Climate Friendly Food Label Project

UBC Food Services and AMS

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SEEDS Sustainability Program

Presentation Overview

1. Label Calculations: Overview and Opportunities for Change
2. Ideal Data Extraction Timeline for CFFL Calculation
3. Plant-Based Comparison Dashboard
4. Climate Friendly Food Label Desktop Application
5. Conclusion and Next Steps

Label Calculations: Overview and Opportunities for Change

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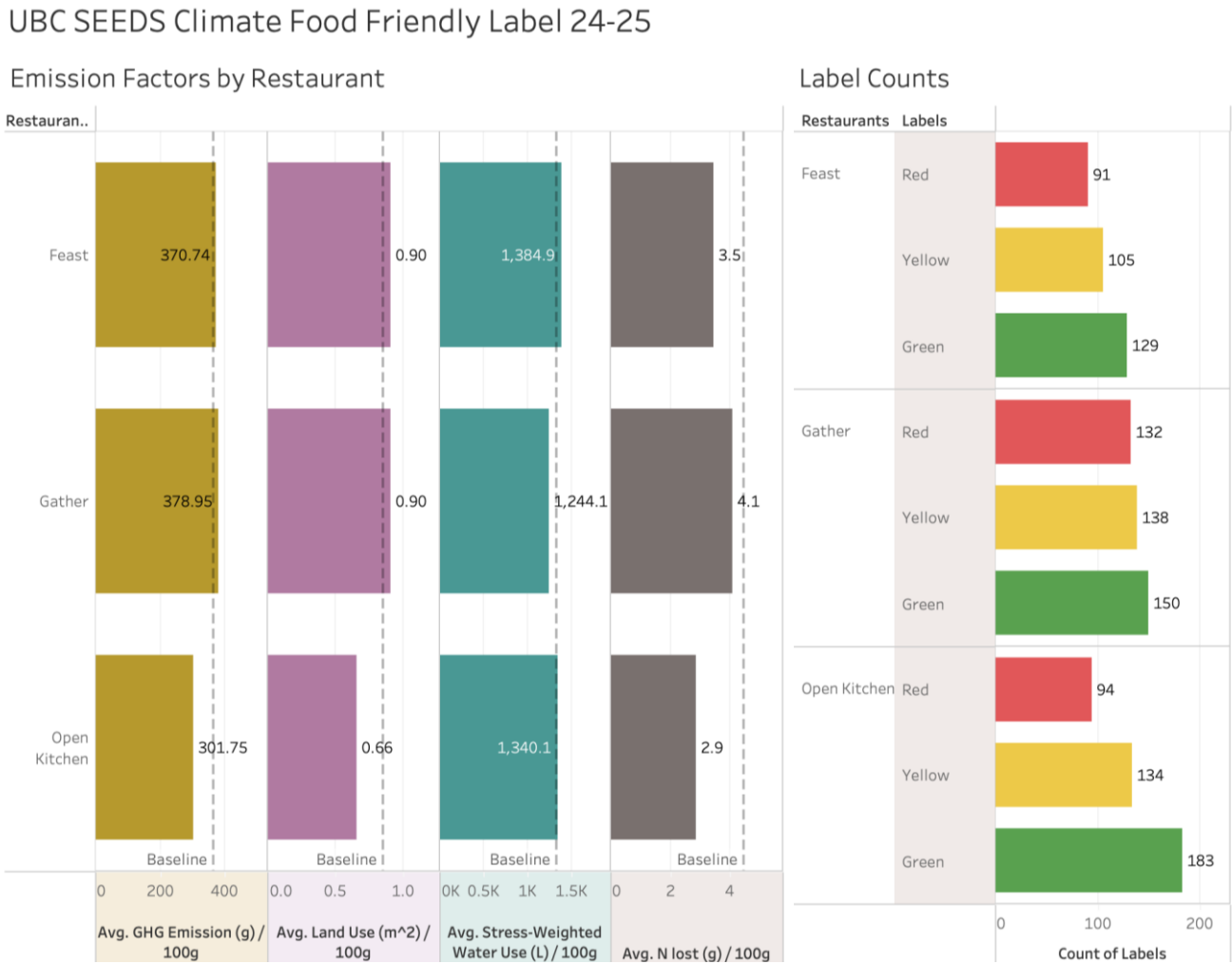
Baseline Overview

