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Cover Crop Adoption and Disadoption in the South

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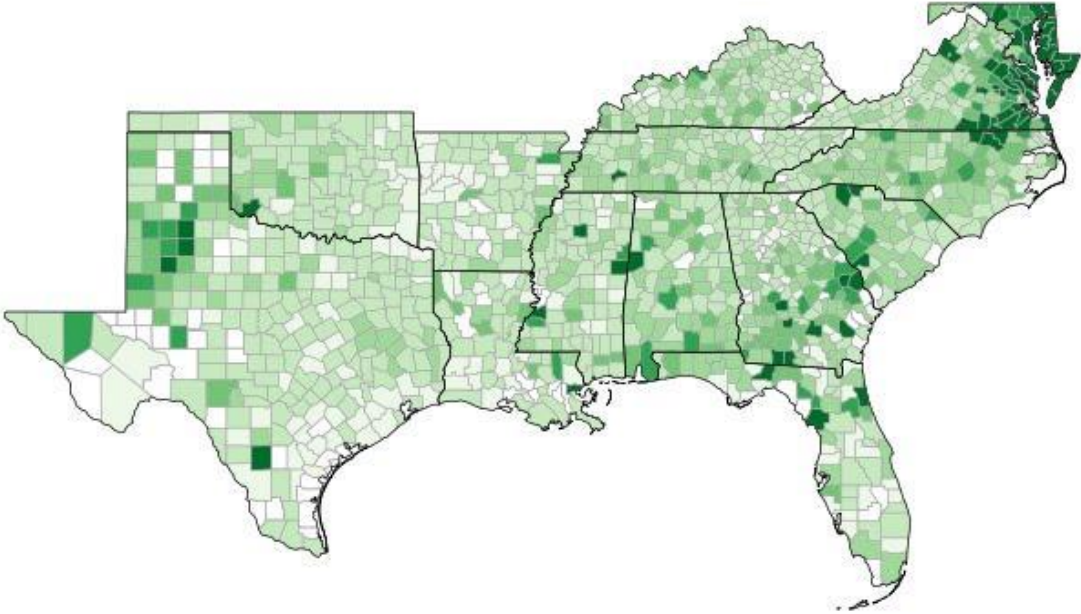
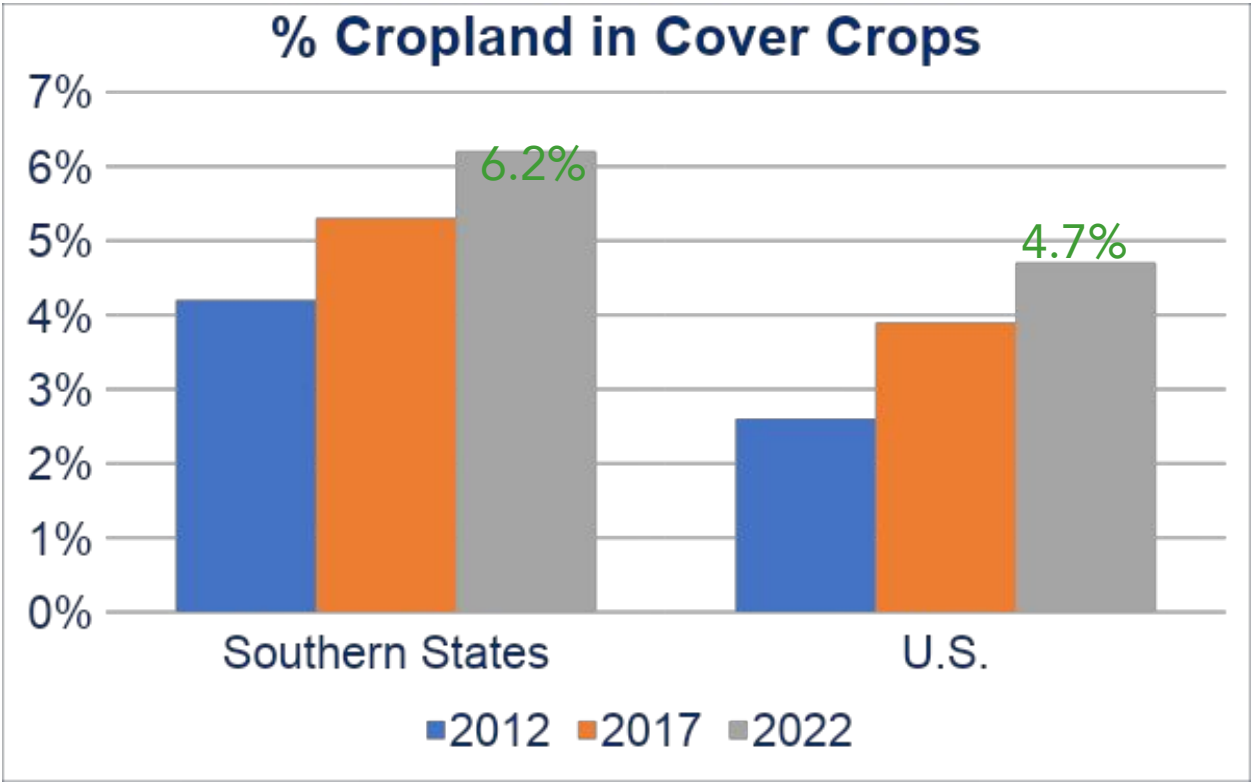
Why Cover Crops?

