# In it to Win it: How do probabilistic rewards influence the sale of plant-forward foods?

*Disclaimer: UBC SEEDS Sustainability Program provides students with the opportunity to share the findings of their studies, as well as their opinions, conclusions and recommendations with the UBC community. The reader should bear in mind that this is a student research project and is not an official document of UBC. Furthermore, readers should bear in mind that these reports may not reflect the current status of activities at UBC. We urge you to contact the research persons mentioned in a report or the SEEDS Sustainability Program representative about the current status of the subject matter of a report.*

## Table of Contents

# Executive Summary

**Group**: Sisterhood of the Travelling Plants
**Students**: Odi Wu, Ananya David, Katy Stewart, May Anne Cheok, Khushman Jawandha, Sam Campbell, Hiya Bansal
**Project Title**: "In it to Win it: How do probabilistic rewards influence the sale of plant-forward foods?"

# Introduction

The high environmental impact animal products have on university food systems necessitates a shift to plant-forward diets to reduce greenhouse gases (Vliet et al., 2020). Financial incentives have shown short-term benefits in promoting sustainable diets (Kaiser et al., 2020), but their long-term effects are uncertain. We explore the impact of probabilistic and financial rewards on maintaining plant-forward choices.

## Research Question

How do probabilistic rewards affect the sales of plant-forward deli items?

## Methods

We collected over 4,200 sales from two campus Harvest Markets. At the experimental site, purchasing a plant-forward deli item offered a 15% chance to win a $5 gift card or Harvest merchandise, whereas the control site had no changes.

## Results

We observed a non-significant decrease in plant-forward sales at the experimental location and a significant decrease at the control location. There was no significant difference in the sales decline between the two locations, thus the intervention was ineffective at increasing plant-forward sales.

## Recommendations

We recommend: (1) integrating reward tracking into point-of-sale systems, (2) offering larger, instant financial incentives, (3) enhancing the climate-friendly attributes of all food items, including those with animal products, to align with UBC Sustainability's guidelines, and (4) implementing a longer, more aggressive marketing campaign.

# Introduction

UBC launched its Climate Action Plan 2030 (CAP 2030) in December 2021, aiming for net-zero emissions in buildings and energy supply while significantly reducing greenhouse gas emissions (GHGE) by 2045 (UBC Campus and Community Planning, n.d.-a). UBC campus food systems are the second highest contributors of GHGE produced by the university (UBC Campus and Community Planning, n.d.-a), underscoring the need for targeted interventions to encourage a campus-wide shift toward more sustainable eating habits. Our research aligns with CAP 2030's goal to reduce the purchase of carbon-intensive food products by identifying and implementing high-impact strategies that substitute them with lower carbon-intensive alternatives (UBC Campus and Community Planning, n.d.-b).

In this study, plant-forward foods are defined as primarily consisting of plants but may include animal products. By not strictly prohibiting animal products, plant-forward foods also appeal to a broader range of consumers (Marquadt et al., 2024). Moreover, previous research has shown that flexible strategies encouraging climate-friendly dietary changes are most effective (Banovic et al., 2022). This aligns with prospect theory, which posits that individuals tend to be loss-averse and prefer potential gains (Kahneman & Tversky, 1979). By opting to use the term "plant-forward" as opposed to "vegan" or "vegetarian," we emphasize potential gains (i.e., more plants) instead of perceived losses (i.e., less animal products) (Rosenfled et al., 2022).

The global food system is a top contributor of GHGE, with animal products exerting the highest impact (Guedes et al., 2023). Xu et al. (2021) found that global food systems account for 35% of GHGE associated with human activity, with 57% originating from animal-based foods, while only 29% from plant-based sources. Shifting to plant protein sources can reduce GHGE by 19%-35%, particularly when replacing red and processed meats with minimally processed plant-based foods (Reynolds et al., 2023). Further, one study estimated that those who adopt a plant-forward diet produce over one-fifth less GHGE than the average person (Soret et al., 2014). This dietary shift not only benefits the planet but may also lead to positive outcomes on human health (Vliet et al., 2020). Given the reduced climate impact and potential health benefits, researchers have started investigating interventions to encourage more plant-forward consumer choices.

