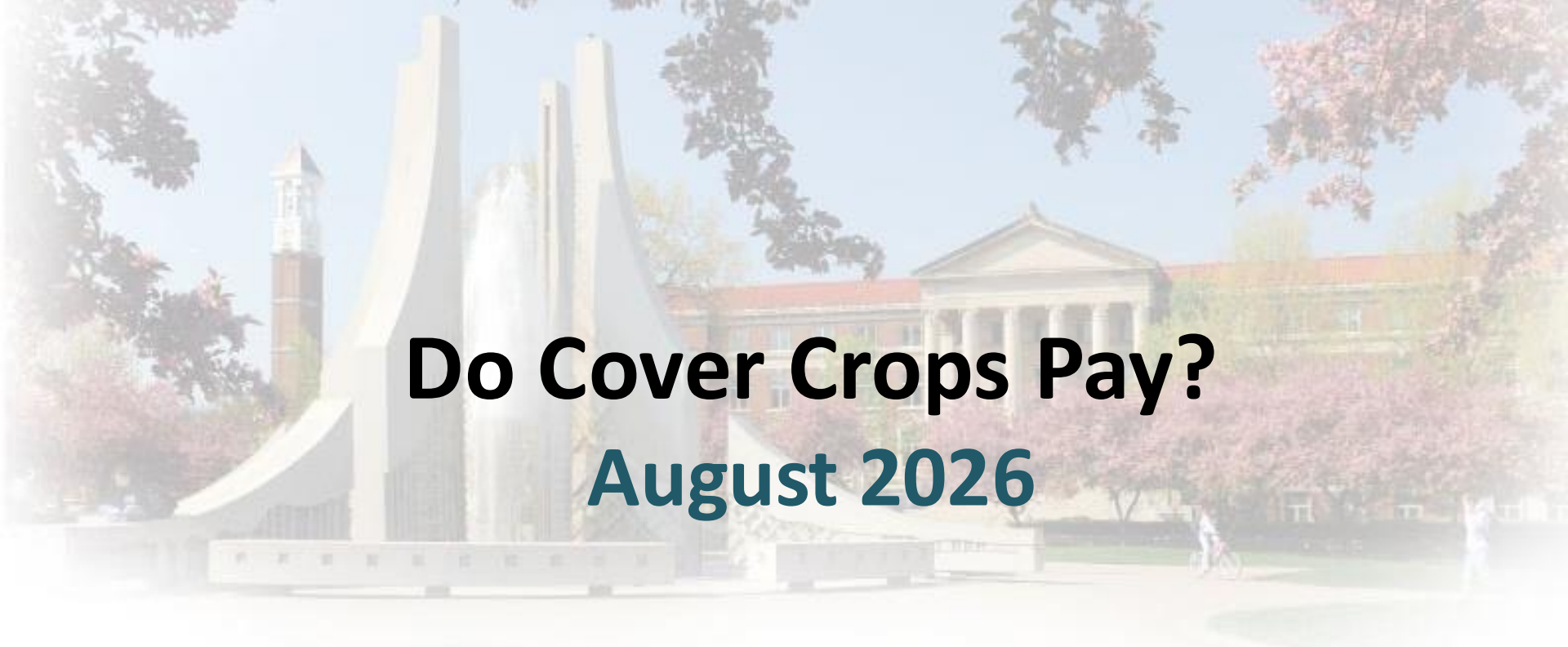




Do Cover Crops Pay?

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Outline

- Introduction
- Survey Results
- Tradeoffs Between Farm Goals
- Cover Crop Adoption

Introduction

Introduction

- For most farms, conservation (e.g., adoption of cover crops) is only one of several farm goals, which in addition to conservation may include risk reduction, profitability, farm transfer to a younger generation, and reduction in debt.
- This presentation reports survey results pertaining to the adoption of conservation practices and uses a multi-goal framework to address the tradeoffs between net returns and soil health when adopting cover crops.

