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Abstract

In response to inquiry from Sole Pineapple Co., BC Consulting engaged in efforts to improve resource management and cost efficiency while remaining within current company demands and guidelines. This technical summary explains modeling details and explanation for recommended Sole Pineapple Co. implementation changes. These details include: problem decomposition, methods and mathematical modeling, assumptions, model output interpretation, and anticipated benefits alongside recommendations from technical insights.

Sole Pineapple CO. ResourcE management

Technical Report: Lead Analyst, Blake Conrad

Technical Report:

Sole Pineapple Co. Resource Management

Lead Analyst, Blake Conrad

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[(all pineapples produced will be sold) 5](#_Toc505147453)

[(current demands are an accurate reflection of the future) 5](#_Toc505147454)

[(inflation rates and additional costs may effect the way the model is interpreted) 5](#_Toc505147455)

[(assumes pineapple prices do not change) 5](#_Toc505147455)

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**Technical Report** – Longer, more in-depth paper guiding an engineer through your analysis. After reading the technical report, the engineer should be able to repeat your methods and arrive at the same conclusion.

**1st section – Introduction 1-2 paragraphs**

* Problem statement
* Methods Used
* Recommendation
* Anticipated benefits

**2nd Section –** Assumptions

Make clear the assumptions you make in your analysis (eg. Constant demand, arrival times follow these distributions, maximum investment amount, minimum adjusted return rate, etc.)

**Next Sections –** Methods and Analysis

Go through every step of the methods you applied to reach your conclusion. Again, the engineer should be able to replicate what you did exactly and reach the same conclusion.

**Describe decision variables, sets and parameters.**

**Describe the objective function in English, then give the mathematical notation.**

**Describe each constraint in English followed by the math.**

**Analysis.**

**Analyze the output of the computer.**

**Recommendation and conclusions**

Clearly identify what you recommend the company do.

Some solutions are best represented with words AND figures/tables. (Calendars, production schedules, projected profit graphs, percent of resource utilization over time, etc.)

State projected outcomes – “Our analysis projects a cost savings of…”

Based on the analysis, which method worked best / what you learned from the analysis

Restate Recommendation

Projected Outcome of accepting recommendation “This will save…” or “This will boost profits by…%”

Future work. Find something that remains lacking in their system or a future project based on your analysis.

Introduction

**Problem Statement**

After a thorough discussion with Sole Pineapple Co. Chief Officer of Operations, a very specific problem pattern continued to arise; resource management. The company as a whole for a number of years has struggled to fully utilize its resources for maximum benefit. This has not only caused Sole Pineapple Co. to not maintain a thicker stream of income each fiscal year, it has caused them to become poor stewards of the land and resources they have available to them. A group consensus problem statement was determined after about a week of discussion on the matter; Sole Pineapple Co. must determine if the current revenue, cost, and profit generated could be better utilized with their current field resources and pineapple products.

**Methods Used, Recommendation, and Benefits**

With a clear problem statement, BC Consulting Lead Analyst Blake Conrad, determined linear programming optimization techniques would be sufficient to solve the job. The linear modeling and development process gave flexibility to work with Sole Pineapple Co.’s unique demands, prices, regulations, and constraints. *Excel Solver* was leveraged alongside the developed mathematical model to provide results. The results from the analysis show a clear ability to better utilize Sole Pineapple Co. resources. With fiscal year 2017 profits yielding $10,000,000, we project with no additional resources and the exact same field suppliers, fiscal year 2018 profits can yield as high as $76,350,000 (see *Assumptions* for more factors to this profit). This shows a projected $7.6 dollar increase this year for every dollar we profited last year, over a 700% change. These benefits can be leveraged by restructuring the amounts of products and quantities of pineapples bought from each field. This is shown in *Table 1*.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| D.V | Juice | Whole | Crushed | Sliced |
| Field 1 | 7500.00 | 10000.00 | 5000.00 | 17500.00 |
| Field 2 | 30000.00 | 0.00 | 0.00 | 0.00 |
| Field 3 | 22500.00 | 0.00 | 5000.00 | 17500.00 |

Assumptions

**Profit Factors**

**-** costs of production or fields could go up

- costs of shipping or maintainance could go up

- supplier changes could factor costs and revenues

- political influence could cause:

- FDA to restrict certain amounts of pineapples

-pineapple qualities per field could change as more CO2 emits into our atmosphere

- minimum wage could go up

- cost of living could go up

- economics could cause

- jobs could be more/less competitive increase/decrease your labor cost

- inflation could cause costs to rise so prices must also rise

Analysis

## **Decision Variables, Sets, and Parameters**

**Objective Function**

**Model Output and Interpretation**

Conclusion

## **Recommendation**