- Water quality issues from crop production
 - Hypoxic zone
 - Algal blooms
 - ↑ drinking water treatment costs
- Carbon sequestration



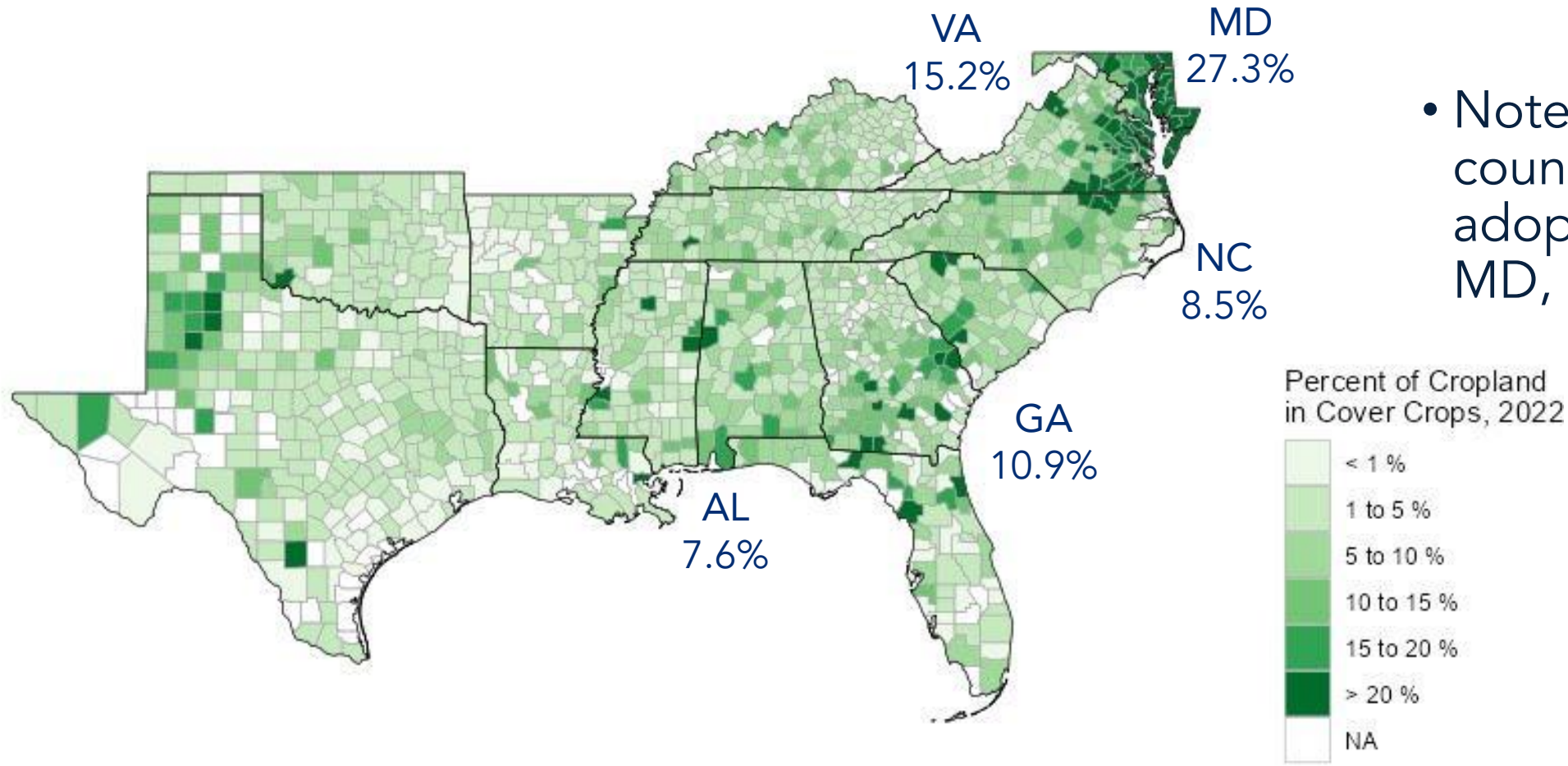
Source: <http://www.umces.edu/people/boesch-gulf-mexico-hypoxia>