- An error was found in the current baseline calculation method.
- The original intent was to base the baseline on each dish's total sales and emissions from 2019; however, it was being based on restaurant-level averages instead.
- This did not reflect the varying contributions of individual dishes and led to an approximate value of the baseline.
- The error was corrected to ensure the baseline aligns with the original intent.
- **Impacts:**
    - Baseline values adjusted by approximately 5%.
    - Minor shifts in color tiers for a few items (e.g., one tier up or down).
    - No items experienced significant changes (e.g., two-tier shifts).

UBC Food Services Dining Hall Calculations

1. Open Kitchen is leading in providing more climate-friendly food
2. Feast has more room for improvement
3. Overall, all dining halls offer more green items than red or yellow



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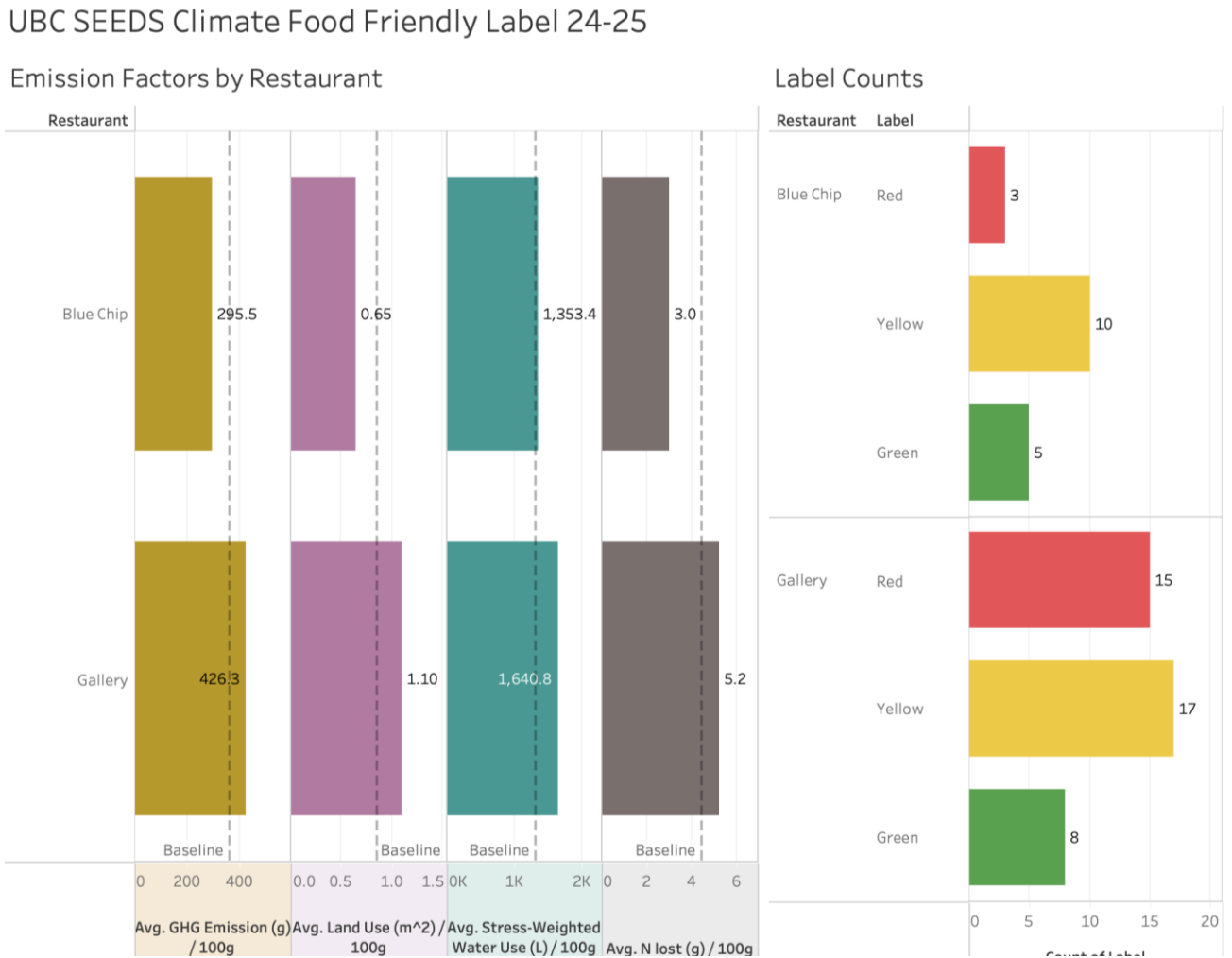
AMS Gallery and Blue Chip Cafe Calculation

