Report

Red Brand Canner as known as RBC is a company that canning and distributing a variety of fruits and vegetable products in the USA.

**Question 1 The Model without the option of additional A tomatoes**

<Excel Sheet RBC Q1> explaining little bit about what I used for such as constraints, objects, etc and explanation about each result in below.

From the result of using Solver, we used all available tomatoes to produce products, total quality was same as required total quality, and produced Grade B paste as much as its demands. Lastly, we had the result of total profit as $136,069.

Recommendation would be the green section of Excel Sheet

?How Can you be sure that your recommendation is the best?

When we change any values on excel sheet, it will make total profits to be decreased. The purpose of this is maximize the profit and finding the perfect efficiency of using/purchasing Tomatoes.

**Question 2 Additional Supply of A tomatoes**

<Excel Sheet RBC Q2 Additional Grade A> explanation: buying additional 80,000 pounds of A tomatoes with 25.5 cents per pound.

We should purchase additional A tomatoes with 25.5 cents per pound.

After using solver, we were able to find out that did not over of available tomatoes.

When we purchase additional 80,000 pounds of A grade Tomatoes, Total production was under Demand ex) 820 for Whole, 260 for Juice, 2,000 for Paste.

The main reason of suggesting buying additional tomato is that total profit got increased. (136,069 🡪 137,349). To support of it, if we created sensitivity report from RBC Q1, shadow price was mentioned as 271.005. This value is telling us that what is the price if you max value to purchase additional A tomato within 1000 pounds with safety (no loss).

Any values that is below 271.005/1000 = 0.271005 dollar per pound is worthy to pay for Grade A. Therefore, we recommend to RBC to purchase additional 80,000 pounds of Grade A tomato with 25.5 cents per pounds. The value of additional 80,000 tomato profit will be (271.005-255) \* 80 = 1280.4 dollar.

**Question 3 Advertising**

Advertising would be efficiency when value of total production is closed to Demand. However, Whole Tomato or Tomato juice are not good idea to advertise. Paste would be good for advertising since Paste has total production = Demand. Increasing the 5000 cases on Paste would be 85000\*25 = 2,125,000 -> we took off 1,000 so 2,125. New demand is 2,125 for paste.

After we changed the demand, we did solver. Total profit value got increased ($143,391 - $137,349 = $6042).

From the sensitivity report from RBC Q2, Rather than total production paste, total production juice and whole had zero on shadow price which means that to increase the demand is useless / not worthy.

**Question 4 Additional supply of B tomatoes**

We think, he made up good decision. From the sensitivity report, 173.665 as shadow price 🡪 17.36 cents per pound and we can purchase until 48.3333 🡪 48330 pounds for additional B tomatoes.

**Question 5 Closing down production lines?**

If we closed Paste Production line, total profit would be negative which means decrease. So we must open and make Paste production line to run. Although we can save 50,000 dollar when we closed, Paste Production line should not be closed.

We can close either of Whole or Juice because, we make profit even though we closed one of these production line.

**Question 6 One Year Later**

Sunny Year / how many pound

Normal / how many pound

Poor / how many pound