IMDS Economics – Basic Economic Investment Analysis Application Problems

The objective of this is to get you to apply the concepts and methods presented in the cost-benefit analysis section of the IMDS module apply to a silvicultural decision (To thin include a thinning in a prescription or not).

1. Compute **Net Present Value** for the following no-thinning management regime. Assume that the management regime will be repeated every 40 years forever. In fact, you are computing “soil expectation value” for the site using this regime. Use discount rate of 6%:

 Costs: Site Prep and Plant Age 1 $400/ac

 Revenue: Final Harvest Age 40 30 mbf/ac at $350/mbf

1. Compute **Net Present Value** for the following thinning regime. Again, assume the regime will be repeated on this site forever. Use discount rate of 6%:

 Costs: Plant Age 1 $400/ac

 Revenue: Commercial Thin Age 35 8 mbf/ac at $250/mbf

 Final Harvest Age 50 35 mbf/ac at $400/mbf

1. If you are maximizing profit should you thin?

*No. The non-thinning regime has a higher SEV therefore of these two regimes, it would be the profit maximizing regime. Thinning has an opportunity cost of $32.98 /acre.*

1. Assuming the stand in question 1) had 23 mbf/acre at age 35 with a value of $325/mbf :

 Age 35 23 mbf/ac at $325/mbf

 Age 40 30 mbf/ac at $350/mbf

* Calculate the Internal Rate of Return (IRR) for the value growth rate?
* Use IRR formula to determine the volume growth rate?

Food for Thought:

Assuming that the IRR’s from Question 4 are different, offer an explanation as to why.

*I was looking for something about how the stumpage price was different between the two time periods: this could be a price growth rate assumption, logging costs falling as trees got bigger, older trees having more higher valued products, ……*