



• **Simulation of Optimum Revenue, Profit and Prices of Aerial Applicators Incorporating Risk**

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Motivation

- **Aerial applicators face increasing competition from various aerial operators for spray jobs**
- **Small differences in the price charged per acre could make or break a business**



Questions for thought?

- **What is the best price to charge?**
- **What is the desired profit margin for a spray job and business?**
- **Would there be range of prices you can work with for a spray job?**
- **Is your current profit margin enough**
 - **To cover the next big purchase?**
 - **To overcome unforeseen contingencies?**

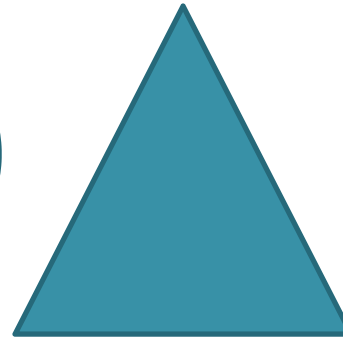
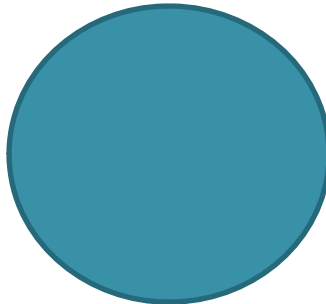


Questions for thought?

- **What is your aircraft operating cost per hour, and how does that factor into the equation?**
- **Does your current profit margin cover all or most of your expenses?**
- **Does the price per acre really represent the price per job?**

Revenue

- Pretty simple 😊
- Revenue
 - Price per job (in terms of aircraft time)
 - Price per acre (this is what farmer/client wants)
 - Area (in acres)





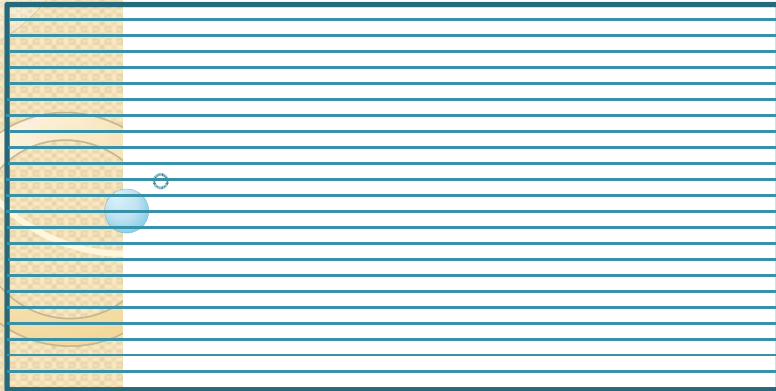
Cost

- Fixed expenses
 - Aircraft
 - Facilities (hanger, runway)
 - Other equipment (loader trucks, application equipment— booms and nozzles, guidance system)
 - Insurance
- Variable expenses
 - fuel
 - Aircraft repair and maintenance
 - Runway repair and maintenance
 - Labor (workman's comp, pilot, mixer/loader and scheduler)
 - Taxes
 - Costs associated with distance to travel to the field from hanger



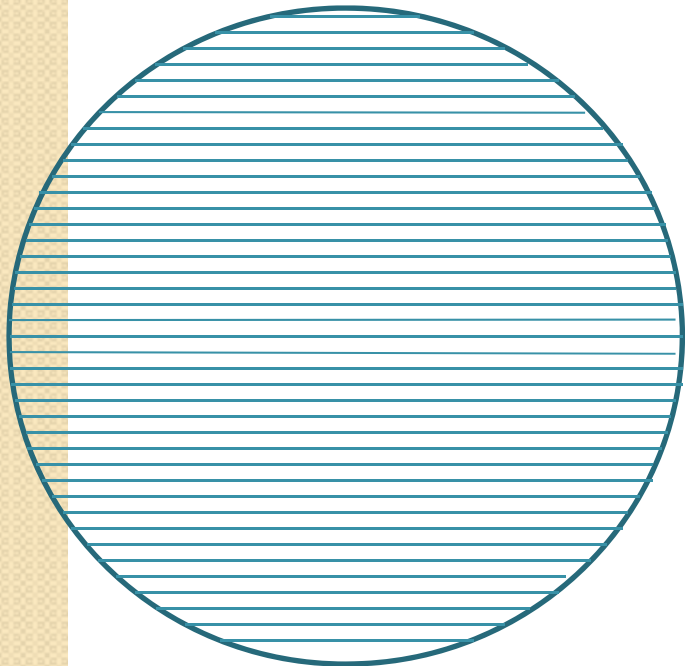
Risks

- Risks associated with operation
 - Obstacles (cell tower, wind turbines, trees, power lines, center pivots)
 - Sensitive crops (organic farms, non-round up ready crops, home gardens)
 - Elementary schools, hospitals
 - Aircraft turnaround times
 - Unanticipated mechanical expenses

