Using linear programming to help golding grow essay sample

Kenneth and Patricia Golding have a gardening business in Virginia. Kenneth discerned the need for a high quality commercial fertilizer he could blend himself, both to use in his nursery and to sell to his customers. He wants a high quality product that was especially suited to the northern Virginia climate. The fertilizer he created, in conjunction with George Mason University was " Golding Grow" and consists of four chemical compounds: C-30, C-92, D21, and E-11. A challenge is to maintain a quality product and to minimize costs so as to maximize profits. Based on the results shown below, Ihave concluded that the blend of the four chemicals that would minimize costs is found in the following equation: . 12(7. 5) + . 09(15)+ . 11(0) + . 04(27. 5) = 3. 35 based on the original objective function to minimize cost. This was said to be . 12X1 + . 09X2 + . 11X3 + . 04X4 originally. Thus, Golding will use 7. 5 pounds of compound C-30, 15 pounds of C-92, 0 pounds of D-21, and 27. 5 pounds of the compound E-11. In checking the constraints that have been presented by the Goldings, we see that this solution also meets all of the constraints that were presented. These are presented below.

Excel formulas are as follows:

Excel Solver is downloaded and the results are as follows:

The conclusion is that Golding should use 7. 5 pounds of C-30, 15 pounds of C-92, 0 pounds of D-21 and 27. 5 pounds of E-11. The risks the Goldings face is that this might be the most cost-efficient formula, but it may not be the highest quality formula. The quality of the formula can not be determined by cost alone. The reputation of their business is at stake if they provide an inferior product.