

A glass of orange juice with a slice of orange floating on top, sitting on a wooden table. The background is slightly blurred, showing more of the table and some greenery.

JENNY'S JUICES

Final Report

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Jenny's Juices Strategy

Introduction

On behalf of PureFresh, we have been engaged to advise Jenny's Juices on the management of their stock.

Methodology

The model describing Jenny's Juices' stock is premised upon the assumptions detailed in Table 1.

Table 1

Assumptions for Model 1
1. Initially there is no juice stored
2. The size of the fridge limits the amount of orange juice that can be stored. The fridge can store 10 bottles.
3. Jenny's Juices can only order up to 15 bottles of Juice.

This model evaluated, subject to the constraints, the maximum amount of profit that can be obtained by the business.

Subsequent to this modelling, we obtained a better understanding of the demand profile of the business. Upon understanding the dynamic nature of the demand, Model 2 was constructed. This model incorporated the potential of having a higher than usual demand, whilst balancing the risk of over-ordering. This was executed through dictating the probability of each scenario.

The final context evaluated by this report, was one in which Jenny's Juices invested in advertising. This model, Model 3, explored the potential of greater demand as a result of offering a discount on the product.

Results

In Model 1, the optimal strategy resulted in a profit of \$156. The strategy providing that profit is detailed in Table 2.

Table 2

Day	1	2	3	4	5	6	7
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Number of Bottles at the Beginning of the Day	0	8	0	4	8	4	10
Number of Bottles to order for each day	15	0	15	15	0	11	0

Model 2, incorporating the chance of higher demand, has an optimal profit of \$180.47.

The Optimal Strategy for Model 2 is detailed in Table 3. Each column represents the current day, while the rows indicate how many bottles you currently have stored.

Table 3

	1	2	3	4	5	6	7
0	15	15	15	15	14	15	15
1		15	15	15	13	14	15
2		15	15	15	12	13	15
3		15	15	15	11	12	15
4		14	15	15	10	11	14
5		13	15	15	9	0	13
6		12	15	15	0	0	12
7		11	14	14	0	0	11
8		0	13	13	0	0	10
9			12	12	0	0	9
10			11	11	0	0	0

Finally, Model 3 examined a scenario in which Jenny's Juices invested in advertising. The optimal profit in that case was \$189.91.

The Optimal Solution for Model 3 is detailed in Table 4. Table 4 should be read in the same way as Table 3. A 'D' indicates that you should apply advertising and sell discounted product.

	1		2		3	4	5		6		7	
0	D	15		15	15	15	D	14	D	15	D	15
1				15	15	15	D	15	D	14	D	15
2				15	15	15	D	15	D	13	D	15

3				15	15	15	D	15	D	12	D	15
4			D	14	15	15	D	15	D	11	D	14
5				13	15	15	D	14	D	10	D	13
6			D	12	15	15	D	13	D	9	D	12
7			D	11	14	14	D	12		0	D	11
8				0	13	13	D	0		0	D	10
9					12	12	D	0		0	D	9
10					11	11	D	0		0	D	8

Recommendations and Insights

The difference in Model 2 and 3 indicated that increasing demand was integral to improving returns. Incorporating even a 40% chance of higher demand realised an increase of profit of over \$24. It is recommended that Jenny's Juices pursue strategies in order to increase the probability of having higher demand, in addition to strategies that increase the demand portfolio in and of itself.

Model 3 examined the effect of investing in advertising. The profit increased by \$9.44 over the examined period of time. This model did not take into account the cost of advertising, which would likely exceed the profit to be gained. Our recommendation, therefore, is to investigate advertising that does increase demand without having to offer a discount to the product or pursue advertising that will have a greater increase to demand. It is unlikely that this scenario is economic as it currently stands.

This model could be further optimised if consideration were had as to the range of demand. Model 2 describes the demand as either regular or high. As opposed to a strict dichotomy, it is more likely that demand oscillates over a range between the regular and high demand. If this were to be considered surely a more accurate account would be seen.