1. The analysis for Blue Chip Cafe is limited to in-house items with available recipes, excluding popular outsourced menu items.
2. Average Emissions for Gallery are higher than the baseline



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Key Opportunities for Improving Labeling Accuracy and Workflow

- Over the course of this term, some key concerns and potential improvements to the workflow have been identified

- **Equal weights of environmental impacts:** This approach, while straightforward, is still subjective and different weighting could be used to reflect different priorities from the CFFS-AT and UBC stakeholders.

- **Revision of Item Categories:** The current categorization of items is overly broad, leading to inconsistencies and a lack of specificity in the labeling process. Greater detail in high or medium intensity categories like “tree nuts and seeds”, “fish (finfish)”, “stimulants & spices misc.”, etc., could be pursued.

Not-Made-In-House Products

- Both AMS and UBC FS have some items in some menus that they do not make in-house.
- There is no clear recipe available -> not possible to calculate the label
  - Does lack of label misinform consumer or confounds choice?
- Potential Solution: Use online recipes for such products.
  - Will increase the time proportionally with how many items are not made in-house as data will have to be added manually
- Potential Drawbacks:
  - The accuracy of the label will be compromised as we are not using an exact recipe.

Ideal Data Extraction Timeline for CFFL Calculation

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Suggestions for Data Extraction Timeline

- **UBC Food Services (UBCFS):**
  - **Outlets (Excluding Dining Halls):**
    - Data should be received at least 2 weeks before the deadline.
    - Focus on consistency checks for accuracy and data entry issues.
  - **Dining Halls and Large-Scale Outlets:**
    - Data should be provided at least 1 month in advance.
    - Additional time needed for thorough verification and calculations due to larger, complex data.

Suggestions for Data Extraction Timeline

- **AMS:**
  - Data should be available 3-4 weeks before the deadline.
  - Timeline accounts for preprocessing and error corrections due to unstructured data.
  - As AMS has shifted to OC v5, the data has been very difficult to clean, requiring some complex solutions to be implemented.
  - Due to the complex nature of the workflow, extra time is required for thorough checks.

Plant-Based Comparison Dashboard

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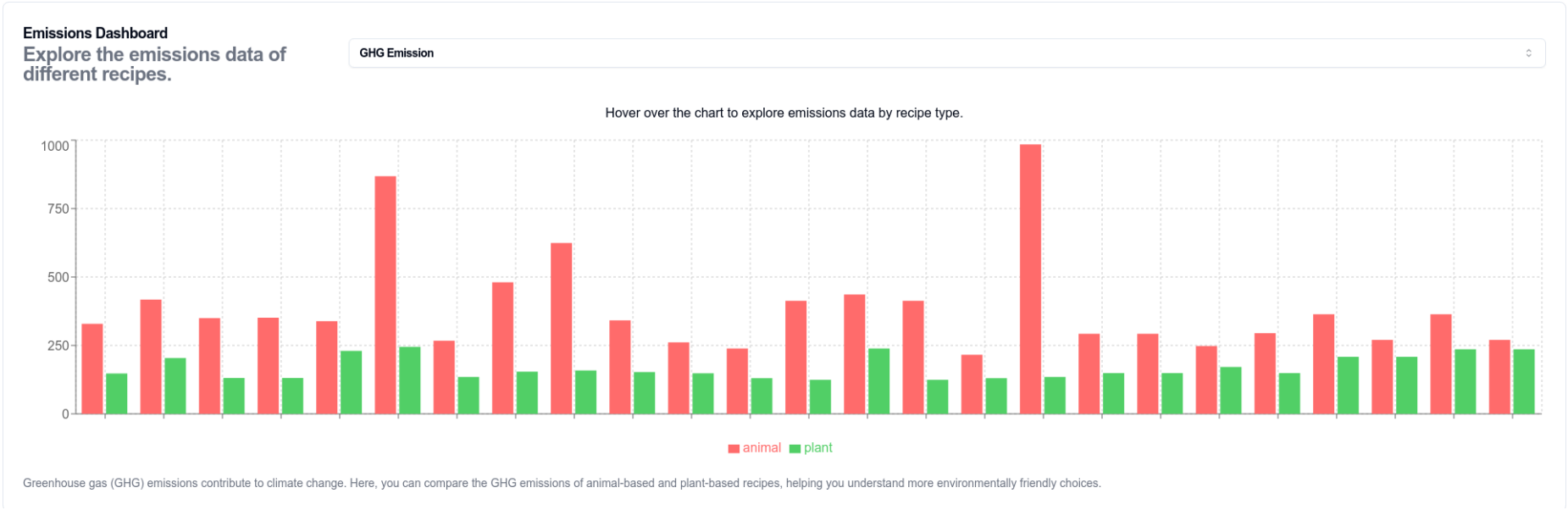
UBC Food Services Plant-Based Comparison Dashboard



