 3). The most time for both recipes was taken for chopping and prepping the produce, with cooking time the second most time consuming. Cooking time would be lower for the practical application of the recipes, since The Moon has a higher heat wok for cooking than the one used for our trial, which was on a conventional electric stove.

#### *Nutritional Analysis*

The nutritional facts table, calculated by My Diet Analysis nutritional program, for both the beef and snow pea stir-fry and the leek and zucchini stir-fry can be found in Appendix B. A 325g serving of the beef and snow pea stir-fry with rice provides a good source of fibre, protein, vitamin A, vitamin C, and iron. The dish, however, provides 16g of total fat, but 11 of those grams are unsaturated fat. Due to the beef content, there is 5g saturated fat and 82mg of cholesterol.

The leek and zucchini stir-fry, provides a 366g serving including rice. This vegetable based stir-fry is much lower in total and saturated fat than our previous recipe and contains no cholesterol, but has limited protein. The menu item is, however, a good source of fibre and iron, as well as an excellent source of vitamin A and vitamin C.

## Discussion

### *Taste Panel: Evaluating Consumer Preference*

The high rating for the leek and zucchini recipe for likely to buy and visual appeal are both likely due to the use of differently coloured vegetables that gave the dish good aesthetics and the impression of healthfulness. These two characteristics are closely related, because at The Moon the choice of dishes is based on visual appearance and previous experiences. Since none of our panellists had tried the dish before, their likeliness to buy it would be strongly influenced by its visual appeal.

In comparison of the two dishes, all eight panellists indicated that they preferred the beef and snow pea stir fry to the leek and zucchini stir fry, and the individual panel results show this (Tables 1 and 2). The presence of beef in the former recipe increases the EF in comparison with the all-vegetable stir fry, however the higher preference for it makes it a better choice for inclusion at The Moon as a seasonal special. We interpreted the results to mean that customers would be similarly likely to try both recipes initially, but on returning would be more likely to choose the beef and snow pea a second time. This assumes that many of the consumers at The Moon are repeat customers so taste and quality will be more important in long run acceptance than visual appeal.

### *Preparation and Cooking Time*

Since the preparation and cooking time was practically identical between the two recipes tested, no preference was given to either recipe on this basis. In our sample, we used produce from the grocery store, which would approximate the produce currently used by The Moon from local food service providers via the AMSFBD central store (AMS Transfer Sheet, 2009). This produce is generally quite clean but for fresh produce from the UBC farm, we can expect a higher time required for cleaning, especially for the leeks and carrots.

The fresh garlic in both recipes would take more time to prepare than the garlic powder previously used by *The Moon* for flavouring other recipes (AMS Transfer Sheets reference). We would suggest that fresh garlic be peeled by hand and then minced in a food processor to minimize preparation time. The nutritional and flavour advantages of fresh garlic are well worth the extra time in our opinion. Fresh garlic can lower the Moon's EF because local garlic is grown at the UBC Farm. By replacing powdered garlic, which is currently being used by the Moon, with fresh garlic, there are also added health benefits.

Garlic contains bioactive components known as organic sulphur compounds. These compounds have been shown to reduce blood pressure and the incidence of strokes through anti-aggregatory factors. In addition to antioxidant and antibacterial properties, garlic has the ability to reduce serum cholesterol levels as well. However, when garlic is dried in the form of powder or capsules, the highly beneficial organic sulphur compounds are less active (Kitts, personal communication, 2010).

Aside from a minimal increase in cleaning time for UBC farm produce, and the extra time required for preparing fresh garlic, we deem the preparation and cooking time to be appropriate for implementation at *The Moon* based on our own trial.

### *Nutrition*

Based on the nutritional analysis of the two recipes, we feel that both are healthy alternatives to current offerings at The Moon. When the produce is in season, we predict that the dishes will have a heightened nutrient profile.

The leek and zucchini stir fry provides the consumer's full recommended daily intake of vitamin A and C. However, our main concern for both recipes is the sodium content, in which almost half of our recommended intake of sodium for the day is in each

serving. By using a reduced sodium soy sauce in the future, the 1077mg sodium amount from the first recipe and the 943mg sodium content in the second recipe can be reduced.

## Recommendations

### *The Moon:*

- 1) Produce and sell dishes from one or both of the suggested recipes as a weekly/monthly summer event: July Stir Fry.

*Reasoning:* The recipes suggested have a lower EF because they use ingredients from UBC farm, which results in less transportation.

- 2) Make slight alternations of current menu items:

- Dishes with “mixed vegetables” can be switched into locally produced vegetables
- Switch garlic powder to fresh garlic from the farm.

