Undergraduate Research Scholars
LAUNCH: UNDERGRADUATE RESEARCH

TEXAS A&M UNIVERSITY
Agricultural Economics

Economic Value of Agricultural Aerial Application Industry by Crop Type and State: A Counterfactual Study

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Presented at the National Agricultural Aviation Association (NAAA) Annual Convention, December 3-7, 2023; Palm Springs, California

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Project Goals

Project Goals

- Understand impact of Agricultural Aerial Application industry delineated by crop type, State, and region
- Analyze growing markets, underdeveloped areas, policy support
- Create more opportunities for research

Understanding the Data

What's the Data?

Acreage x yield x price/unit = Revenue/Crop

Changes in Acreage Used

Corn = 43% Aerial Application
57% Ground Rig Application

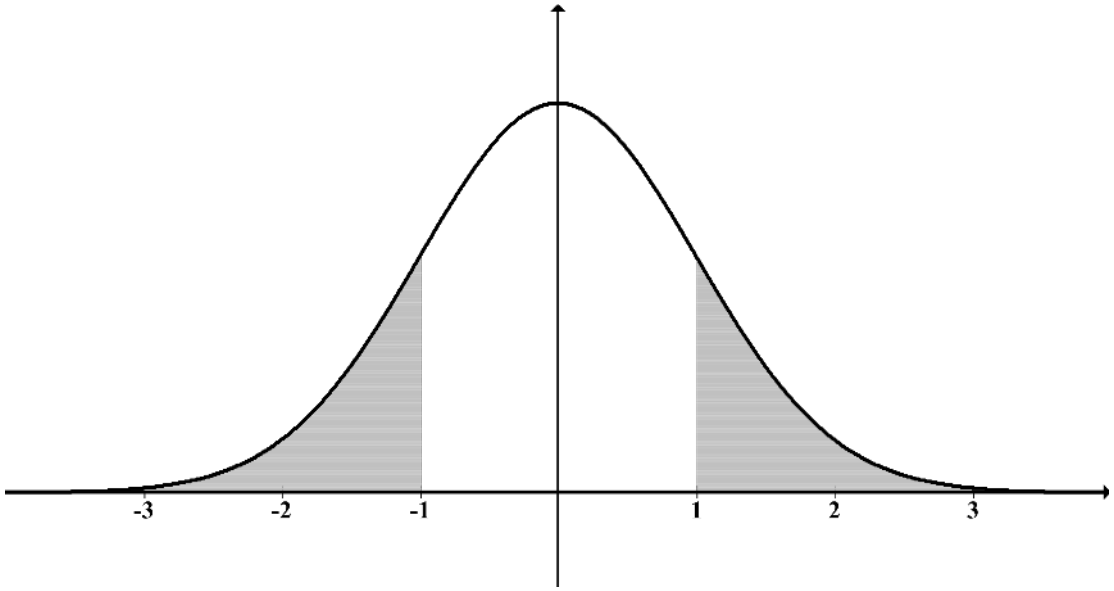
Without Aerial: 57% + Ground Rig Replacement (Varies by Farmer) = New acreage

Changes in Yield

Current Yield – (Current Yield * Reduction Yield without Aerial Application) = New Yield

