THRIVING AG

What works to increase conservation practice adoption?

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What works to increase BMP adoption?

Background

Socio-demographic characteristics commonly evaluated

- Results are inconsistent across studies
  - Exceptions are farm size and information access
- Studies may have omitted important variables
  - Financial incentives types and magnitude

Explored the evidence using modeling and interview analysis

We asked - How much variability of adoption is explained by farmer engagement methods?

1. Interventions - financial incentives, outreach events, and nudges
2. Message content – What attracts participants to field days?
3. Technical assistance investments, characteristics

Literature Review

Showing intervention tested, not all model variables

 # high quality observations: 240

Log-likelihood: -124.9

R-squared: 0.826

Read DJ, Wainger L. 2022.

Covariate	β (St. Err.)	*p*-value
Mass media	-1.05 (1.27)	0.406
Access to outreach	0.56 (0.85)	0.511
Attend outreach event	0.72 (0.71)	0.315
Peer group	**1.87 (0.82)**	**0.023***
Nudge	-0.19 (0.85)	0.827
Financial incentive	**1.86 (0.78)**	**0.017***
CP effort	0.39 (0.93)	0.678
US/Canada	**-1.69 (0.52)**	**0.001****

Financial incentives promote BMP adoption

- One significant intervention (pre adoption) variable in meta-regression
  - **Financial incentives**
- Consistent result of thematic analysis
  - **Peer groups -** promote practice persistence
- Study quality affected results

Read, D.J., Wainger, L., 2023. Assessing intervention effectiveness at promoting voluntary conservation practice adoption in agrienvironments. Conservation Biology 37, e14009. https://doi.org/10.1111/cobi.14009

Farmer Interviews

Question:

How do farmers evaluate their experiences with conservation assistance programs and practitioners?

Farmer Interviews

Sample 1

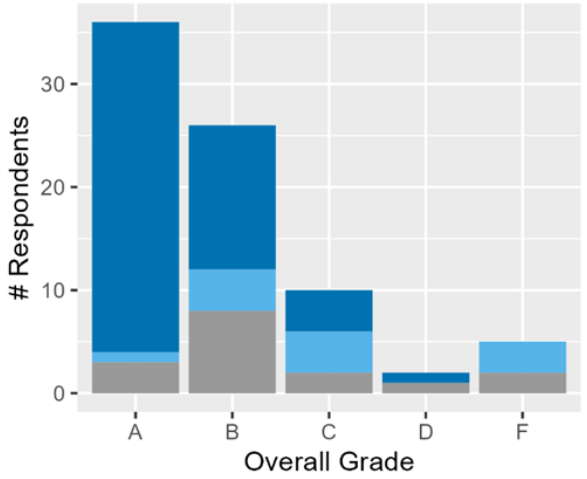
- 30 interviews (8 MD; 14 PA, 7 VA)
- Inductive text analysis
- Develop framework of concepts farmers use to describe concerns with assistance programs and expectations of practitioners

Sample 2

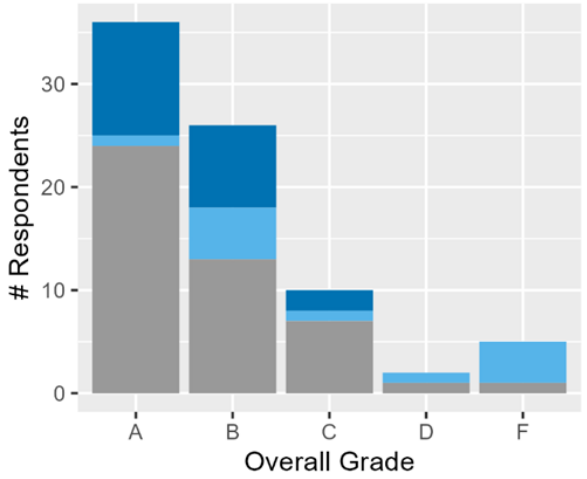
- 79 interviews (all MD)
- Deductive text analysis
- Substantiate framework and assess relative importance of concepts

