Decision Tree Analysis of Coffee Berry Borer in Hawai'i

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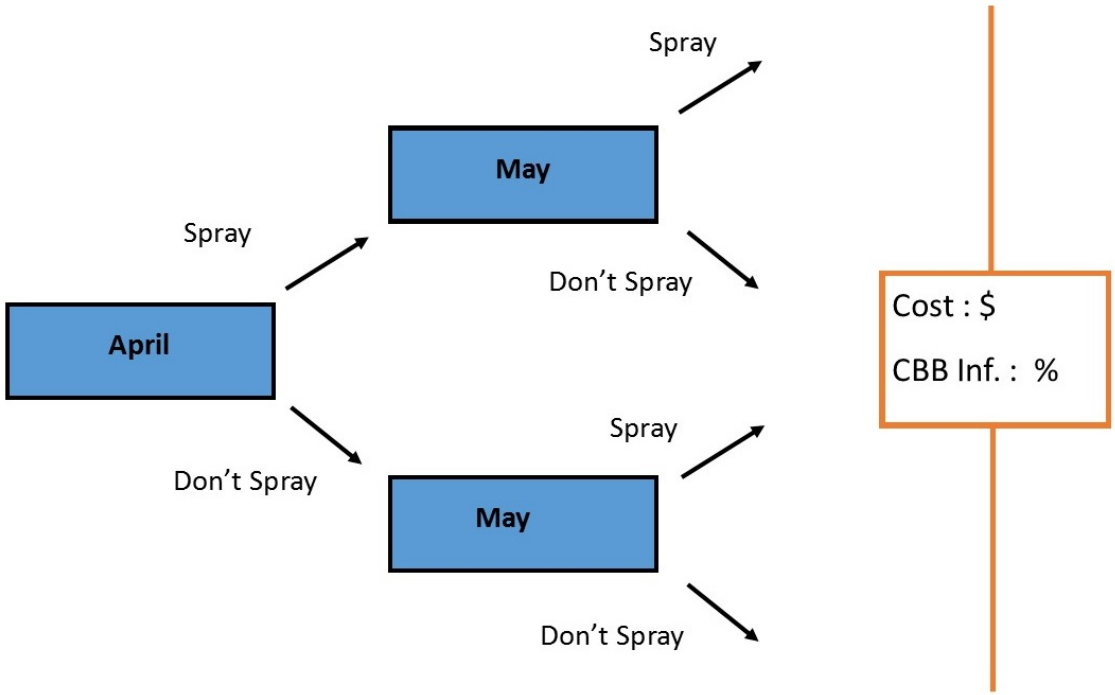
Model Design