Cover-crop Use has Increased Across US (2012-2022)



Data Source: USDA Census of Agriculture, 2012-2022

Southern States Lead the Way in Cover-crop Use



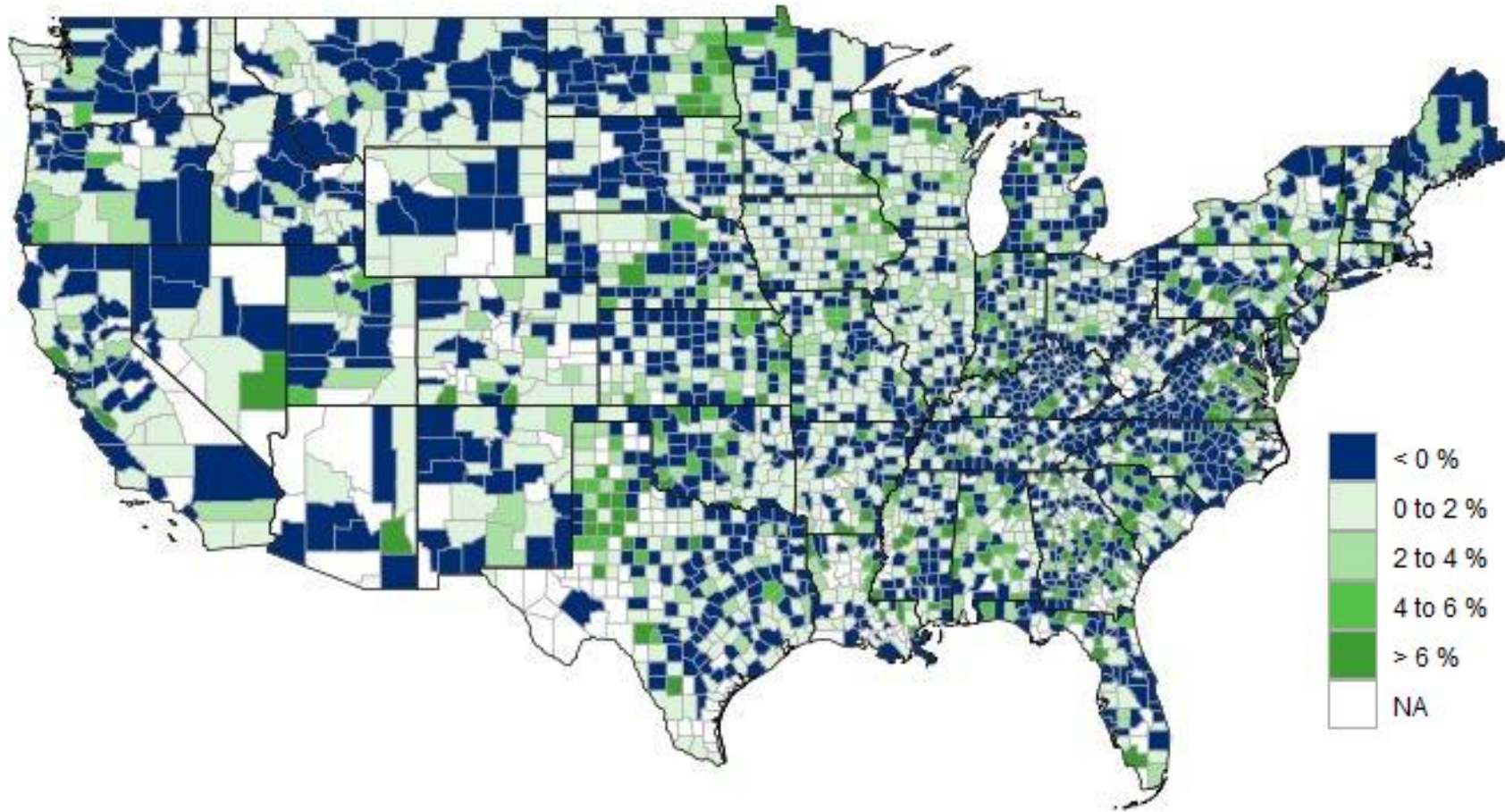
- Note: Top 5 US counties in cover crop adoption are all in VA, MD, and FL