Survey Results

Two Clusters of U.S. Farms

Heterogeneity of U.S. Farms: Farm Goals, Management Strategies, and Farm Demographics

Cluster 1 (164 Farms)

- **Reduction in debt over time is an important goal**
- 33% of farms expect to grow in the next 5 years
- 16% indicate that now is a good time to make new investments
- 46% are 65 or older
- 34% farm over 2000 acres

Cluster 2 (236 Farms)

- **Conservation is an important goal**
- 61% of farms expect to grow in the next 5 years
- 26% indicate that now is a good time to make new investments
- 34% are 65 or older
- 29% farm over 2000 acres

Heterogeneity of U.S. Farms: Conservation Practices

Cluster 1 (164 Farms)

- 21% have introduced a new crop in last 5 years
- 43% use no-till on more than 50% of acreage
- 3% currently plant cover crops (0% have used cover crops for more than 10 years)

Cluster 2 (236 Farms)

- 48% have introduced a new crop in last 5 years
- 55% use no-till on more than 50% of acreage
- 92% currently plant cover crops (31% have used cover crops for more than 10 years)

Tradeoffs Between Farm Goals

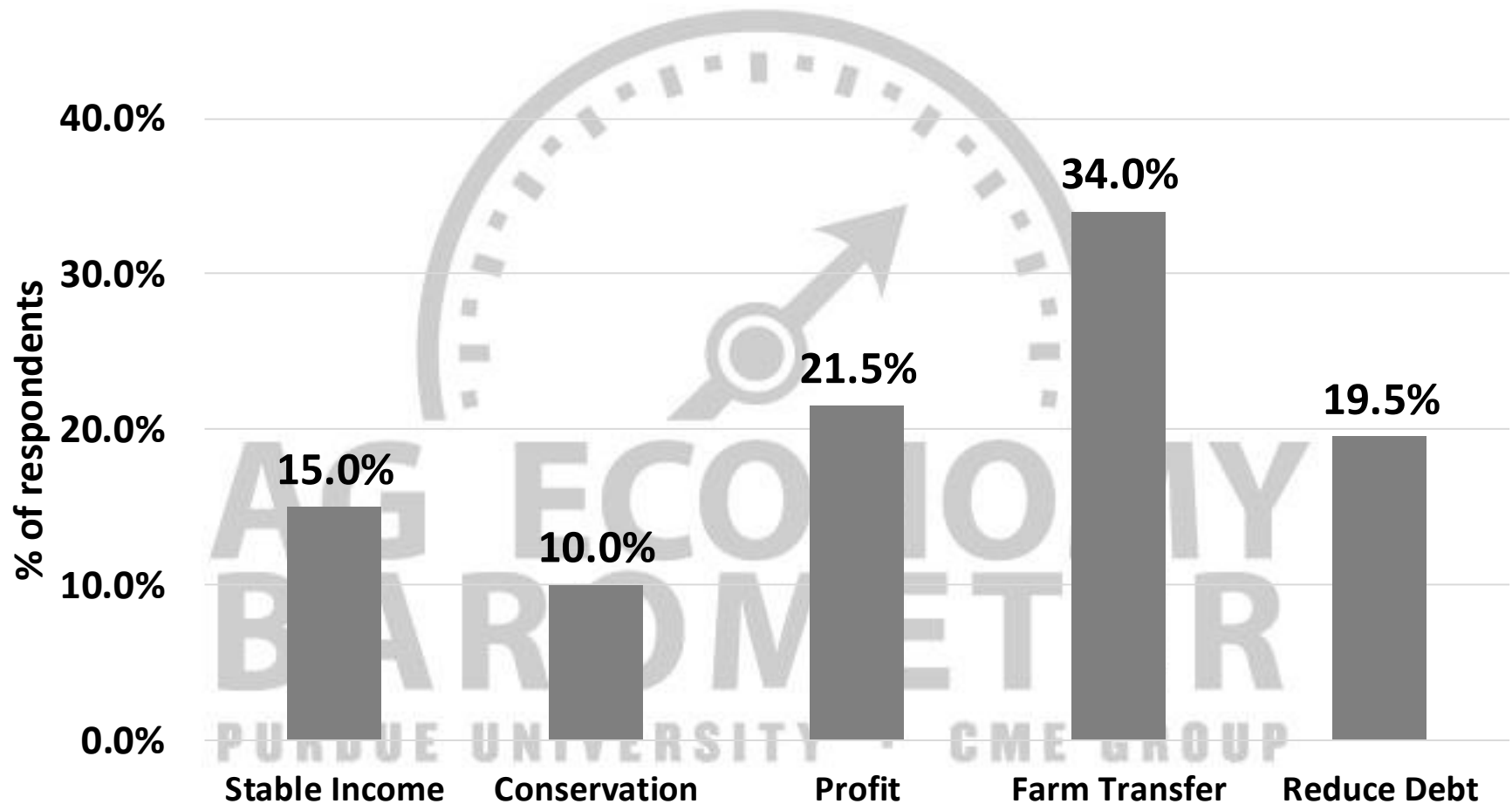
Tradeoffs Between Farm Goals

- It is uncommon for a farm to have a single goal, such as profit maximization or soil conservation.
- Having a hierarchy of goals is important because goals conflict with one another.

Tradeoffs Between Farm Goals

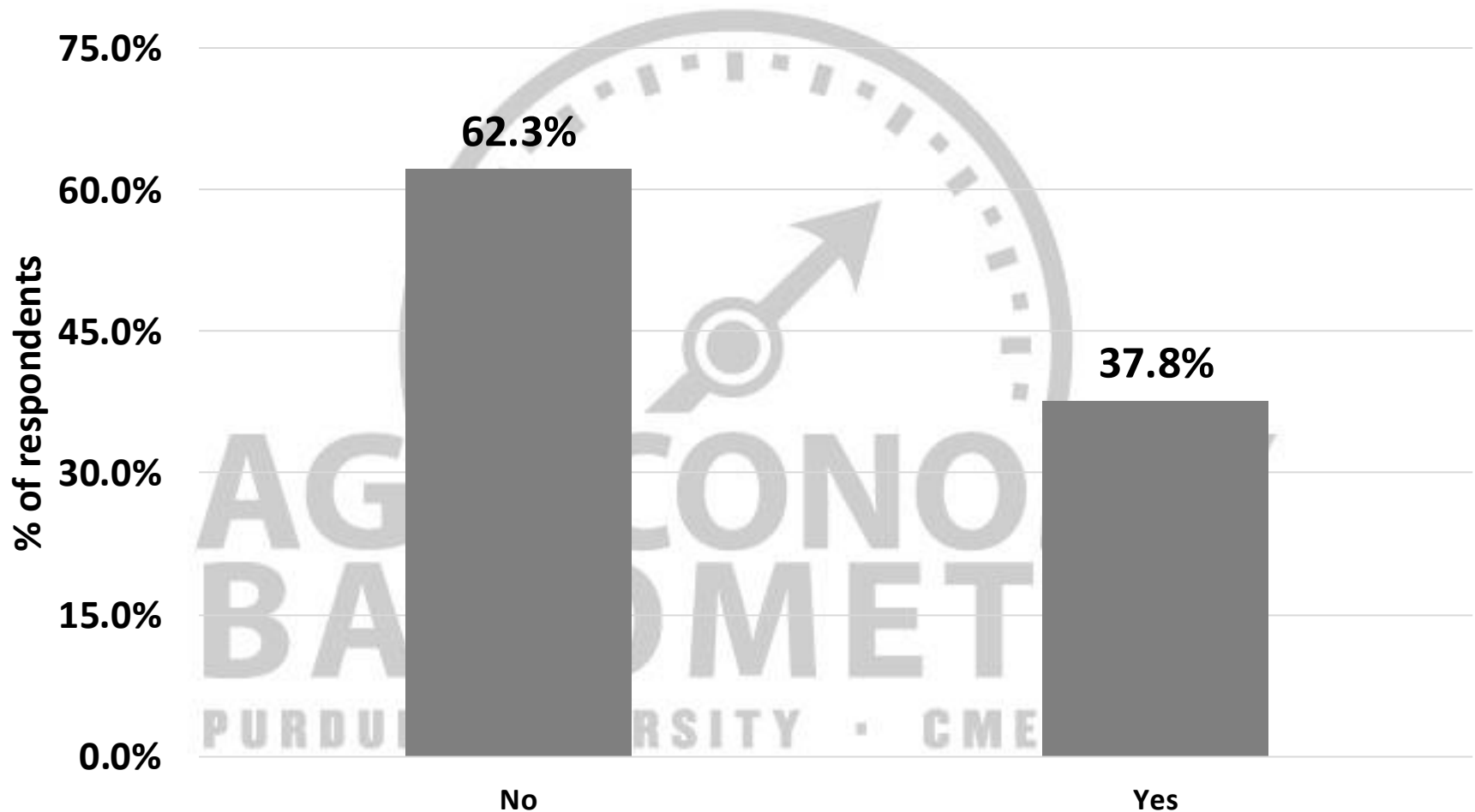
- A recent survey asked producers to identify their most important farm goal.
- Choices included the following: maintain stable income, conservation, profit maximization, pass the farm onto the next generation, and reduce debt over time.