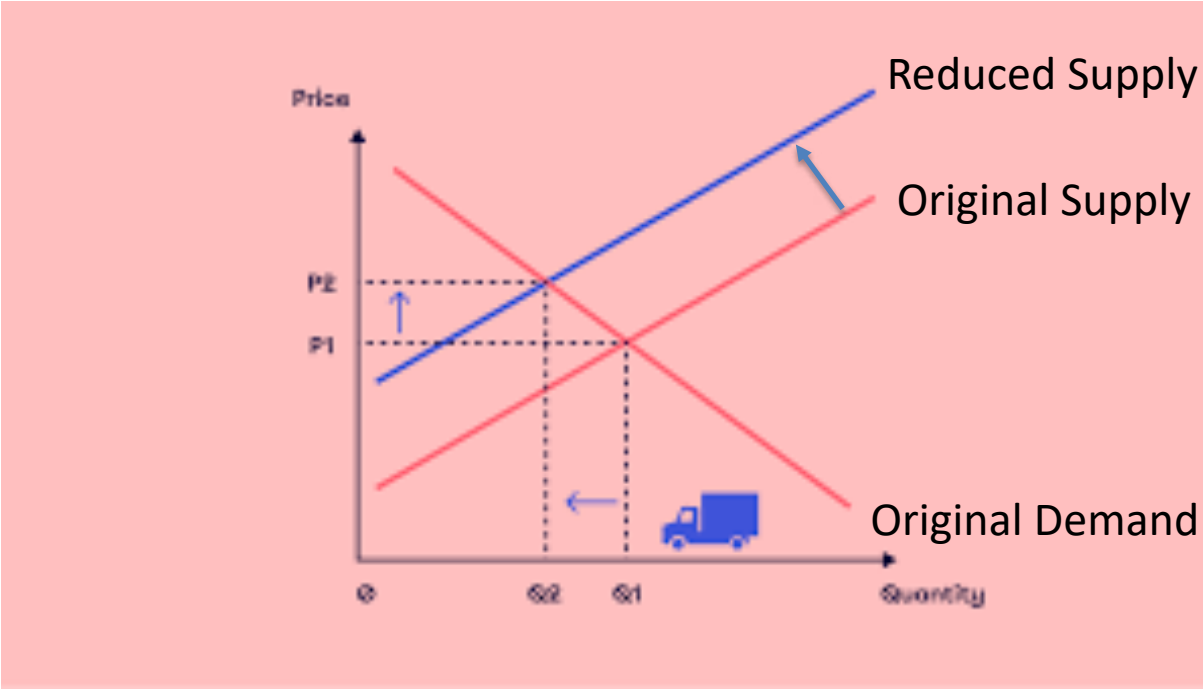
Changes in Price

Price goes up by 0-43%



Changes in Revenue

If supply goes down, price goes up



What's the Data Do?

New Acreage X New Yield X New Price =

New Revenue Without Aerial Application per crop

Indiana

- Total corn, soybeans, wheat cash receipts in 2019 $11.15 Billion (USDA)
- Total loss $5.47 Billion on average

Indiana – Corn

- Corn Current Revenue = $3.32 Billion
- Corn Without Aerial Application Revenue = $3.25 Billion
- Difference = **$70 Million**

Indiana – Soybeans

- Soybeans Current Revenue = $2.48 Billion
- Soybeans Without Aerial Application Revenue = $1.21 Billion
- Difference = **$1.27 Billion**

Indiana – Winter Wheat

- Winter Wheat Current Revenue = $80 Million
- Winter Wheat Without Aerial Application Revenue = $33.83 Million
- Difference = **$46.17 Million**

Assumptions & Data Gaps

Assumptions

- Price changes are variables of elasticity and historical data
- Aerial Application percentages
  - 2019 NAAA Survey Data
- Yields per crop per application
  - Ex: Corn is sprayed with herbicide, fertilizer, pesticide, insecticide

Gaps USDA NAAS

- West Virginia
- New Hampshire
- Maryland
- Vermont
- Maine
- Hawaii
- Alaska
- Connecticut

Continued Research

Continued Research

- Indirect value to livestock
  - Ex: How will change in corn price from NAAA impact US pork production/feed costs
- Value per commodity
  - Ex: Total aerial applicator value to corn industry
  - Corn used as a biofuel
- Value to major exported commodities
- Value as compared internationally

Undergrad Research Opportunities

Texas A&M University Undergraduate Research Scholar Program

- Campus based program
- Creates opportunity for community education through presentations
- Expands student research education
- In conjunction with TAMU Honors program

TAMU Agricultural Economics Undergraduate Program

- Research required for Honors student
- Undergraduate research at national agricultural economics
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- Expands student undergrad education
- Goal – Research leads to jobs/internships

Industry Outreach

- NAAA Conference – December 2023
- Southern Agricultural Economics Association annual meeting Conference – February 2024
- Agricultural and Applied Economics Association annual meetings – July 2024

Continued project to be presented at commodity conventions

Questions Comments

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Ongoing research. Estimations may change based on proposed future work.