Farmer Interviews

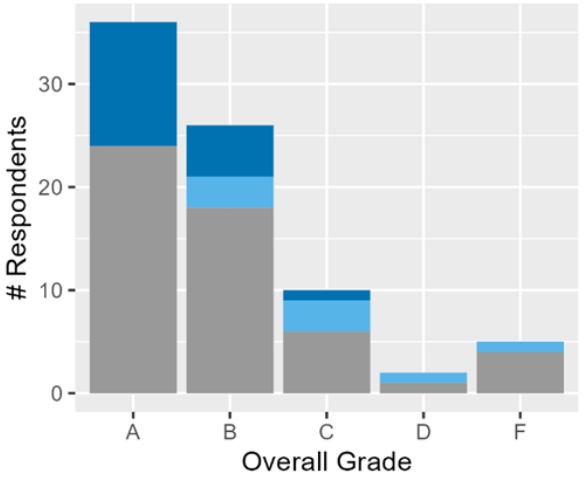
Sharing relevant knowledge



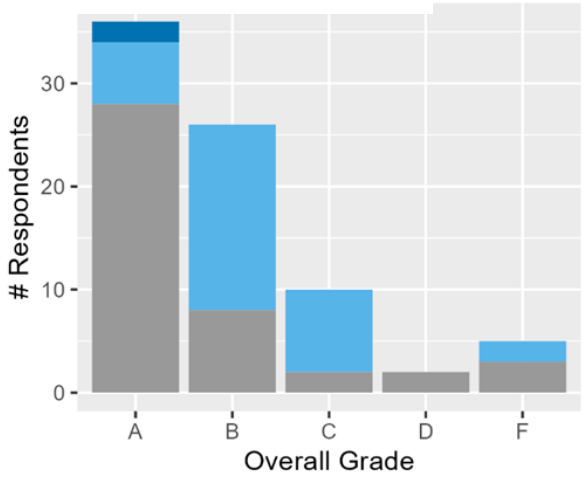
Understanding farm context



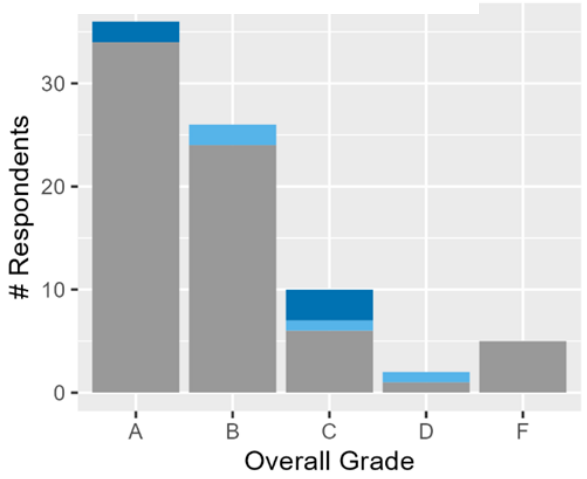
Being professional

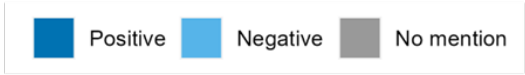


Program process*



Program outcomes





Farmer Interviews

$$logit[P(Y \leq j \mid x)] = \alpha_j - \beta' x, j = 1, \ldots, c - 1$$

observations: 79
Log-likelihood: -74.68
Normal surrogate residuals

Covariate	β (St. Err.)	*p*-value
Share knowledge -	-1.74 (0.75)	0.0203*
Share knowledge +	1.22 (0.60)	0.0415*
Understand Farm -	**-2.41 (0.71)**	**0.0006*****
Understand Farm +	-0.03 (0.58)	0.9532
Be professional -	**-2.09 (0.80)**	**0.0093****
Be professional +	1.16 (0.62)	0.0609 .

Key role for technical assistance providers is to overcome challenges of using cost-share funding

Program impediments (farmer perspective)

- Rigid, complex and slow-moving financial assistance programs
- Not all practices compatible with operations & effective

Technical assistance providers increase effectiveness when they

- Understand farm management context
- Respect farmers and their goals

"I'm all about doing the right things for the environment … However, they have to go hand in hand with being able to sustain our farm too."

"She was really good at just kind of coming up with what would fit for us and be manageable for us."

Field Experiment

Question:

How effective are BMP pictures at encouraging adoption of more BMPs per level of outreach effort?

Outreach message content matters particularly for reaching non-adopters

- What increases interest? (Web experiment; Read and Wainger, in review)
  - **Photos** led to a small, significant increase in the proportion of viewers seeking further information (300K views in *Lancaster Farming*)
- What increases attendance by non-adopters? (interviews; Read et al. 2021)
  - Events that provided **production-relevant information** and were logistically easy to attend.
  - **Simple** emails and mailings.

Higher technical assistance investments = higher rates of adoption of non-structural practices

- Statistical model of Conservation practice adoption rate
  - Conservation practices - MACS or Maryland Cover Crop Program (22 years of data)
  - Staffing - Maryland Soil Conservation Districts
  - Confounders: median farm size (county), corn price
- Preliminary results
  - Agronomic practice adoption rate (without cover crops) explained by technical assistance positions (FTEs)
  - Structural practices - no significant relationship

Three questions about increasing BMP adoption

1. **Will more implementation money help?**

- Yes
  - Financial incentives appear to be the most effective intervention
  - Money does not overcome all constraints

2. **Is technical assistance reaching farmers?**

- Some
  - Invitation messaging can be ineffective with non-adopters
  - Some willing adopters not being reached

3. **Is technical assistance effective?**

- Often
  - Room for improvement / efficiencies
  - Plans specific to farm and farmer goals

Publications

- Read, D.J., Wainger, L., 2023. Assessing intervention effectiveness at promoting voluntary conservation practice adoption in agrienvironments. Conservation Biology 37, e14009.
- Read, D.J., Carroll, A., Wainger, L.A., 2021. Exploring private land conservation non-adopters' attendance at outreach events in the Chesapeake Bay watershed, USA. PeerJ 9, e11959.
- Read DJ, Wainger L. (in review) Harnessing the Power of Visuals: Experiment Suggests Photos Catalyze Agricultural Conservation Adoption Process.
- Read DJ, Carroll A, Wainger L. (in revision) Improving Institutional Fit through Farmer-Practitioner Relationships in the Chesapeake Bay Watershed, USA.
- Read, D., Wainger, L.A., (in prep). Does investing in technical assistance providers increase agricultural conservation practice adoption?