What is the most important goal for your operation?



Source: Purdue Center for Commercial Agriculture, Farm Goals Survey, February 2025

Do you plan to bring another family member into the business (full-time) in the next 5 years?



Source: Purdue Center for Commercial Agriculture, Farm Goals Survey, February 2025

Tradeoffs Between Farm Goals

- Scenario analysis is a planning and risk management technique that can be used to evaluate the potential impact of key management decisions.
- Scenario analysis does not provide an optimal solution when farm goals are multi-dimensional.
- Rather it provides a mechanism to explore how a change in the operation impacts multiple goals.

Tradeoffs Between Farm Goals

- Scenarios can be thought of as choice experiments in which we compare current practices with planned practices.
- A farm that ranks conservation as their most important goal would be willing to sacrifice more net return than a farm that ranks profit maximization as their most important goal.

Cover Crop Adoption

Scenario Analysis

- We will examine differences in net returns and soil health for three cases. In each case, we will be comparing current practices to planned practices.
 - Case 1: Cover Crop Adoption, No Cost Savings or Closure of Yield Gaps
 - Case 2: Cover Crop Adoption, Cost Savings of \$20 per Acre
 - Case 3: Cover Crop Adoption, Closure of Yield Gaps

Case 1: Add Cover Crop; No Cost Savings or Closure of Yield Gaps

Planned Practices

- Reduced Till (1-Pass Light)
- **Cover Crop; Single Species**
- Corn/Soybean Rotation
- No Manure

Changes Resulting from Planned Practices

- **Net Return Change = -\$36 per acre**
- **Reduction in Soil Loss**
- **Reduction in GHG Emissions**
- **Improvement in Overall Health Score**
 - Improved from -0.5 to 0.0

Case 2: Add Cover Crop; Cost Savings of \$20 per Acre

Planned Practices

- Reduced Till (1-Pass Light)
- **Cover Crop; Single Species**
- Corn/Soybean Rotation
- No Manure

Changes Resulting from Planned Practices

- **Net Return Change = -\$16 per acre**
- **Reduction in Soil Loss**
- **Reduction in GHG Emissions**
- **Improvement in Overall Health Score**
 - Improved from -0.5 to 0.0

Case 3: Add Cover Crop; Closure of Yield Gaps

Planned Practices

- Reduced Till (1-Pass Light)
- **Cover Crop; Single Species**
- Corn/Soybean Rotation
- No Manure

Changes Resulting from Planned Practices

- **Net Return Change = -\$6 per acre**
- **Reduction in Soil Loss**
- **Reduction in GHG Emissions**
- **Improvement in Overall Health Score**
 - Improved from -0.5 to 0.0

Conclusions

- In this presentation, we reported survey results pertaining to conservation practice adoption and we discussed a conceptual framework that could be used to examine tradeoffs between farm goals.
- Whether cover crops are adopted depends on the relative importance of the profit maximization and conservation goals, and whether there are adoption benefits in addition to soil health (e.g., reduction in herbicide or fertilizer cost).

Questions, Comments

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