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Regenerative Agriculture and Payment for Ecosystem Services

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This report was written by undergraduate students at Dartmouth College under the direction of professors in the Rockefeller Center. Policy Research Shop (PRS) students produce non-partisan policy analyses and present their findings in a non-advocacy manner. The PRS is fully endowed by the Dartmouth Class of 1964 through a class gift in celebration of its 50th Anniversary given to the Center. This endowment ensures that the Policy Research Shop will continue to produce high-quality, non-partisan policy research for policymakers in New Hampshire and Vermont.





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Presentation Outline

1. Problem
2. Definitions
3. Purpose Statement
4. Methodology
5. Case Studies
6. Policy Options
7. Conclusion





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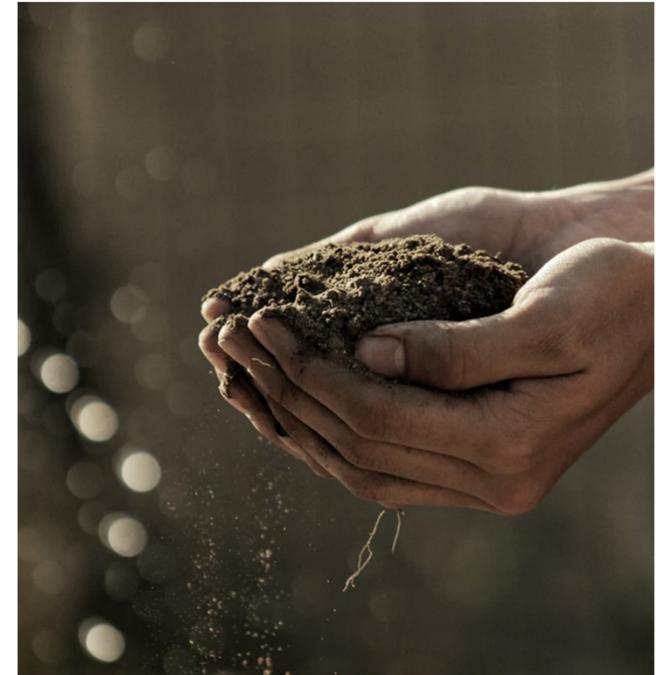
Problem: The Harms of Extractive Agriculture

Modern agriculture relies on extractive practices, which:

- Significantly degrade soil quality
- Pollute local water sources
- Prevent carbon uptake in soil

Regenerative agriculture focuses on enhancing soil health, and contributes to:

- Healthier soil
- Greater water retention
- Decreased water pollution
- Carbon sequestration





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Definitions

Regenerative Agriculture: agricultural practices that focus on replenishing the environment by integrating the principles of organic farming, agroecology and holistic management

Ecosystem Services (ES): the processes and benefits produced by natural ecosystems

Payment for Ecosystem Services (PES): compensating landowners for provision of ES in order to create a market for ES



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Purpose Statement

Can Vermont benefit from a PES system for regenerative agriculture?

What would be the best way to structure such a PES system?

We examine multiple case studies of PES systems, comparing different approaches and program structures, in order to understand **how Vermont can efficiently and equitably incentivize a transition towards regenerative agriculture**



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Methodology



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Methodology

Case Studies

- 1) **Pagos Por Servicios Ambientales** (Costa Rica)
- 2) **Conservation Reserve Program** (United States)
- 3) **Forest Resilience Bond** (California)
- 4) **Florida Ranchlands Environmental Services Project** (Florida)
- 5) **The Bobolink Project** (New England)



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Methodology

Dimensional Analysis

- 1) Ecosystem Services
- 2) Land Classification and Targeted Landowners
- 3) Payment Structures and Contracts
- 4) Evaluation of Land and Ecosystem Services
- 5) Community Consensus and Feedback Mechanisms



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Case Studies



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Case Studies

Pagos Por Servicios Ambientales (PSA)



Costa Rica



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Case Studies

Conservation Reserve Program (CRP)



United States



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Case Studies

Forest Resilience Bond (FRB)



Yuba Watershed, CA



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Case Studies

Florida Ranchlands Environmental Services Project (FRESP)



Northern Everglades, FL



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Case Studies

The Bobolink Project



RI, MA, VT, CT



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Policy Options

- 1) While it is feasible to target a wide range of ES, beginning with a specific ES focus and then scaling up is advised.
- 2) Both market-based and government-run programs can be effective, but establishing a balance is best.
- 3) The presence of land evaluation procedures and measurement systems are critical, but Vermont should avoid establishing overly expensive systems.
- 4) Successful payment structure can be either contingent on performance or guaranteed, depending on the ease of quantifying performance.



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Policy Options

- 5) Flexibility in PES contract structures and incentives for participation must be maintained to ensure landowners are reimbursed.
- 6) Programs must build coalitions of multiple actors for increased outreach and funding.
- 7) Involving local voices is important to tailoring program needs and sustaining program interest.
- 8) Feedback systems should be integrated into program designs to enhance community voices and to further integrate flexibility.
- 9) Market-specific language is beneficial in program design.



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Conclusion

- Regenerative agriculture improves soil health and water retention, sequesters carbon, and lessens the impacts of floods
- Payment for Ecosystem Services can be an effective tool to incentivize regenerative agricultural practices and offset the initial costs of switching to regenerative agriculture from extractive
- If Vermont chooses to pursue a PES program, then we have provided policy options to keep in mind when designing such a program





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Thank you! Questions?