Prior studies have investigated strategies to encourage sustainable behaviours, providing a foundation for our research. For instance, Kaiser et al. (2020) demonstrated that financial incentives can significantly increase the selection of vegetarian meals during a short-term intervention at a German university. However, once the intervention was discontinued, the proportion of vegetarian meals selected returned to the baseline levels, potentially due to the short duration of the study, which indicates a need to examine the effectiveness of financial incentives implemented over a longer period (Kaiser et al., 2020). Additionally, Sheppard et. al. (2025) implemented a probabilistic rewards program (a 15% chance of winning a free coffee) and found that it encouraged sustainable behaviours, such as the use of reusable cups. However, the effectiveness of probabilistic reward programs on consumer food choices remains unexplored. Together, these studies reveal clear knowledge gaps: the effectiveness of a financial incentive over a longer period, i.e., more than 1 week (as shown by Kaiser et al., 2020), and the influence of probabilistic reward programs on plant-forward food choices (as shown by Sheppard et al., 2025). Therefore, this study seeks to examine the combined impacts of a probability-based reward program (incorporating both monetary incentives and branded merchandise) on plant-forward food choices at one of the UBC Harvest food markets over a 3-week period.

Our study is underpinned by the operant conditioning framework for climate action (Zhao et al., 2024). According to this theoretical framework, positive reinforcement—introducing a consequence such as a financial incentive on a variable-ratio schedule, where rewards are

provided unpredictably based on the number of total responses (e.g., a random 15% of total responses receive a reward)—is most effective in sustaining new behaviour over time (Zhao et al., 2024). This supports our approach of integrating both financial and probabilistic rewards (i.e., a random 15% of eligible participants receiving a reward) in hopes of fostering an enduring behavioural shift toward plant-forward dietary choices.

Our study's novel combination of probabilistic and financial variable-ratio incentives within the operant conditioning framework provides valuable insights into means of reinforcing plant-forward food choices, supporting both the global climate and consumer health (Soret et al., 2014; Vliet et al., 2020). To address the identified gap in research, the current study aims to explore the following research question: How do probabilistic rewards affect the sales of plant-forward deli items? Based on previous significant findings on probabilistic reward strategies, we hypothesize that: (1) Probabilistic rewards will increase the sales of plant-forward deli items in the intervention period compared to baseline levels at the experimental location, and (2) at the control location there would be no change in the sales of plant-forward deli items across the baseline and the intervention periods.

# Methods

## Participants

Participants for this study consisted of customers at the two locations of Harvest on the University of British Columbia, Vancouver campus, who purchased deli items during February 19th-March 12th and March 13th-April 3rd, 2025. Based on a between-groups comparison power analysis conducted in G*Power 3.1 (Faul et al., 2007), with a minimum effect size of 0.10, a degrees of freedom = 1, an alpha of 0.05, and power = .80, this study required at least 787 total observations (deli counter sales) and each condition required a minimum of 99 sales. A total of 4,227 observations were recorded. Although no further demographic information about participants was collected, customers from these coffee shops typically consist of university students, faculty, staff, and visitors.

## Conditions

The study conducted a between-groups 2x2x2 experimental design, resulting in eight conditions: (1) baseline vs. intervention periods × (2) control vs. experimental locations × (3) plant-forward deli items vs. non-plant-forward deli items. The baseline period was February 19 to March 12, 2025, and the intervention period was March 13 to April 3, 2025. The independent variable was the implementation of the probabilistic reward system. While there were no modifications at the control location (Harvest Brock), a probabilistic reward system was executed at the experimental location (Harvest Ponderosa) to promote the purchase of plant-forward deli food items. To address our first hypothesis, customers who purchased a plant-forward deli item at the experimental location had a 15% chance of receiving a $5 gift card or Harvest merchandise. The selection process for the discount was managed by staff via a reward tracking sheet.