UBC Food Services Plant-Based Comparison Dashboard: Comparison Page

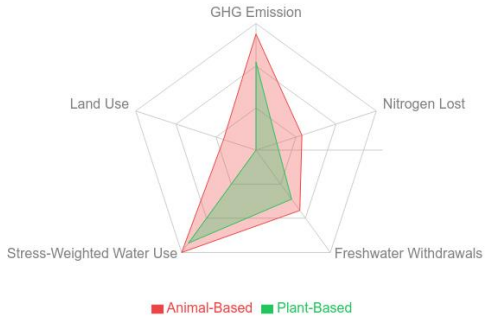
Recipe Comparison

Animal-Based Recipe
BEEF STROGANOFF

Plant-Based Alternative
MUSHROOM STROGANOFF

Relative Environmental Impact

Values are normalized to show relative impact within each metric



GHG Emission

Greenhouse gas emissions per 100g of food

Animal-Based:	984.20 g/100g
Plant-Based:	134.71 g/100g
Reduction:	86.3%

Nitrogen Lost

Nitrogen loss during production per 100g

Animal-Based:	7.82 g/100g
Plant-Based:	1.20 g/100g
Reduction:	84.7%

Freshwater Withdrawals

Water used in production per 100g

Animal-Based:	51.21 L/100g
Plant-Based:	18.87 L/100g
Reduction:	63.2%

Stress-Weighted Water Use

Water use weighted by local scarcity

Animal-Based:	2077.49 L/100g
Plant-Based:	906.00 L/100g

Land Use

Land area required per 100g

Animal-Based:	2.86 m²/100g
Plant-Based:	0.25 m²/100g

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Driving Sustainable Choices Through User Engagement

- The website was created with the goal to highlight the significant differences in environmental impact, empowering users to make informed and sustainable dietary decisions.

- It provides with a detailed comparison of an animal-based recipe and its plant-based counterpart.

- Beyond education, the website can be enhanced to actively encourage users to adopt more sustainable options by leveraging the available dataset.

Expansion of the Plant-Based Dashboard

- **Proposed Improvements:**
  - **Search Functionality:** Enable users to look up favorite dishes and discover plant-based alternatives easily.
  - **Restaurant-Specific Pages:** Dedicated pages for each dining hall to display menus and plant-based alternatives.
  - **Localized Recommendations:** Highlight popular plant-based options unique to each dining hall to drive adoption.
- **Benefits**
  - Personalizes the user experience.
  - Encourages sustainable choices.
  - Enhances overall usability and engagement.

Climate Friendly Food Label Desktop Application

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Why build the application?

- **Key Objectives:**
  - Provide an intuitive tool for calculating sustainability labels efficiently.
  - Possibly enable outlets to independently calculate labels for menu items.
- **Advantages:**
  - **Efficiency**: Streamlines the label creation process, reducing manual workflows.
  - **Scalability**: Supports a growing number of outlets and menu items with minimal additional effort.
  - **Ownership**: Empowers outlets to take active roles in their sustainability initiatives.