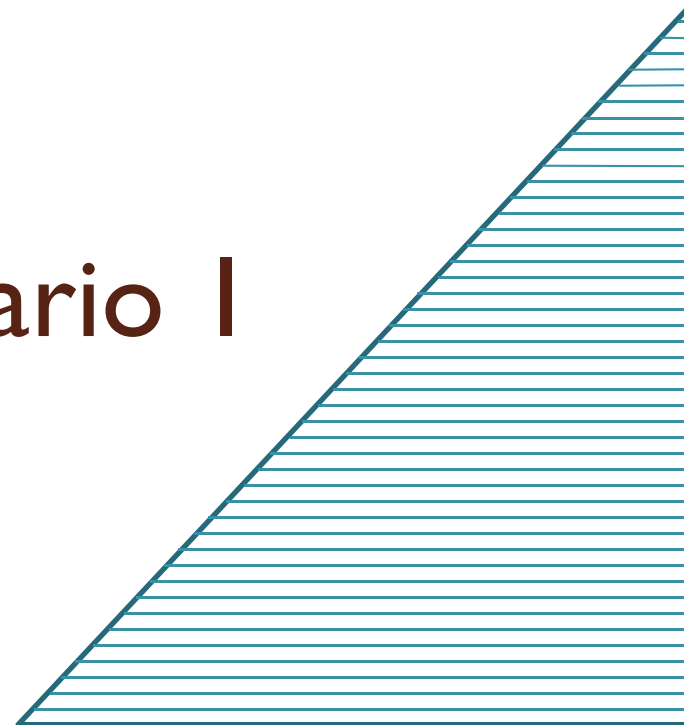


100 Acres
Application time: 21.295 minutes
Distance to field: 5 miles

100 Acres
Application time: 28.225 minutes
Distance to field: 5 miles

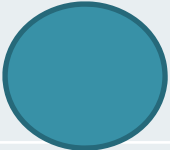




Scenario I

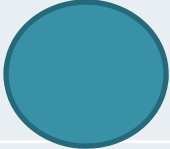




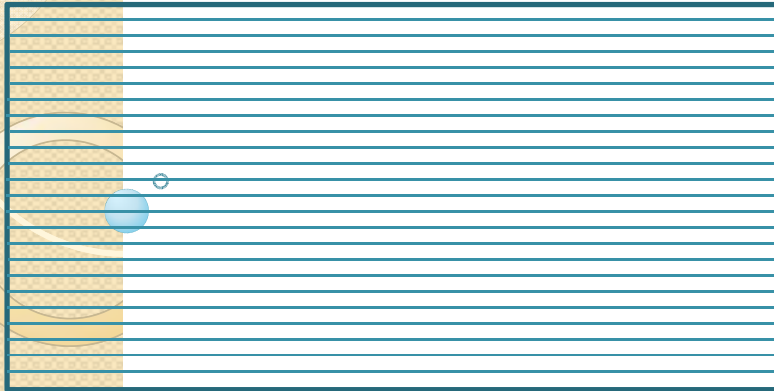
100 Acres
Application time: 23.085 minutes
Distance to field: 5 miles

Scenario I: Charge same price

			
Aircraft operating cost	\$940.83	\$769.50	\$709.83
Labor cost			
Pilot	\$200.00	\$200.00	\$200.00
Mixer/Loader	\$5.65	\$4.62	\$4.26
Total cost	\$1,146.48	\$974.12	\$914.09
Price per acre	\$10.00	\$10.00	\$10.00
Gross revenue	\$1,000.00	\$1,000.00	\$1,000.00
Net revenue	-\$146.48	\$25.88	\$85.91
Profit margin	-14.65%	2.59%	8.59%

Scenario I: Charge different prices

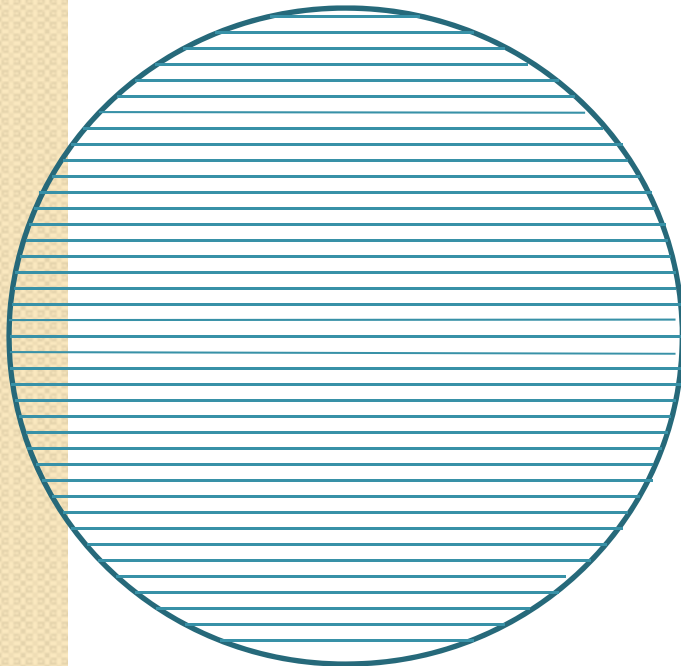
			
Aircraft operating cost	\$940.83	\$769.50	\$709.83
Labor cost			
Pilot	\$315.60	\$258.00	\$238.00
Mixer/Loader	\$5.65	\$4.62	\$4.26
Total Cost	\$1,262.08	\$1,032.12	\$952.09
Price per acre	\$15.78	\$12.90	\$11.90
Gross revenue	\$1,578.00	\$1,290.00	\$1,190.00
Net revenue	\$315.92	\$257.88	\$237.91
profit margin	20%	20%	20%