## Measures

The dependent variable was the number of sales of plant-forward and non-plant-forward deli case items. It was operationalized as deli counter sales data from the point-of-sale (POS) system, which depicted the number of sales of different deli items at both the locations, collected at both baseline and intervention periods.

## Procedure

Deli counter sales data from the baseline period were obtained for the control and experimental locations from the Harvest management staff. One day prior to the intervention, posters advertising the probabilistic reward system (see Figure A1) were put up around the UBC Vancouver campus, including the experimental location. Another poster specifying the plant-forward items eligible for a reward (see Figure A2) was placed on the deli case at the experimental location. The intervention was also advertised on social media, via the Instagram account of the UBC Food Hub Market, a student-led grocery store. The staff at Harvest Ponderosa were trained the day before the intervention period, to scratch off a "Win" or "No-Win" box on the reward tracking sheets upon the sale of a plant-forward deli case item. Reward tracking sheets were utilized to track the number of rewards that were given out to the customers. These sheets consisted of 100 boxes each, with 15 boxes randomly being labelled "win" and the remaining 85 being labelled "No-Win" (see Figure 3), using a random number generator. The reward winners had the option to choose from either Harvest merchandise or a $5 gift card. Sales data for the intervention period was obtained on April 4th, 2025, for the experimental and control locations. Chi-square and ANOVA tests were conducted to analyze the sales data using the statistical analysis software JASP (JASP team, 2024).

# Results

At the control location (Harvest Brock) during the baseline period (February 19, 2025, to March 12, 2025), we observed a total of 1,975 deli counter sales, of which 534 (27.04%) were plant-forward and 1,441 (72.96%) non-plant-forward (see Table A1). During the intervention period (March 13, 2025, to April 3, 2025), we observed a total of 2,252 deli counter sales, with 466 (20.69%) being plant-forward, and 1,786 (79.31%) non-plant-forward. This demonstrates that at our control location there was a 6.35% decrease in plant-forward sales when comparing intervention to baseline. Comparatively, during the baseline period at the experimental location (Harvest Ponderosa), there were 1,673 deli counter sales, consisting of 197 (11.78%) being plant-forward and 1,476 (88.22%) non-plant-forward sales. During the intervention period, we observed a resulting total of 1,755 deli counter sales, with 184 (10.48%) plant-forward and 1,571 (89.52%) non-plant-forward sales. This shows that at our experimental site, we saw a decrease of 1.3% in plant-forward sales.

To analyze whether there was a statistically significant difference in plant-forward sales between baseline and intervention periods in both the experimental and control locations (see Figure A4), we conducted a chi-square test of independence, and all assumptions were met. After implementing the probabilistic reward system at the experimental location, the observed 1.3% decrease in the percentage of plant-forward sales; from 11.78% at baseline to 10.48% after intervention, was statistically non-significant with a small effect size ($X^2(1) = 1.44$, $p = 0.23$, $V = 0.02$). Although there wasn't a statistically significant difference of plant-forward sales from baseline to intervention, this finding does not support our first hypothesis; that the probabilistic

reward system would lead to an increase in the sales of plant-forward deli items at the experimental location. Moreover, at the control location the percentage of plant-forward deli sales decreased significantly from 27.04% at baseline to 20.69% (a 6.35% decrease) after intervention, with the effect size being small ($X^2$ (1) = 23.46, p < .001, V = 0.07). This finding does not support our second hypothesis; that there would be no change in the sales of plant-forward deli items from baseline to intervention periods at the control location.