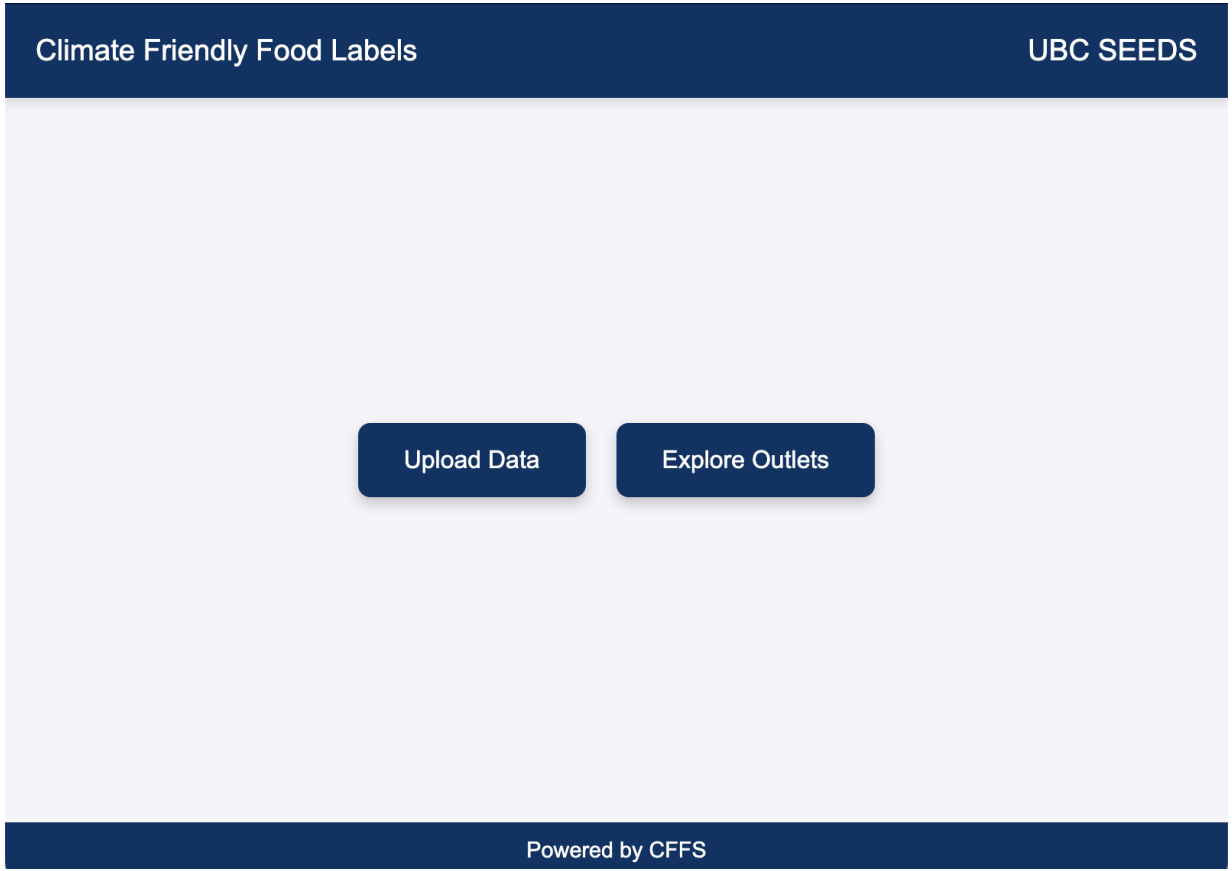
Why build the application?

