A Cancellation & Retention Analysis for Turf Badger's Stevens Point Office

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DS745: Visualizations

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October 16th, 2024

Introduction

Turf Badger is an S corporation based in Wisconsin that focuses on lawn care, mosquito, and pest control customer services. To date, the company operates ten offices across four states in the US. At the end of 2022, they opened an additional office in Stevens Point, Wisconsin, whose sales data from March 2023 to August 2024 serve as the source for this report. Ultimately, anonymization and an investigation into customer cancellations and retention were performed utilizing R software to provide recommendations for reducing customer churn.

Anonymization & Cleaning

To ensure customer anonymity, highly sensitive information on customers was removed from the four datasets that made up this analysis. First, these datasets were joined based on each customer’s unique ID tag to create a complete dataset. Next, the categorization of customer service type was consolidated from highly segmented subscriptions like "Pest Organic Badger Service Plan," "Lawn Core Aeration," and "Mosquito - Tri-Weekly" into three core groups of pest, lawn, and mosquito care. Collectively, there were 971 cancellations in the data. However, cancellations without a given reason were removed because the data will be used for sentiment analysis in the future. Thus, the remaining 407 cancellations were utilized to conduct this analysis. The final variables and data are attached to this report's `Cancel_Text.csv` file.

Cancellations

Understanding the trends and reasons for customer cancellations can help service-based businesses like Turf Badger transform their decision-making processes. Such a transformation will increase the company's health by reducing churn and increasing revenue (Habif, 2017). Therefore, while the reasons behind cancellations will be investigated in a future analysis, the

trends behind cancellations for Turf Badger's Stevens Point office are analyzed here to provide recommendations for improving future decision-making.

Service Type Cancellations

Overall, the number of cancellations was highest for customers who purchased pest control services, followed by mosquito and lawn (Figure 1, Below). Additionally, it was observed that, on average, pest cancellations occurred 185 days after the customer was initially sold their service, followed by mosquito and lawn cancellations at 175 and 75 days, respectively (Figure 2, Below). Interestingly, the average cancellation times between pest and mosquito sales are only ten days apart. Therefore, mosquito sales have healthier retention durations than pest sales for customers who will cancel their service. Furthermore, pest sales are more than triple the sales of the next closest service group, indicating they make up most of this customer group's revenue. Thus, we recommend allocating more resources to increase retention in customers who buy pest services compared to those who buy mosquito and lawn services.

Figure 1: All-Time Cancellations by Service Type for Turf Badger's Steven Point Office