Furthermore, we conducted a three-way Analysis of Variance (ANOVA) to determine whether this observed difference between the percentage decreases in plant-forward deli sales from the baseline to intervention levels, comparing experimental and control locations (i.e., 1.3% versus 6.35%) was statistically significant. This analysis was done to gauge whether the probabilistic reward system contributed to the alleviation of the decrease in plant-forward deli sales at the experimental location from the baseline to intervention periods (i.e., whether the magnitude of decrease in plant-forward sales was lower at the experimental location compared to the control location in response to our intervention). Levene's test conveyed that the assumption for homogeneity of variance was met ($F(7, 62) = 1.73$, $p = 0.12$). Shapiro-Wilk test demonstrated that the distribution of the dependent variable (i.e., deli counter sales) departed significantly from normality ($W = 0.95$, $p < 0.01$). Although the assumption for normality was violated, there are no non-parametric tests we can conduct for a three-way interaction ANOVA test, therefore we elected to use ANOVA. The three-way ANOVA exploring the interaction between deli sales (plant-forward versus non-plant-forward), location (experimental versus control), and time period (baseline versus intervention periods), revealed that the interaction was statistically non-significant, with a trivial effect size ($F(1,62) = 0.08$, $p = 0.77$, $\eta^2 = 0.00111$). This demonstrates that the percentage decreases in plant-forward sales at both locations across the two time periods were not significantly different from one another.

# Discussion

Plant-forward diets are linked to lower greenhouse gas emissions and higher wellbeing (Soret et al., 2014; Vliet et al., 2020), and behavioural nudges like probabilistic rewards have been demonstrated to be effective in encouraging sustainable behaviours (Kaiser et al., 2020; Sheppard et al., 2025). The purpose of this study was to investigate whether probabilistic rewards could increase the purchase of plant-forward deli items at a university food outlet, however, our hypotheses were not supported. The chi-square analysis revealed no increase in plant-forward sales at the experimental location as a response to our probabilistic reward intervention. Moreover, a significant decline was demonstrated in the sales of plant-forward items from baseline to intervention at the control location. While the percentage of plant-forward sales decreased at both locations from intervention to baseline, our ANOVA analysis revealed that the difference between the percentage decreases (i.e., 1.3% vs. 6.35%) was not significant. Thus, our results suggest that probabilistic financial rewards are not effective at encouraging the consumption of plant-forward food. This implies that offering a $5 gift card or merchandise at a 15% probability is not adequately incentivizing for participants to change their behaviour.

Our study faced several limitations which potentially contributed to our results. First, there was a discrepancy between the sales data we received, and the number of sales indicated on our reward tracking sheet. Due to this discrepancy, we excluded the tracking sheet from our statistical analysis. The POS data revealed a total of 184 plant-forward deli item sales at our experimental location (Harvest Ponderosa), however, there were 81 plant-forward sales indicated on the reward tracking sheet. This discrepancy reveals that the Harvest staff did not capture each

plant-forward sale and a total of 103 plant-forward sales were missed. A lack of awareness from both staff and customers could have contributed to this discrepancy. This leads to the second key limitation of our study: low awareness of the intervention. When advertising our study we hit several roadblocks; there were unforeseen restrictions on where we could place posters around campus, despite reaching out to over 10 social media accounts only three replied and only one agreed to advertise, we only advertised for one day prior to intervention's implementation, and finally due to the short time frame we were only able to place letter-size posters at the intervention site rather than a full size poster. In addition, we as researchers chose not to be physically present to advertise the study to increase future scalability. However, this limited the awareness of the reward program. The next crucial limitation of our study was the size of the financial reward we were offering. Due to funding constraints, we were only able to offer $5 gift cards (preferred by most customers) or merchandise. People generally prefer higher rewards at a lower probability (Tversky & Kahneman, 1981), thus, our probabilistic reward system would perhaps have been more effective, had we offered a higher value and higher risk reward, such as a 5% chance of winning a $20 gift card. With this in mind, we recommend that future research evaluate the efficacy of larger financial probabilistic rewards on encouraging plant-forward purchases. Finally, our study was limited by menu changes that were beyond our control. At Harvest Brock, (i.e., the control location), there were seven plant-forward items in February and only six in March. At Ponderosa Harvest (i.e., the experimental location), there were four plant-forward items in February and three in March. This difference could explain the observed decrease in plant-forward sales between intervention and baseline periods at both locations.