*Reasoning:* Through slight alternations of current menu items, ecological impacts will be decreased. Locally produced vegetables have a lower EF through reduced transportation emissions. Switching to fresh garlic lowers EF, as fresh garlic does not require any additional process procedures that consume energy.

### *AMS Food Outlet:*

- 1) Promote the LOV products (the 2 recipes as a monthly/weekly event).

*Reasoning:* Marketing and promoting the two new dishes will encourage students at UBC to become aware of lighter footprint products and be more active in the event.

- 2) Promotion on Facebook regarding eco-friendly day.

*Reasoning:* Many students are connected to Faculty of Land and Food Facebook page.

Through promotion on Facebook, more people will become aware of lighter footprint products. Not only will students who are within Land and Food faculty see the promotions, but their connected friends will also become aware.

3) Increase awareness and involvement of AMSFBD members with regards to LFS scenario projects and related information:

- Increase initial involvement of The Moon manager in decision making regarding menu changes or additions

- In order to decrease the EF, everyone involved in the project should be aware of where the current products are being produced

*Reasoning:* Greater emphasis on knowledge of origin of foods will have a greater impact on the lighter footprint strategy. If AMSFBD members are aware of which products are local and which are less ecologically-friendly, then they will be able to make more informed decisions to reduce the EF of the AMS food outlets.

*Future LFS Students:*

- 1) Look into procurement of produce from other BC Sustainability producers

*Reasoning:* Even though there are many local producers in BC, the missing link between producers to UBC prevents AMS from getting these local sustainable products. Figuring out the solutions for this linkage is important and crucial to lighten the EF.

- 2) Follow up the two July-stir fry recipes

- Consider replacing the beef in our beef and snow pea stir-fry with a lighter footprint meat or even remove the meat source altogether

*Reasoning:* Evaluation is significant. This allows us to see the impacts and acceptance

of new products by students. If the two new dishes are popular and well accepted by the students, similar additional recipes may be introduced and added to the menu. At the same time, the two dishes may become a regular summer event dish.

3) Addition of a nutritional component to the LOV projects – for example, become LOVN (N = nutrition)

- Research on adding organic brown rice as an option at The Moon
- Replacing the soy sauce with a low sodium soy sauce
- Continue with using fresh garlic instead of powdered garlic

*Reasoning:* Brown rice has become popular in BC recently. Researching the EF of organic versus conventional brown rice will assist the lighter footprint scenario project. Research on nutritional aspects will translate to sales of brown rice. Even though recipes may be local, organic, or vegan, they contain high amounts of sodium due to the use of soy sauce in many dishes. As mentioned early, there are additional health benefits of using fresh garlic instead of dried garlic.

*Food Project Coordinator(s):*

1) Continue with outstanding previous recommendations or projects for elaboration and improvement.

*Reasoning:* Four months may not be long enough to produce a “perfect” project. There are many good projects from the past, which may require slight modifications. There are also many good recommendations; these recommendations can be critical and significant stepping-stones towards group projects.

## Conclusion

It is possible for The AMS Food and Beverage Department, and subsequently The Moon, to implement lower EF menu items. For example, replacing current imported ingredients with fresh, seasonal, and local ingredients can decrease the EF. By promoting seasonal vegetable stir-fries as a more sustainable option rather than dishes containing beef, pork, or chicken is a good direction in lowering the EF.

The Moon has already initiated eco-friendly initiatives such as encouraging customers to bring their own containers for food and drinks. With the incorporating of the two recipes we have proposed into their July menu, The Moon can lower their EF even further.

Furthermore, we hope to raise awareness to the student body about the AMS initiatives to becoming eco-friendly through the promotional posters created by our team. We feel it is important to educate and spread the word on what it means to be ecologically-friendly in your food choices. When people are made aware of how their food choices are impacting our environment, they may be more inclined to lower their own EF, for example, participate in the Lighter Footprint initiatives.

Although our menu items are a step in the right direction, our EF can always be reduced further thus allowing much room for improvement by future Land and Food System students.

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## Appendix

### Appendix A: Sensory Analysis and Preparation Time

Table 1. Panellists' preference of leek and zucchini stir fry:

1=least preferred; 5=most preferred

	Overall quality	Taste	Texture	Likely to buy	Visual appeal	Score by panellist (25 = max)
Panellist 1	3	3	2	5	3	16
Panellist 2	3	3	1	4	4	15
Panellist 3	3	3	4	2	5	17
Panellist 4	4	4	4	4	4	20
Panellist 5	4	3	4	4	4	19
Panellist 6	3	3	4	4	4	18
Panellist 7	4	3	3	4	3	17
Panellist 8	3	3	3	4	4	17
Score by category (40= max)	27	25	25	31	31	

Table 2. Panellists' preference of beef and snow pea stir fry.