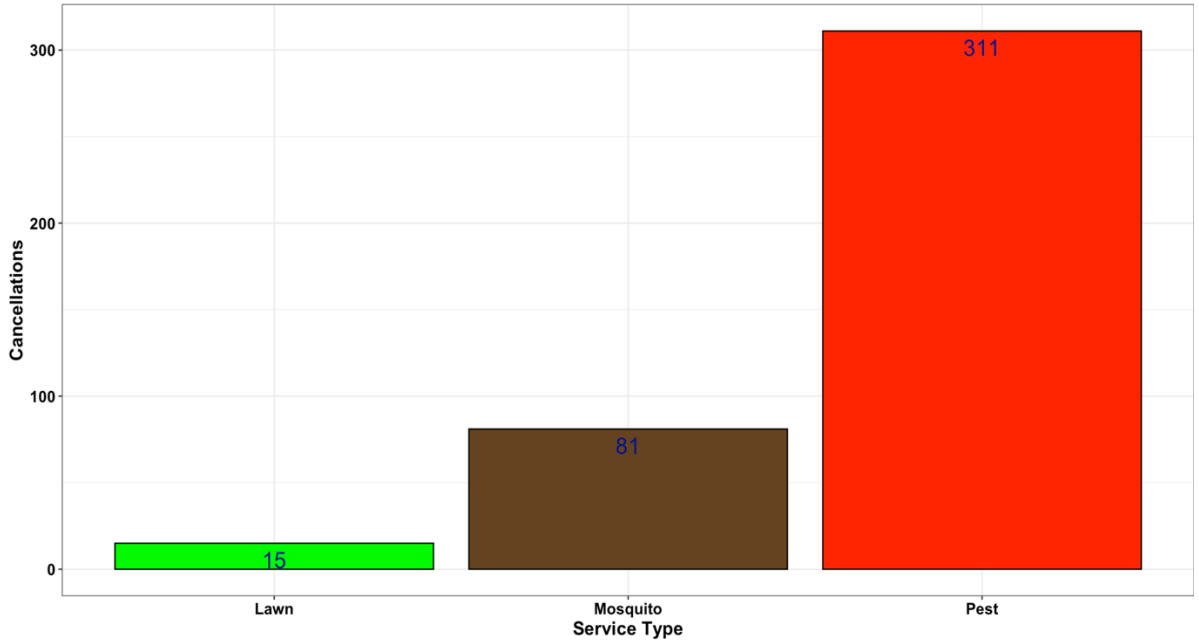
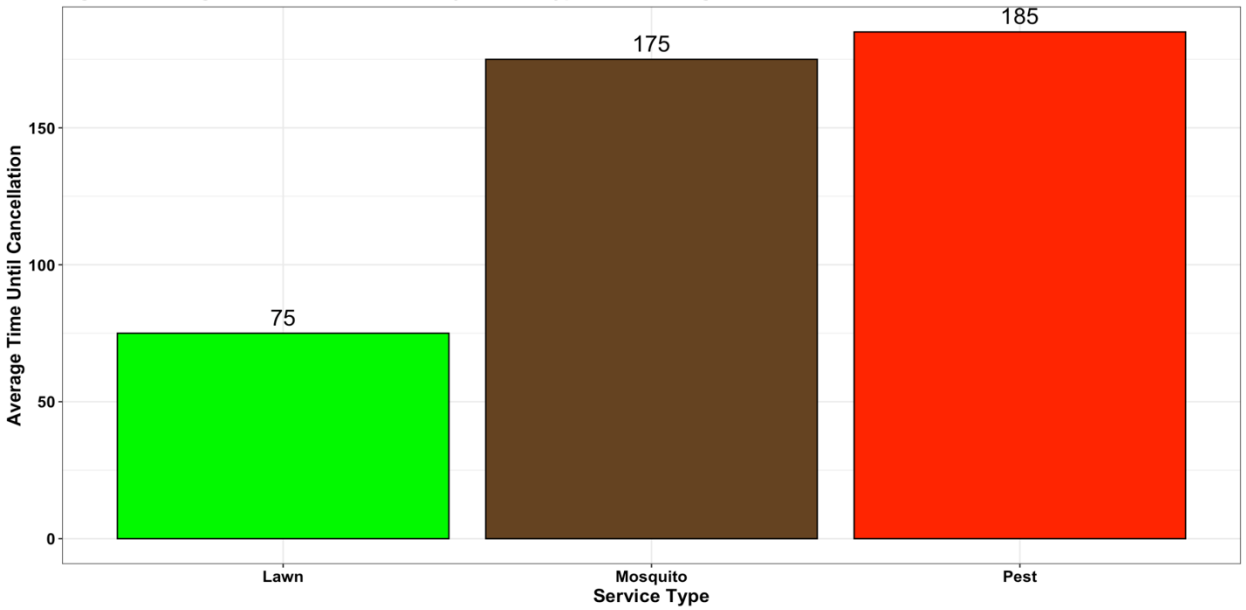