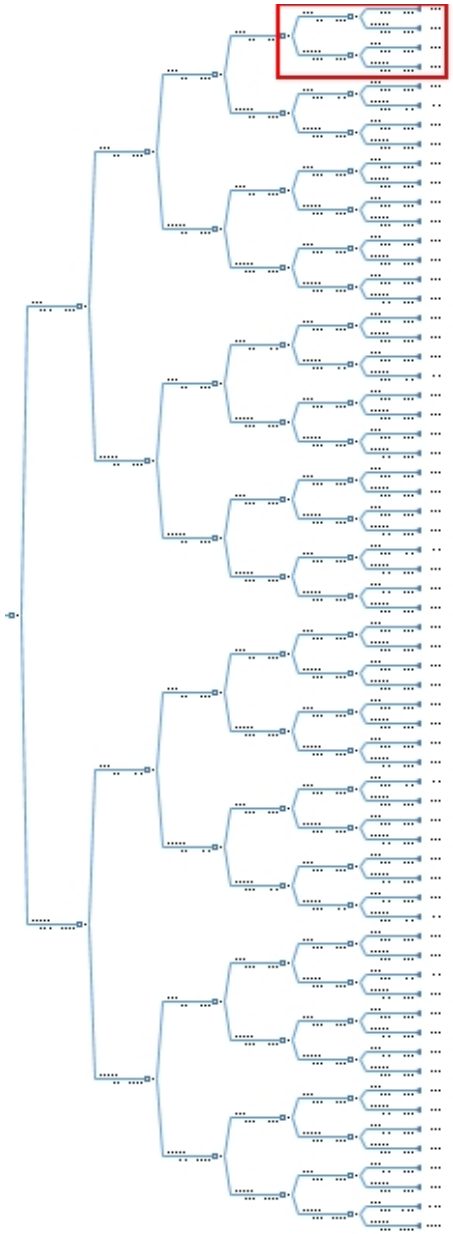


Cost of Spraying : $100

Benefit of Spraying : 2% Inf. Rate

Cost of not Spraying : 5% Inf. Rate

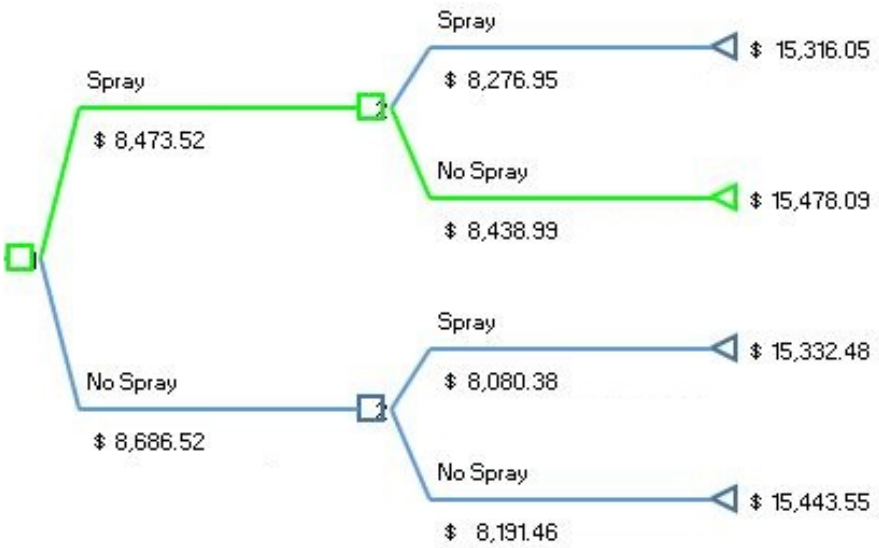
Model Design (Empirical)



Model Design

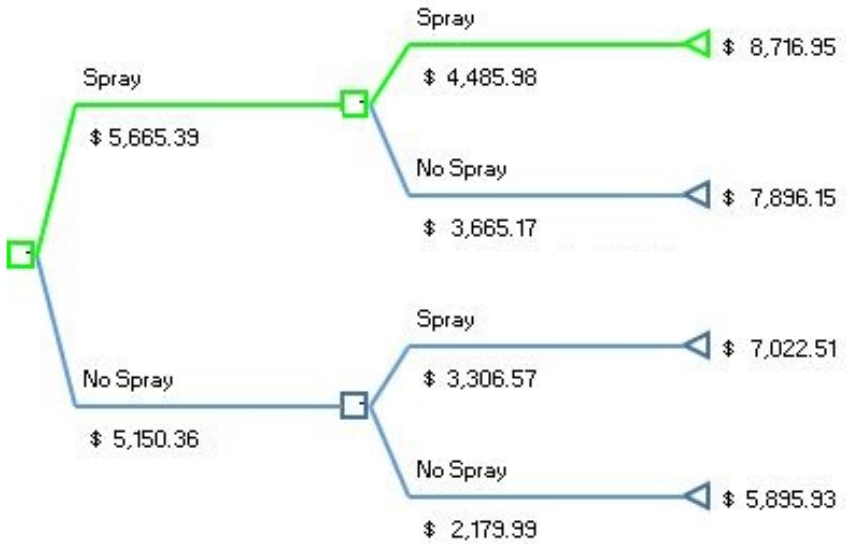
Initial Infestation	1%	Month	Time	Growth (%)	Spray Growth(%)	Harvest %	Harvest (lbs)
		Dec	Period 1	35.0%	35.00%	0%	-
		Jan		35.0%	35.00%	0%	-
		Feb	Period 2	35.0%	35.00%	0%	-
		Mar		35.0%	35.00%	0%	-
		Apr	Period 3	35.0%	35.00%	0%	-
		May		35.0%	35.00%	0%	-
		Jun	Period 4	35.0%	35.00%	0%	-
		Jul		35.0%	35.00%	0%	-
		Aug	Period 5	35.0%	35.00%	25%	3,131.25
		Sep		35.0%	35.00%	25%	3,131.25
		Oct	Period 6	35.0%	35.00%	25%	3,131.25
		Nov		35.0%	35.00%	25%	3,131.25
						100%	12,525.00