- **Future Benefits:**
  - **Refinement Focus:** Frees up resources for refining label methodology and improving its relevance.
  - **Automation:** Creates opportunities to automate remaining manual processes.
  - **Continuous Improvement:**
    - Collects valuable data and user feedback for developers and analysts to innovate and enhance the system.
    - For e.g. analyze label trends, automate some manual workflows, analyze item emissions and report on leading ingredients in emissions

Current Progress

Home Page

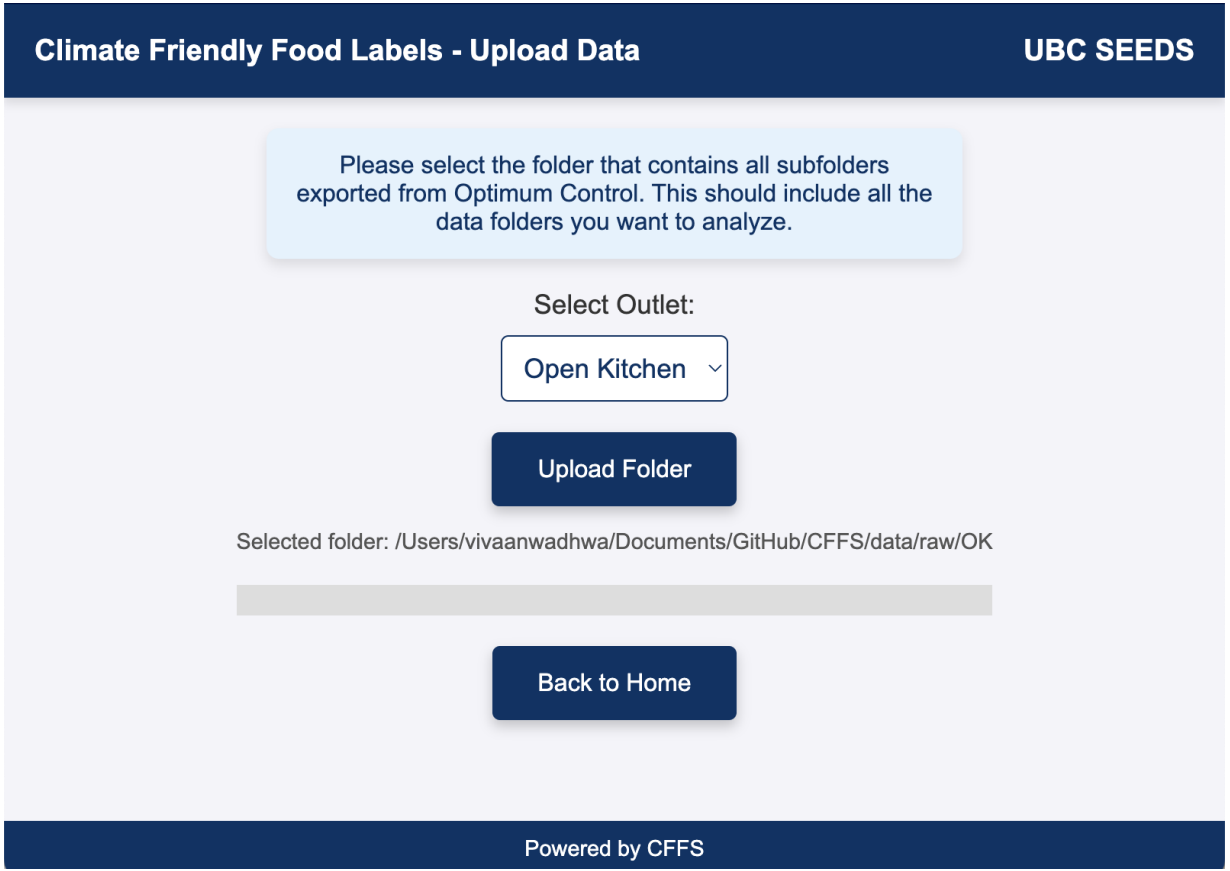
A simple and intuitive landing page with two main buttons: Upload Data and Explore Outlets.



Current Progress

Upload Page

Users can upload data folders with built-in validations to ensure seamless ingestion and compatibility with application requirements.