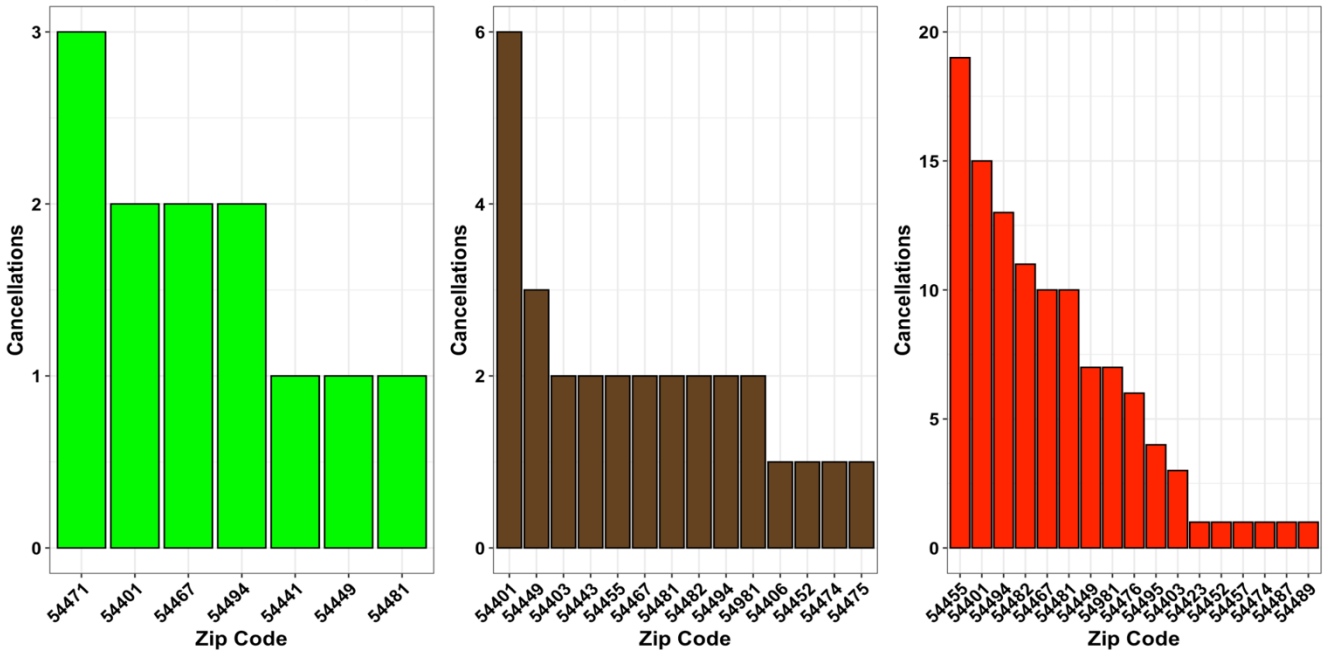
Figure 2: Average Time Until Cancellation by Service Type for Turf Badger's Stevens Point Office



Location-Based Cancellations

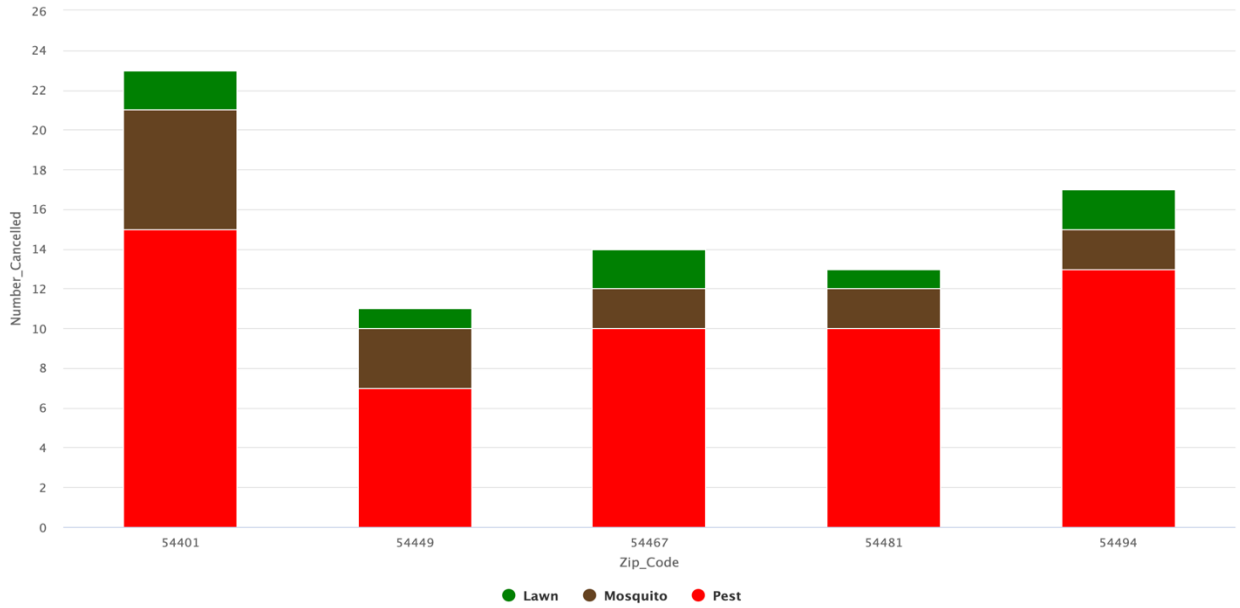
By taking advantage of the fact that location data is recorded for Turf Badger's customers, we investigated the trends in cancellations based on service types by zip codes for the Stevens Point office. Ultimately, the highest number of cancellations for pest services occurred in Mosinee, Wisconsin, 54455; for mosquito services, the highest number of cancellations occurred in Wausau, Wisconsin, 54401; and for lawn services, the highest number of cancellations occurred in Ringle, Wisconsin, 54471 (Figure 3, Below). The cancellation rates for these services at the locations were 19 of 311 or 6.1%, 6 of 81 or 7.4%, and 3 of 15 or 20%, respectively.