Example 1: Initial Infestation Level



Low Initial Infestation Level

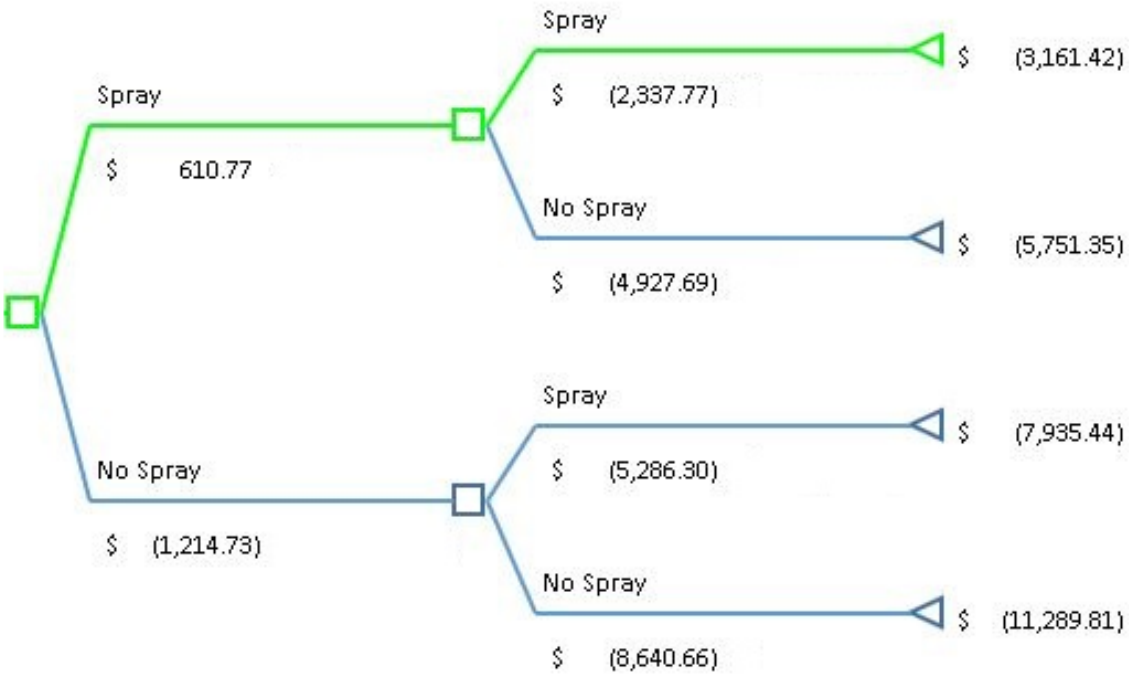
- Initial Infestation: 1 %
- Final Infestation: 7.6 %
- Net Benefit: $15,478.09