Few studies have examined the role of probabilistic rewards in encouraging sustainable behaviour. Some research has reported significant effects of probabilistic rewards on sustainable behaviour (Sheppard et al., 2025) which contrasts the null result we have found. Therefore, these findings imply that future studies should investigate the reliability and validity of using probabilistic rewards to encourage sustainable behaviour, such as the consumption of plant-forward food, while taking into consideration the limitations outlined above. Researchers should ensure that the intervention is easy for staff at food-outlets to run, conduct salient advertising in advance, offer larger financial rewards, and control menu changes.

# Recommendations

Due to the null result of our study, we are unable to recommend the use of probabilistic rewards to encourage plant-forward food consumption on UBC campus. However, our study has provided us with several insights which we believe will be valuable when conducting future research projects or implementing interventions on UBC campus. To begin, we recommend integrating any intervention involving POS data directly into the sales system. The discrepancy between the POS data and the reward tracking sheet demonstrates a need for a more integrated system. For example, having the reward tracking sheet appear when a cashier enters a plant-forward item, or if feasible, incorporate the tracking into the sales system so that the cashier is notified win/no win and reminded of next steps. Next, we recommend using larger financial rewards and having the reward be immediate. We noticed that participants preferred the gift card over the merchandise for their reward and this preference aligns with research that immediate financial rewards motivate behaviour change (Kaiser et al., 2020). People prefer bigger riskier rewards to smaller safer rewards (Tversky & Kahneman, 1981); thus, we recommend redistributing the reward budget into fewer larger rewards. In addition, our results demonstrated that the vast majority of deli purchases were not plant-forward, both before and after our

intervention. It is prudent that more variety of plant-forward options be available and items which have meat and dairy are the most climate-friendly options possible. For example, replacing carbon intensive grains with their climate-friendly counterpart or choosing sustainably farmed seafood, aligns with UBC Sustainability's Climate-Friendly Food Systems Procurement Guidelines (UBC Campus and Community Planning, n.d.-b). Our final recommendation is to optimize advertising of interventions. As mentioned in the discussion, our study was limited by the advertising duration and the size of audience we were able to reach. We therefore recommend advertising well in advance, using large and salient posters, and recruiting a range of social media accounts who reach the target demographic. In summary, while our findings were non-significant, we believe there are several valuable takeaways which we hope can be useful in creating a more sustainable UBC Vancouver campus.

# References

Banovic, M., Barone, A. M., Asioli, D., & Grasso, S. (2022). Enabling sustainable plant-forward transition: European consumer attitudes and intention to buy hybrid products. *Food Quality and Preference, 96*, 104440. https://doi.org/10.1016/j.foodqual.2021.104440

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175–191.

JASP Team. (2024). JASP (Version 0.19.3) [Computer software]. https://jasp-stats.org/

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*(2), 263-291. https://doi.org/10.2307/1914185

Kaiser, F. G., Henn, L., & Marschke, B. (2020). Financial rewards for long-term environmental protection. *Journal of Environmental Psychology, 68*, 101411. https://doi.org/10.1016/j.jenvp.2020.101411

Marquardt, S. G., Joyce, P. J., Rigarlsford, G., Dötsch-Klerk, M., Elk, K., Doelman, J., Daioglou, V., Huijbregts, M. A. J., & Sim, S. (2024). Prospective life cycle assessment of climate and biodiversity impacts of meat-based and plant-forward meals: A case study of Indonesian and German meal options. *Journal of Industrial Ecology, 28*(6), 1598-1611. https://doi.org/10.1111/jiec.13549

Reynolds, A., Ni Mhurchu, C., & Cleghorn, C. (2023). The neglected potential of red and processed meat replacement: Simulation modelling and systematic review. *Proceedings of the Nutrition Society, 82*(OCE2). https://doi.org/10.1017/S0029665123000770

Rosenfeld, D. L., Bartolotto, C., & Tomiyama, A. J. (2022). Promoting plant-based food choices: Findings from a field experiment with over 150,000 consumer decisions. *Journal of Environmental Psychology, 81*, 101825. https://doi.org/10.1016/j.jenvp.2022.101825