100 Acres
Application time:
25.58 minutes
**Distance to field: 10
miles**
Price: \$10/acre
Profit margin: -5.78%

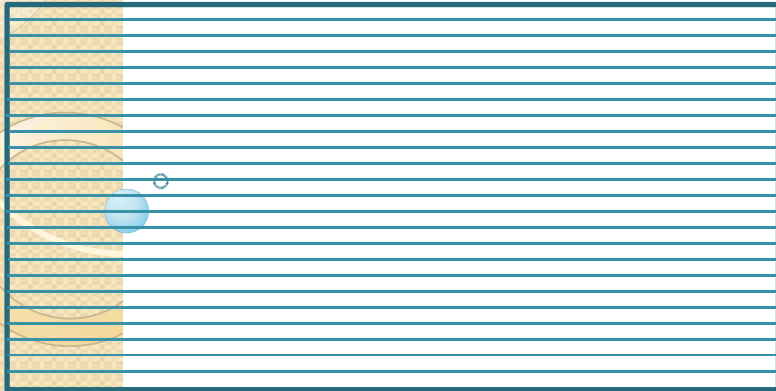
100 Acres
Application time:
21.295 minutes
**Distance to field: 5
miles**
Price: \$10/acre
Profit margin: 8.59%

Scenario 2



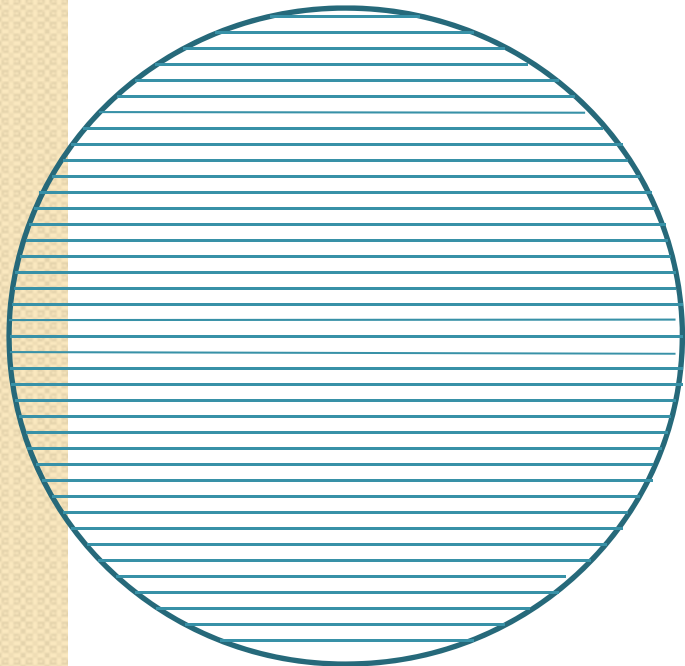
100 Acres
Application time:
28.225 minutes
**Distance to field: 5
miles**
Price \$10/acre
Profit margin:
-14.65%

100 Acres
Application time: 32.51
minutes
**Distance to field: 10
miles**
Price \$10/acre
Profit margin:
-29.02%



100 Acres
Application time: 25.58 minutes
Distance to field: 10 miles
Price: \$14.30/acre
Profit margin: 20%

Scenario 2



100 Acres
Application time: 28.225 minutes
Distance to field: 5 miles
Price \$15.75/acre
Profit margin: 20%

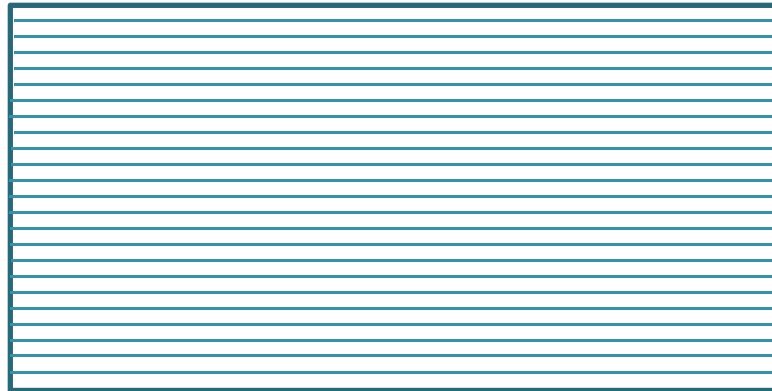
Scenario 3 Risks



Price: ??



Price: ??



Price: ??



Price: ??



What next?

- Transformational outcome of the work
 - Tool that can incorporate all scenarios that allows you to gain a profit to stay in the business
 - Develop an application (app) to predict price for different jobs to stay in the business
- Encourage to start keeping good records, especially cost side to plug into the model to run scenarios for your operation



Questions, Comments...

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