

TJ's, Inc., makes three nut mixes for sale to grocery chains located in the Southeast. The three mixes, referred to as the Regular Mix, the Deluxe Mix, and the Holiday Mix, are made by mixing different percentages of five types of nuts.

In preparation for the fall season, TJ's purchased the following shipments of nuts at the prices shown:

Type of Nut	Shipment Amount (pounds)	Cost per Shipment
Almond	6000	\$7500
Brazil	7500	\$7125
Filbert	7500	\$6750
Pecan	6000	\$7200
Walnut	7500	\$7875

The Regular Mix consists of 15% almonds, 25% Brazil nuts, 25% filberts, 10% pecans, and 25% walnuts. The Deluxe Mix consists of 20% of each type of nut, and the Holiday Mix consists of 25% almonds, 15% Brazil nuts, 15% filberts, 25% pecans, and 20% walnuts.

TJ's accountant analyzed the cost of packaging materials, sales price per pound, and so forth, and determined that the profit contribution per pound is \$1.65 for the Regular Mix, \$2.00 for the Deluxe Mix, and \$2.25 for the Holiday Mix. These figures do not include the cost of specific types of nuts in the different mixes because that cost can vary greatly in the commodity markets.

Customer orders already received are summarized here:

Type of Mix	Orders (pounds)
Regular	10,000
Deluxe	3,000
Holiday	5,000

Because demand is running high, TJ's expects to receive many more orders than can be satisfied.

TJ's is committed to using the available nuts to maximize profit over the fall season; nuts not used will be given to the Free Store. Even if it is not profitable to do so, TJ's president indicated that the orders already received must be satisfied.

Managerial Report

Perform an analysis of TJ's product mix problem, and prepare a report for TJ's president that summarizes your findings. Be sure to include information and analysis on the following:

1. The cost per pound of the nuts included in the Regular, Deluxe, and Holiday mixes
2. The optimal product mix and the total profit contribution
3. Recommendations regarding how the total profit contribution can be increased if additional quantities of nuts can be purchased
4. A recommendation as to whether TJ's should purchase an additional 1000 pounds of almonds for \$1000 from a supplier who overbought
5. Recommendations on how profit contribution could be increased (if at all) if TJ's does not satisfy all existing orders