Sheppard, S. B., Argentopoulos, S., Ware, J., Swearingen, A., Winfield, J., Radke, J., & Zhao, J. (2025). Probabilistic rewards increase the use of reusable cups. *Resources, Conservation and Recycling, 212*, 108001. https://doi.org/10.1016/j.resconrec.2024.108001

Soret, S., Mejia, A., Batech, M., Jaceldo-Siegl, K., Harwatt, H., & Sabaté, J. (2014). Climate change mitigation and health effects of varied dietary patterns in real-life settings throughout North america. *The American Journal of Clinical Nutrition, 100*, 490S-495S. https://doi.org/10.3945/ajcn.113.071589

Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science (American Association for the Advancement of Science), 211*(4481), 453-458. https://doi.org/10.1126/science.7455683

UBC Campus and Community Planning. (n.d.-a). CAP 2030 targets and actions: Food systems. The University of British Columbia. https://planning.ubc.ca/sustainability/sustainability-action-plans/climate-action-plan-2030/cap-2030-targets-and-actions-food-systems

UBC Campus and Community Planning. (n.d.-b). Climate-friendly food systems: Procurement guidelines. The University of British Columbia. https://planning.ubc.ca/sustainability/sustainability-action-plans/climate-action-plan-2030/food-systems/climate-friendly-food-systems-procurement-guidelines

van Vliet, S., Kronberg, S. L., & Provenza, F. D. (2020). Plant-based meats, human health, and climate change. *Frontiers in Sustainable Food Systems, 4*https://doi.org/10.3389/fsufs.2020.00128

Xu, X., Sharma, P., Shu, S., Lin, T., Ciais, P., Tubiello, F. N., Smith, P., Campbell, N., Jain, A. K., & Univ. of Illinois at Urbana-Champaign, IL (United States). (2021). Global greenhouse gas emissions from animal-based foods are twice those of plant-based foods. *Nature Food, 2*(9), 724-732. https://doi.org/10.1038/s43016-021-00358-x

Zhao, J., Radke, J., Chen, F. S., Sachdeva, S., Gershman, S. J., & Luo, Y. (2024). How do we reinforce climate action? *Sustainability Science, 19*(4), 1503-1517. https://doi.org/10.1007/s11625-024-01486-6

# Appendix

**Figure A1**
*Intervention Poster*


*Note.* Advertisement poster used for in-store marketing at the intervention site and for digital marketing on social media platform

**Figure A2**

*Deli Case Menu Poster*


*Note.* Poster displayed in-store at the intervention site's deli counter

**Figure A3**

*Reward Tracking Sheet for Intervention Site Staff*

**Harvest: Rewarding Sustainable Choices**

**Note**: Please move **LEFT** to right, and **TOP** to bottom

No Win = Patron does not receive a reward.

Win = Offer patrons the choice of either one article of merchandise or a gift card. If one reward type is unavailable, the patron receives the remaining reward instead.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| No Win | Win | No Win | No Win | No Win | No Win | Win | No Win | No Win | No Win |
| No Win | No Win | No Win | No Win | No Win | No Win | No Win | Win | No Win | No Win |
| No Win | Win | No Win | Win | No Win | No Win | No Win | No Win | No Win | No Win |
| No Win | Win | No Win | No Win | No Win | Win | No Win | No Win | No Win | Win |
| No Win | No Win | No Win | No Win | No Win | No Win | No Win | No Win | No Win | No Win |
| No Win | No Win | Win | No Win | No Win | No Win | No Win | No Win | Win | No Win |
| No Win | No Win | No Win | No Win | No Win | No Win | Win | No Win | No Win | No Win |
| No Win | No Win | No Win | Win | No Win | No Win | No Win | No Win | No Win | No Win |
| Win | No Win | No Win | No Win | No Win | Win | No Win | No Win | No Win | No Win |
| No Win | No Win | Win | No Win | No Win | No Win | No Win | No Win | Win | No Win |