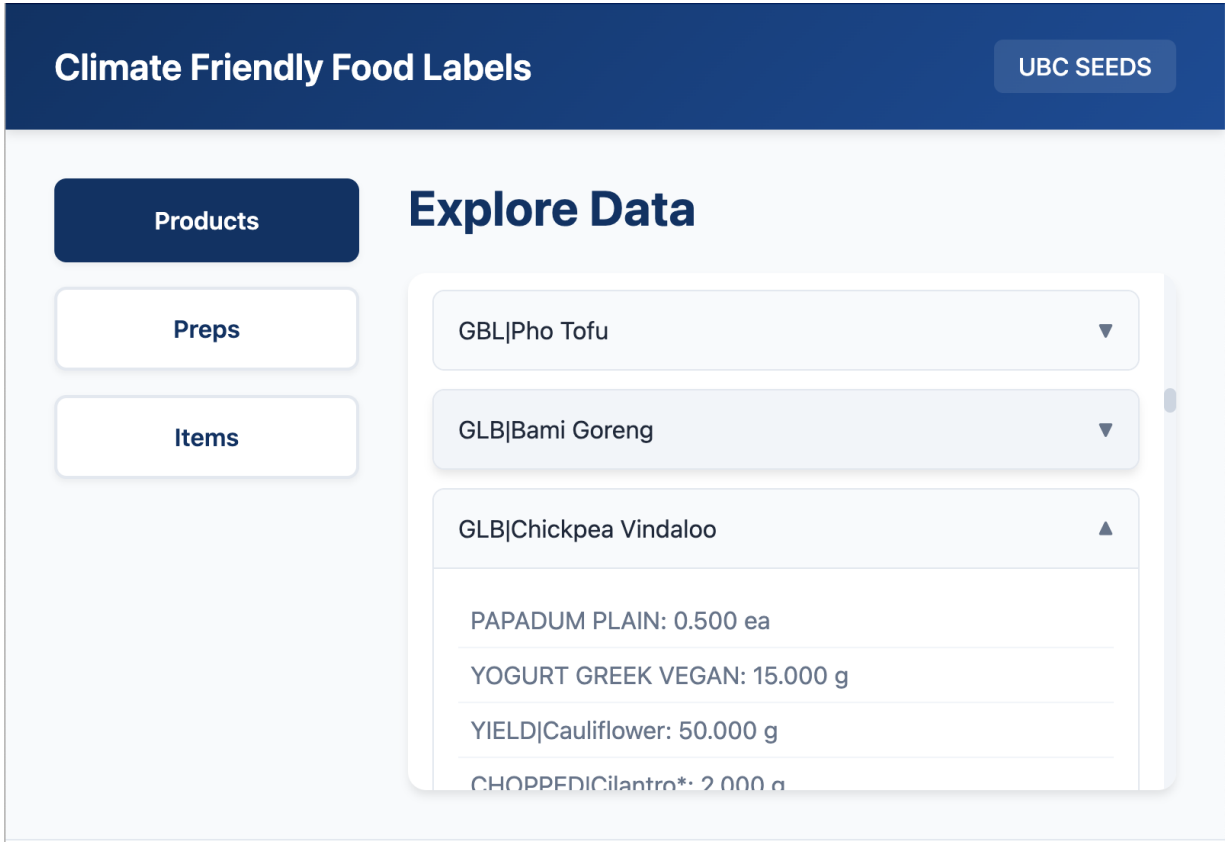


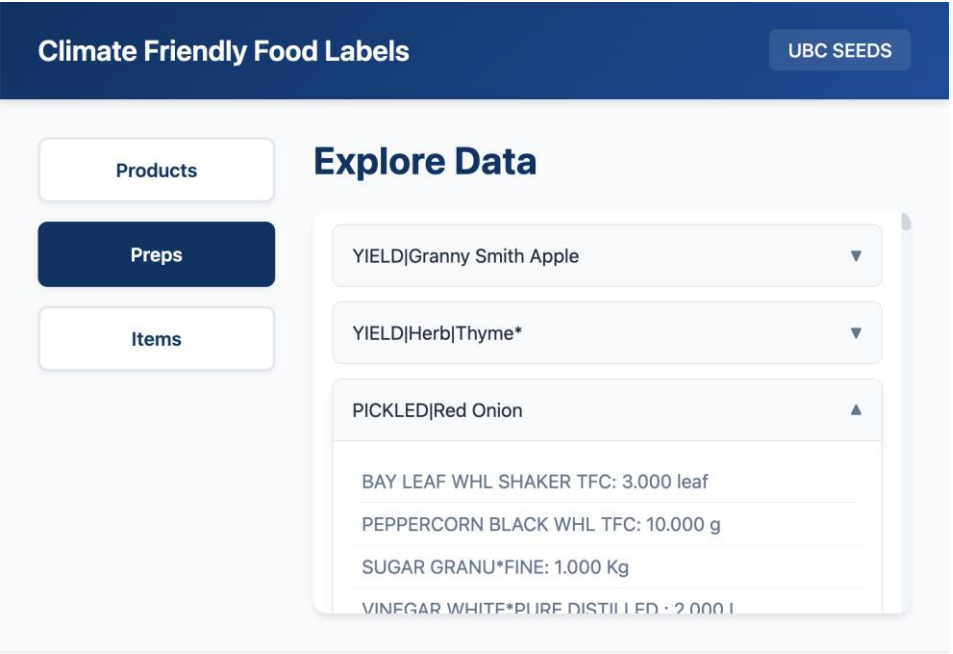
Current Progress

Explore Outlets Page

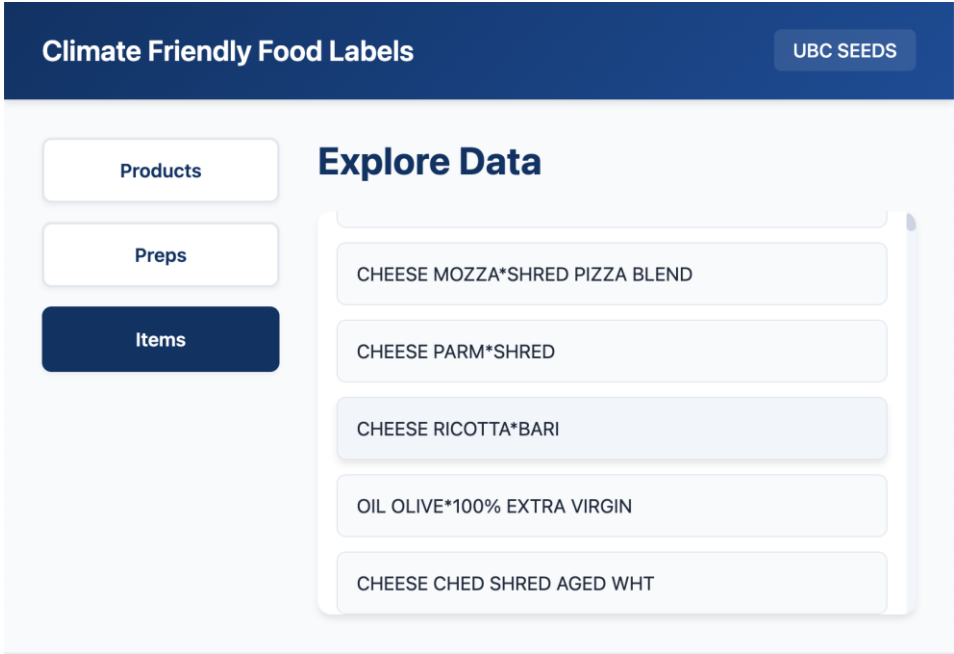
Users can explore the current menu of various outlets.

Products List





Preps List



Items List

Potential Drawbacks

1. **Development Timeline:**
    1. Significant development and testing effort required.
    2. Estimated timeline for completion: ~10 months with a **continuously employed single developer**.
2. **Maintenance Challenges:**
    1. Unforeseen errors may arise over time, requiring ongoing support.
    2. Non-technical users may face difficulties in resolving issues.
    3. Only solutions are to either hire someone for fixing these issues or write comprehensive documentation with troubleshooting for common issues.
3. **Technical Transition:**
    1. Frameworks may become outdated, requiring future updates.
    2. Long-term solution: Hire skilled students for migration (likely within the next decade).

Conclusion and Next Steps

- **Continued development of the Desktop Application**
  - The development of the application will lead to significant improvements in the efficiency and accuracy of the workflow
- **Expansion of Plant-Based Dashboard and similar projects**
  - The data obtained during this calculation can be used in various methods to develop tools for education
- **Expansion of Label to Outlets across campus**
  - With the work done this term, I hope that the label can easily be expanded to more outlets and more people can be educated about it

Any Questions?

Thank You!

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