Source: Okonkwo, Sawadgo, and Plastina. 2024. *Southern Ag Today*.

However...

- Aggregate measures hide disadoption at lower levels
- Important because disadoption of cover crops and especially no-till
 - Reduce water quality benefits
 - Reverse carbon sequestration and soil health benefits

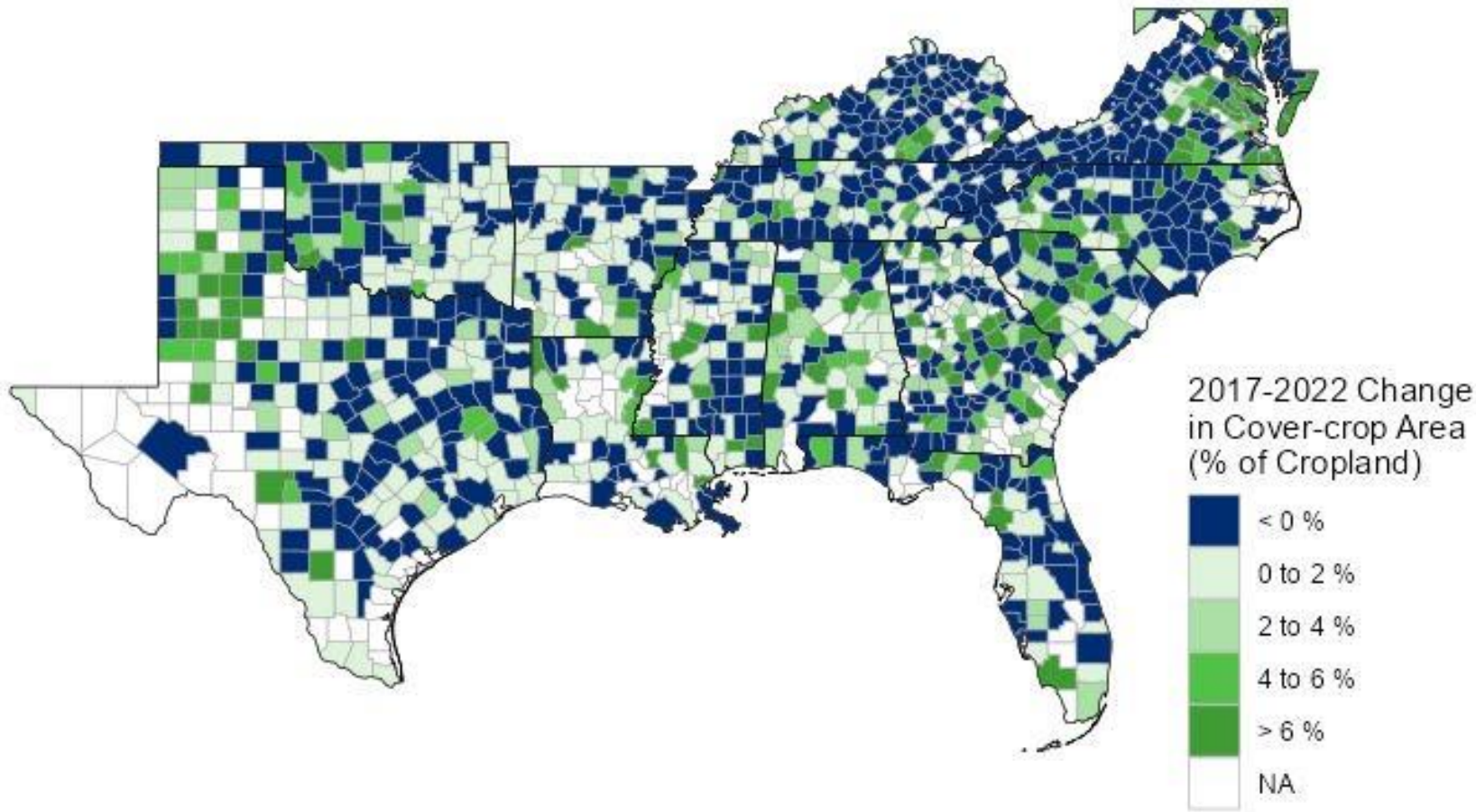
Cover Crop Use Changes, 2017 to 2022



- Cover-crop area decreased in 46% of U.S. counties

Source: Plastina, Sawadgo, and Okonkwo (2024). *Choices*.