1=least preferred; 5=most preferred

	Overall quality	Taste	Texture	Likely to buy	Visual appeal	Score by panellist (25= max)
Panellist 1	4	4	3	5	4	20
Panellist 2	4	5	3	5	4	21
Panellist 3	4	5	3	5	3	20
Panellist 4	4	5	4	5	4	22
Panellist 5	4	5	4	4	4	21
Panellist 6	4	4	4	4	4	20
Panellist 7	4	4	4	4	4	20
Panellist 8	4	5	4	5	5	23
Score by category (40= max)	32	37	29	37	32	

Table 3: Preparation time (minutes) for two recipes.

	Washing Produce	Chopping/Prepping Produce and Meat	Mixing Sauce	Cooking Time	Total Time
Beef and Snow Pea	1	10	<1	7	19
Leek and Zucchini	2	10	<1	5	18

*Appendix B: Nutritional Facts Table for 2 Dishes*

<b><i>Nutrition Facts Table – Beef and Snow Pea</i></b>	
<b>For every 325g serving:</b>	
Calories 460 kcal	
Total Fat 16g	
Saturated Fat 5g	
Cholesterol 82mg	
Sodium 1077mg	
Total Carbohydrate:	
Fiber 4g	
Sugars 9g	
Protein 38g	
Vitamin A 71%	Vitamin C 32%
Calcium 7%	Iron 21%
<b><i>Nutrition Facts Table – Leek and Zucchini</i></b>	
<b>For every 366g serving:</b>	
Calories 298 kcal	
Total Fat 7g	
Saturated Fat 0g	
Cholesterol 0mg	
Sodium 943mgmg	
Total Carbohydrate:	
Fiber 7g	
Sugars 15g	
Protein 6g	
Vitamin A 110%	Vitamin C 112%
Calcium 7%	Iron 11%



the moon  
*fresh food, fast!*



A refreshing blend of carrots, zucchini, and leeks fresh from our UBC Farm cooked with vegan oyster sauce. Introducing ingredients that are local, organic, and vegan (in accordance to AMS Food and Beverage Departments' LOV line) - AND nutritious!

*Available while vegetables are in season.*

**LOCAL  
VEGAN  
NUTRITIOUS  
SEASONAL  
DELICIOUS**

**NEW** seasonal dish!  
**JULY STIR-FRY**





the moon  
*fresh food, fast!*



LOCAL  
VEGETABLES

NUTRITIOUS

SEASONAL

DELICIOUS

A refreshing blend of carrots, snap peas, and garlic from the UBC Farm as well as local Canadian beef. Introducing ingredients that are local, organic, and vegan (in accordance to AMS Food and Beverage Departments' LOV line) - AND nutritious!

*Available while vegetables are in season.*

**NEW** seasonal dish!

***JULY STIR-FRY***



*Appendix D: Recipes*

**Beef and Snow Pea Recipe**

3 tablespoons soy sauce  
2 tablespoons rice wine  
1 tablespoon brown sugar  
1/2 teaspoon cornstarch

1 tablespoon vegetable oil  
1 tablespoon garlic  
1 tablespoon ginger

Beef - cut into strips  
1 cup snow peas  
1-2 carrots

- 1) Combine soy sauce, rice wine, brown sugar, cornstarch in a bowl and set aside
- 2) Heat oil and add garlic and ginger, stir-fry 30 sec.
- 3) Add beef until just brown
- 4) Add carrots
- 5) Add peas after carrots have cooked for a minute or two
- 5) Add soy sauce mixture and bring to a boil
- 6) Simmer until thickened
- 7) Serve over brown rice or noodles

**Leek and Zucchini Recipe**

1 tablespoon oil  
2 tablespoons garlic  
2 tablespoon ginger

1/2 leek cut into strips  
1 carrot cut into thick slivers  
1/2-3/4 zucchini cut into long matchstick-size strips

3 tablespoons oyster sauce  
3 green onions for garnish

- 1) Heat oil and add garlic and ginger - stir-fry 1 minute
- 2) Add carrots
- 3) Add zucchini and leek when carrots starting to become soft - stir-fry ~3minutes
- 4) Add oyster sauce and 2 tablespoons water - 2 minutes
- 5) Garnish with green onion