Figure 3: Cancellations by Zip Code for Turf Badger's Stevens Point Lawn (Green), Mosquito (Brown), and Pest (Red) Core Service Types



In addition to looking at the services individually, an aggregated analysis by zip code was also performed (Figure 4 Below). Notedly, the visualization included here can be viewed interactively in the attached RMD or HTML file. For this analysis, only zip codes were used where a minimum of one cancellation for each of the three services occurred. Overall, Wausau, Wisconsin 54401 was the highest location for cancellations at 23 total or 15 pest, 6 mosquito, and two lawn services. This was followed by Wisconsin Rapid, Wisconsin 54494, with 17 cancellations or 13 pest, 2 mosquito, and 2 lawn services.

Figure 4: Zip Codes Where a Minimum of One Cancellation Occured for All Three Service Types



Interestingly, all three of the top locations for cancellations by service type occur in the northern operating region of the Stevens Point office (Appendix A). Further, the top aggregated cancellation location also occurs here. Several recommendations can be derived from these findings. A causal review of operations in the northern region is necessary to find the exact reasons behind its high cancellation numbers. Additionally, because pest services should be prioritized as described previously, the company should take action in Mosinee and Wausau to improve retention. This might include known successful actions like personalizing interactions, offering loyalty incentives, or quickly responding to customer support inquiries (Olson, 2024).

Retention

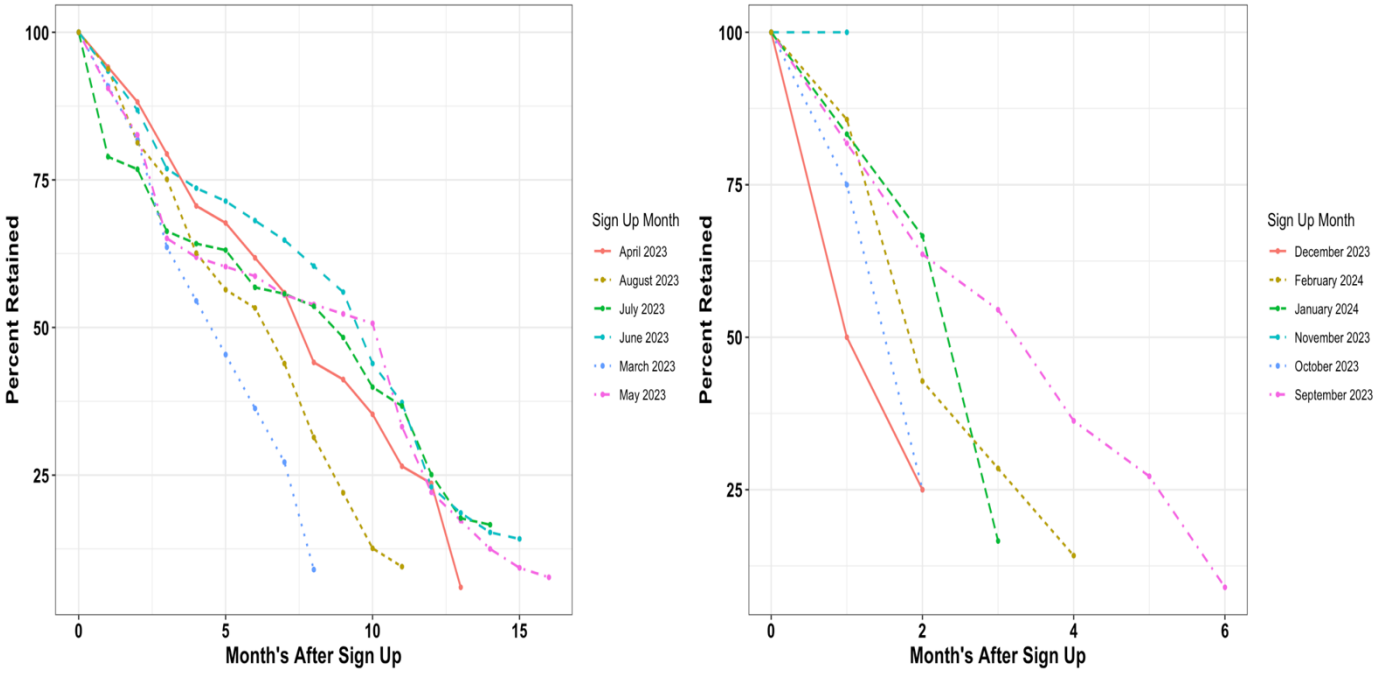
Looking at customers in groups over time allows for a better understanding of factors that influence their behavior. Each group, known as a cohort, can provide valuable information for improving decision-making and redefining business strategies. A cohort analysis for