## Table A1

*Descriptive Statistics*

**Table 1**

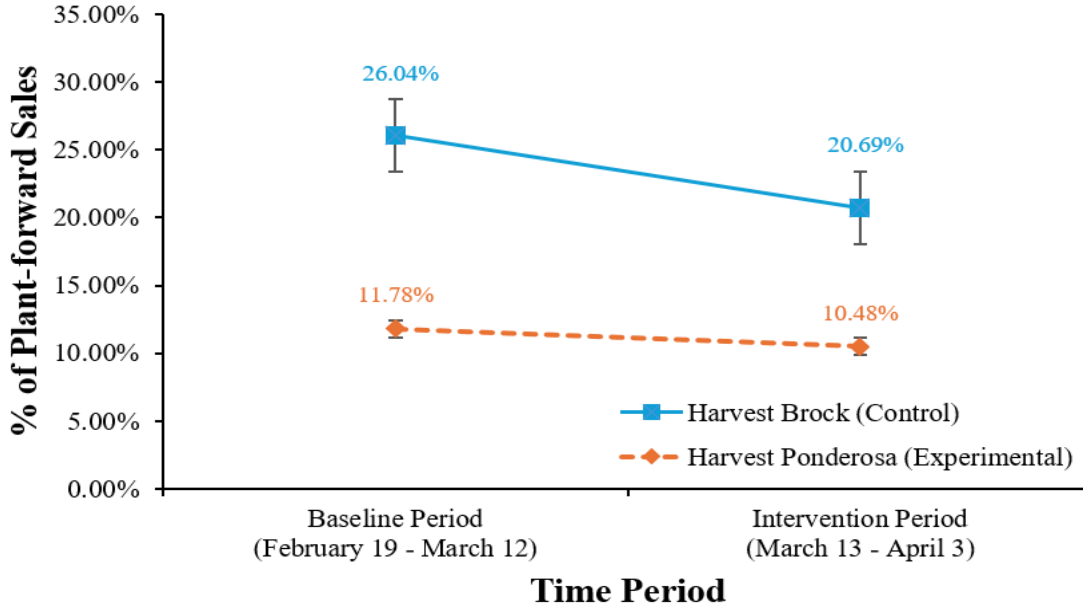
*Descriptive Statistics*

| Location and Time Period | Plant-forward Deli Sales | Non plant-forward Deli Sales | Total Deli Sales |
|---|---|---|---|
| | ***N (% of total)*** | ***N (% of total)*** | ***N*** |
| **Control Location (Harvest Brock)** | | | |
| Baseline Period (February 19 - March 12, 2025) | 534 (27.04%) | 1441 (72.96%) | 1975 |
| Intervention Period (March 13 - April 3, 2025) | 466 (20.69%) | 1786 (79.31%) | 2252 |
| **Experimental Location (Harvest Ponderosa)** | | | |
| Baseline Period (February 19 - March 12, 2025) | 197 (11.78%) | 1477 (88.22%) | 1673 |
| Intervention Period (March 13 - April 3, 2025) | 184 (10.48%) | 1571 (89.52%) | 1755 |

*Note.* Number of deli counter sales obtained from both Harvest locations. Percentages represent the proportion of plant-forward and non-plant-forward items sold in each time period.

## Figure A4

*Percentage of Plant-forward Deli Sales at Both Locations in Baseline and Intervention Periods*



*Note.* The figure above shows the change across baseline and intervention periods in the percentage of plant-forward deli sales at both Harvest Brock (control location) and Harvest Ponderosa (experimental location).

## Credit authorship contribution statement

Sam Campbell: Conceptualization, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. May Anne Cheok: Conceptualization, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. Khushman Jawandha: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. Katy Stewart: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Writing – original draft, Writing – review & editing. Hiya Bansal: Conceptualization, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Writing – original draft, Writing – review & editing. Odi Wu: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. Ananya David: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing review & editing.