

Regarding the Farmer example that we did in class, do the following:

1. Suppose the farmer allocates 120 acres to wheat, 80 to corn, and 300 for sugar beets. But also suppose that the yields are not certain but are subject to the same 3 scenarios we discussed in class (above average, average, below average, each with equal probability). ***What is the expected annual profit?***
2. Consider an extension of the problem in which prices also are uncertain. Specifically, when yields are above average prices for corn and wheat go down by 10% and when yields are below average, they go up by 10%. Assume sugar beet prices are not affected by yields. ***Formulate and solve a stochastic linear program and solve it with a solver.***
3. Consider a different version of the problem in which the farmer possesses four fields of sizes 185, 145, 105, and 65, respectively. The total of 500 acres is unchanged. However, the farmer wishes to only plant one type of crop on each field. ***Formulate and solve a stochastic program and solve it with a solver.***