retention rate was performed using the information available on when a customer purchased and then canceled their service from the Stevens Point data.

Cohort Analysis

In this case, the cohorts are customers sold their service in the same month and year. Since the data contains sales starting in March 2023 and ending in August 2024, 18 cohorts were produced. From these cohorts, we studied the retention rate in terms of the percentage of customers in the cohort that remained each month following their initial signup for those sold a service between March 2023 and February 2024. This allowed a minimum of six months since a customer was sold their service for them to have canceled. Because every customer in this data is known to have canceled their subscription, each cohort's retention rate eventually hits zero. For visualizing the results, 6 months of cohorts were displayed on each graph (Figure 5, Below).

Figure 5: Retention Rate (%) by Month Post Purchase for Turf Badger's Stevens Point Customers Who Cancelled their Service



Immediately, it is apparent from the graphs that customers sold a service between March and August are retained much longer and have less steep declines than those sold services between September and February. This is likely due to the seasonality of pest, mosquito, and lawn services in the Upper Midwest. Customers buying in late fall through winter may not see the value in continuing services throughout the winter. Meanwhile, those who purchased in early spring and summer – as shown by the longest duration of cohort retention being those sold in May, June, and July of 2023 - will have observed the services during peak months and might be inclined to keep the service running until the next peak season.

Based on this analysis, two recommendations can be made. First, Turf Badger should incentivize new customers who sign up outside of the peak season for pest, mosquito, and lawn services – from August to March – to keep them on the service until the next peak season. Suppose they can retain these customers until peak season, perhaps by offering reduced service costs for a particular duration. In that case, they will likely retain them longer once they have seen the effectiveness of the service during their first peak season. Finally, they should invest heavily in selling services during peak season – namely April to July – as customers acquired during this time are most likely to stay with the company for an extended period of time.

Conclusions

Through analysis of cancellation and retention trends, this report provides several recommendations to help overcome the challenge of keeping customers utilizing their services with Turf Badger's Stevens Point office. These include prioritizing allocating resources to the retention of customers who buy pest services, performing a causal review of cancellations in their northern operating region, focusing on retention in Mosinee and Wausau, incentivizing

new customers who sign up for pest, mosquito, and lawn services from August through March, and investing heavily in selling services from April through July. Ultimately, acting on these recommendations will reduce churn and provide long-term stability to the company.

References

Habif, S. (2017, March 8th). Making Sense of Customers Who Cancel. *Medium.* https://medium.com/behavior-design/making-sense-of-customers-who-cancel

Olson, S. (2024, May 30th). Customer Retention: Metrics, Strategies, and Examples. *Zendesk.* https://www.zendesk.com/blog/customer-retention/

Appendix A

Highest Cancellation Zip Code Map

Below, the left image shows how the location of the three highest cancellation zip codes by service. These include: Mosinee, Wisconsin 54455 (Letter C) for pest services, Wausau, Wisconsin 54401 (Letter B) for mosquito services, and Ringle, Wisconsin 54471 (Letter A) for lawn services. The image on the right shows the entire operation region of the Stevens Point office with the red zone showing where the three zip codes occur. From this these images, we can see the majority of cancellations occur in the "northern range" of the office's operations. Interestingly, Wausau, Wisconsin 54401 is also the location of the highest aggregate service cancellations at 23.