High Initial Infestation Level

- Initial Infestation: 6%
- Final Infestation: 45.7 %
- Net Benefit: $8,716.95

Example 1: Initial Infestation Level

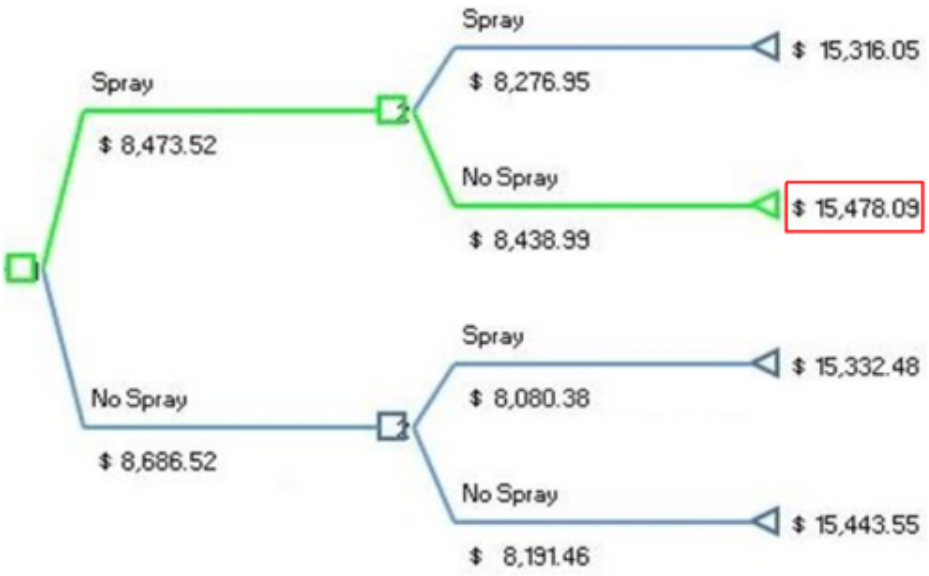


High Initial Infestation Level #2

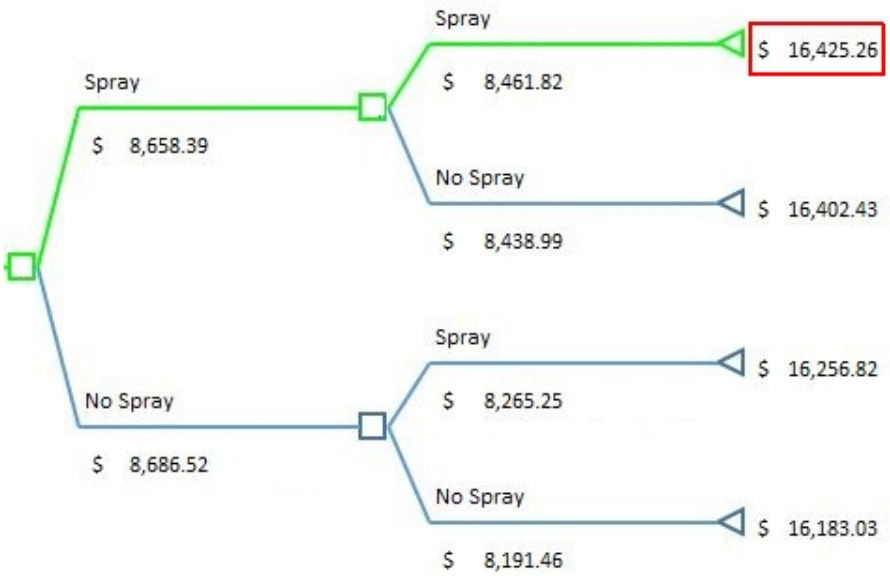
- Initial Infestation: 15%
- Final Infestation: 90.8 %
- Net Benefit: -$3,161.42

Example 2: Impact of Subsidy

No Subsidy
Pesticide Cost: $70.35



Subsidy
Pesticide Cost: $15



Subsidy Benefit: $947.17

Conclusion

Summary of Findings

- Baseline decision tree model
- Calibrate to specific farm type
- Ability to test scenarios

Need feedback on reasonableness of results under scenarios and more accurate parameter knowledge from a farm level perspective.

Conclusion

Thank You!

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