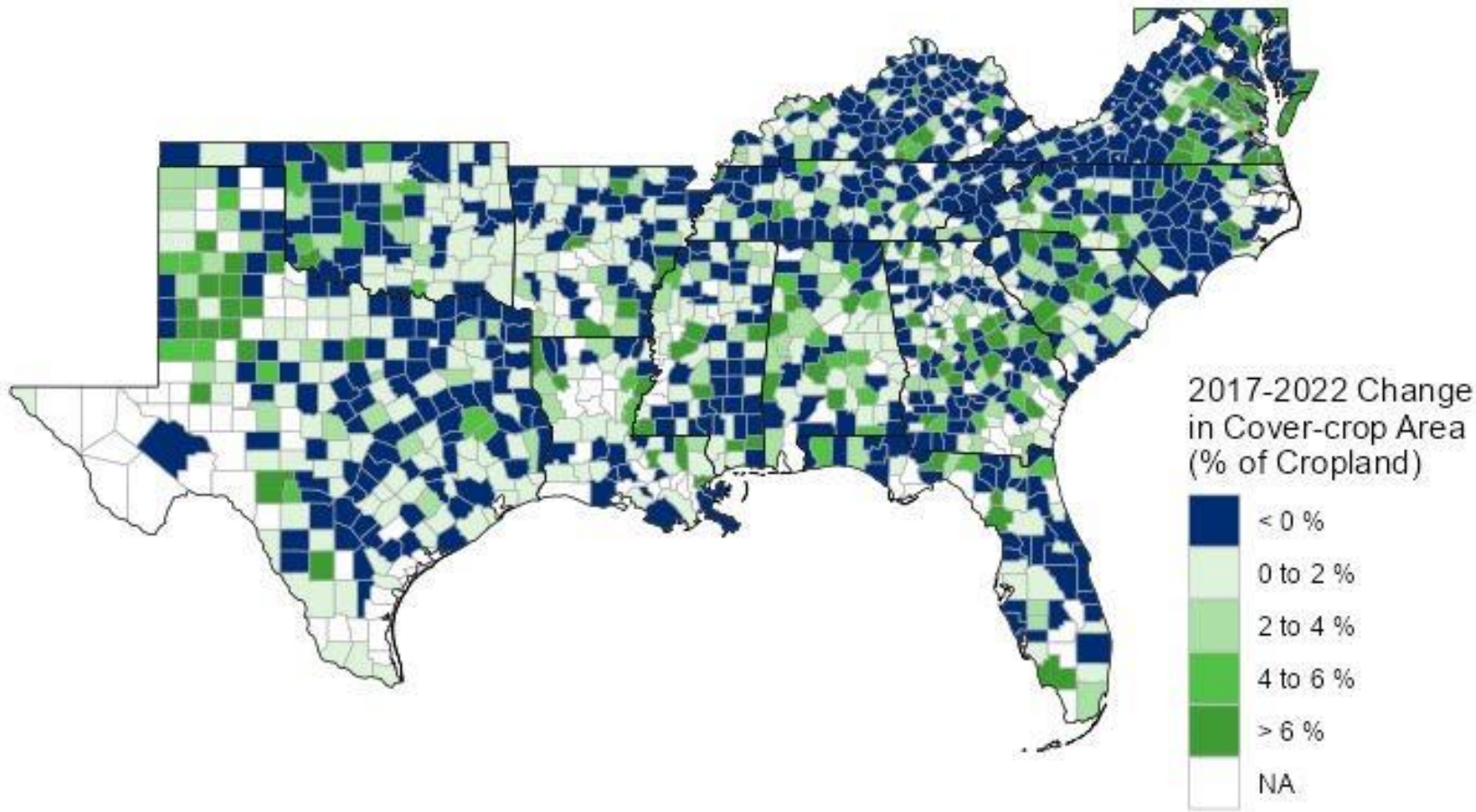
Cover Crop Use Changes, 2017 to 2022



- Cover-crop area decreased in 49.8% of Southern States' counties

Source: Plastina, Sawadgo, and Okonkwo (2024). *Choices*.

Cover Crop Use Changes, 2017 to 2022



- Increase (CC acres)
 - Texas: +537,000
 - Mississippi: +94,000
 - Oklahoma: +68,000
 - Louisiana: +66,000
- Decrease (CC acres)
 - North Carolina: -67,000
 - Tennessee: -47,000

Source: Plastina, Sawadgo, and Okonkwo (2024). *Choices*.

What Prevents Adoption of Cover Crops?

The Cost

- Row-crop producers often face short-term losses from using **cover crops** (Hughes & Langemeier, 2020; Plastina et al. 2018a; Plastina et al. 2018b; Sellars et al., 2023; Thompson et al., 2020)
 - Mostly due to cover crop planting costs (~\$40-60 per acre)
 - Sometimes an additional termination cost
 - Without incentive payment, farmers need a ~5% yield bump to break even

How to Increase Area in Cover Crops?

- Incentives for adoption of conservation practices
 - Governmental programs (USDA)
 - EQIP, CSP
 - Pandemic Cover Crop Program
 - Private funding
 - Corporation funding (e.g. Walmart, PepsiCo)
 - Carbon markets
 - Other (e.g. Regional Conservation Partnership Program)



Cost-share Program Concepts

- *Additionality*: Acreage devoted to practices that would not have occurred without payment
- *Permanence*: Acreage needs to be devoted to practices for a significant length of time
 - Non-continuous use of no-till can reverse accumulated benefits



Cost-share Programs Increase Adoption: Results from the Additionality Literature

- Cost-share participants plant cover crops to an additional 18-30% of their land (Sawadgo and Plastina 2021; Fleming, Lichtenberg, and Newburn 2018; Fleming 2017; Gonzalez-Ramírez and Arbuckle 2016; Mezzatesta, Newburn, and Woodward 2013)
 - Additionality rate: 54-98%
- \$5 Cover Crop Discount Program participants planted cover crops on 11% more of their land in Iowa (Sawadgo 2024)



