Ranking Risk Management Options on Mountain View Farms

Basic Risk Management Decision Rules

Maximize Expected Value
Expected value is the weighted sum of the outcomes using the probabilities of occurrence as the weights. The expected value is the amount you would average over a long period of time. It is the same as the Mean or average outcome assuming all outcomes are equally likely to occur. A risk-neutral person would base their choice on the expected value of the outcomes. This person would not be concerned with the variability in the outcomes but rather the expected return over the long haul. Which one of your decision sets has the highest Mean?

Maximax
Maximax is for risk lovers; those people that like the thrill of getting a high payoff even if it involves great risk. Under this criterion, a person chooses the management actions that provide the possibility of the highest possible payoff. That is, they are choosing the best of the best. Which one of your decision sets has the highest Maximum?

Maximin
A conservative approach would be to focus on the worst-case scenario. A risk averse person might want to choose the option with the best worst return. This is called the "maximin" strategy because we would be maximizing the minimum possible outcome. That is, we are choosing the best option based on the worst thing that could happen with it. Which one of your decision sets has the highest Minimum?

Minimize Variation
Variability in the outcomes can be measured using the standard deviation. The standard deviation of a set of outcomes is the square root of the variance. A person will realize an outcome within one standard deviation, plus or minus, from the mean two-thirds of the time. They will realize a return within two standard deviations about 95 percent of the time. All else being equal, a person will prefer that the variance in their outcomes be as little as possible. Which one of your decision sets has the lowest Standard Deviation?

Minimize Relative Variation
The coefficient of variation compares the expected value (EV) to the standard deviation (SD) and is defined as SD divided by EV. This risk measure combines variability and return in a very practical way. It is a unit-less measure and is a great way to get a handle on the level of risk you are accepting relative to the expected reward. A risk averse person will prefer it to be as low as possible. Which one of your decision sets has the lowest Coefficient of Variation?