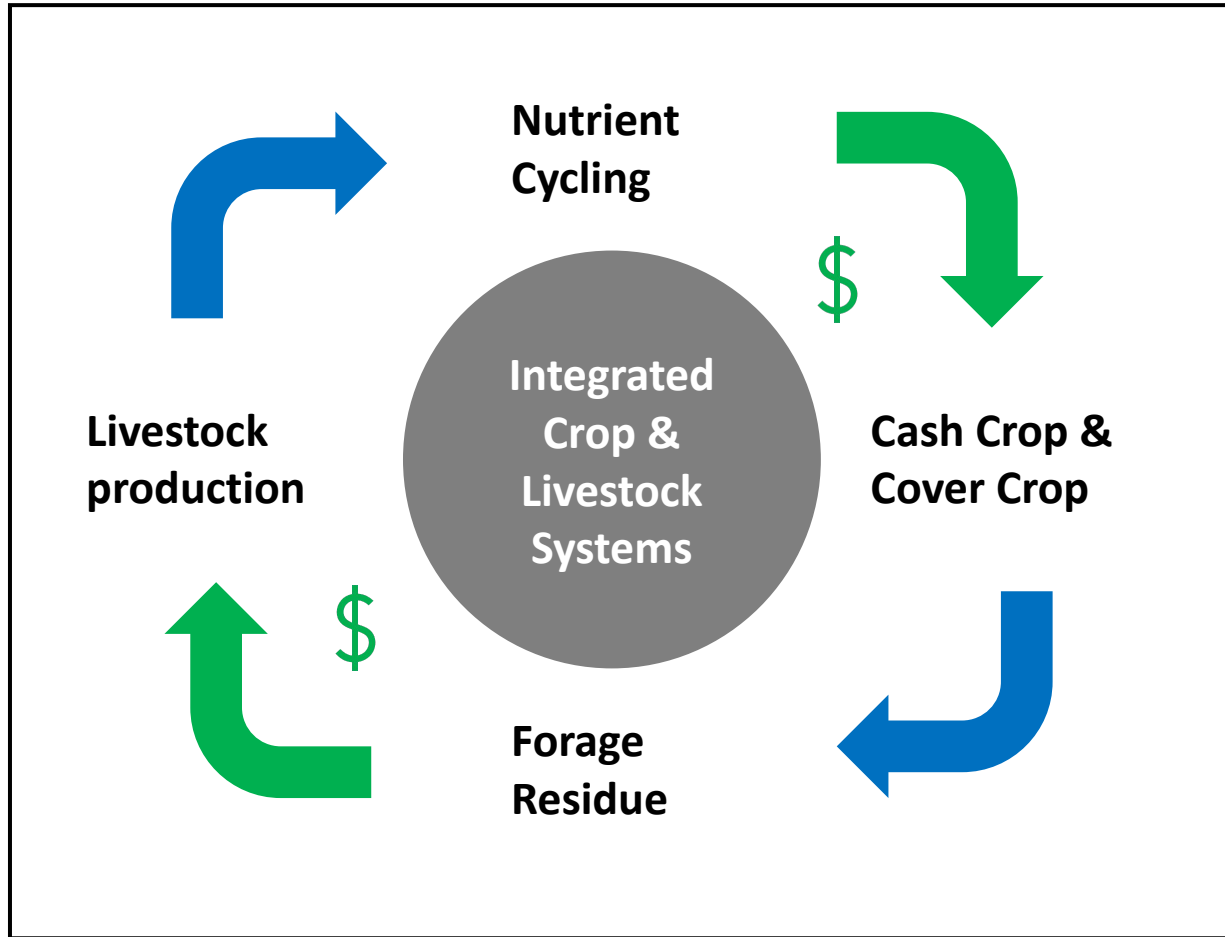
Grazing Cover Crops Can Make Them Profitable

- Grazing cover crops or harvesting forage can offset these losses
 - \$20-\$80/acre additional revenue from grazing cover crops found in Iowa (Plastina et al., 2018)
- Many row-crop producers do not have livestock, so arrangements between crop and livestock farms could benefit both parties



Source: Dillard, L., K. Kelley, W. Sawadgo. 2025. "Integrated Crop-Livestock Systems." *Surviving High Prices Webinar Series*.

Integrated Crops & Livestock



- Sustainable grazing still allows for soil health benefits from the cover crop
- Livestock grazing provides nutrients to subsequent cash crop, while forage provides value to livestock

Source: Dillard, L., K. Kelley, W. Sawadgo. 2025. "Integrated Crop-Livestock Systems." *Surviving High Prices Webinar Series*.

Other Factors That Affect Cover-crop Use

- Farm size: Larger average farm area → Lower proportion of land in cover crops
- Land tenure: Greater % of county that is rented → Lower proportion of land in cover crops
 - Especially in the South: ↑1% rented land → ↓2.5% cover crops
- Important to educate landowners on benefits of conservation practices

Conclusion

- Cover crop adoption has increased, but disadoption is an issue
- Factors affecting cover-crop profitability and adoption
 - Incentive programs
 - Grazing cover crops
- Important to pursue both adoption-promoting and disadoption-abating policy
- Need more research on economics of cover crops in the South

Thank you for your time!

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