Green Lands
Blue Waters

Photo by Susie Theis

It's time for agriculture to be part of the solution.

Learn how perennial agriculture and other living cover can improve soil, provide resiliency in the face of a changing climate, and support thriving rural communities.

SEE OUR IMPACT

United Nations Sustainable Development Goals addressed with this program:

2.4 3.9 13.1 15.A

Continuous Living Cover Case Study:

THE SOCIAL AND ENVIRONMENTAL IMPACT OF **PERENNIAL FORAGE AND GRAZING IN THE UPPER MIDWEST**

This impact value map shows the estimated annualized cost per acre for pasture and grazing system establishment and the projected benefits per acre per year from adopting Perennial Forage and Grazing strategies, in comparison to conventional practices.[1]

Projected Social Return on Investment

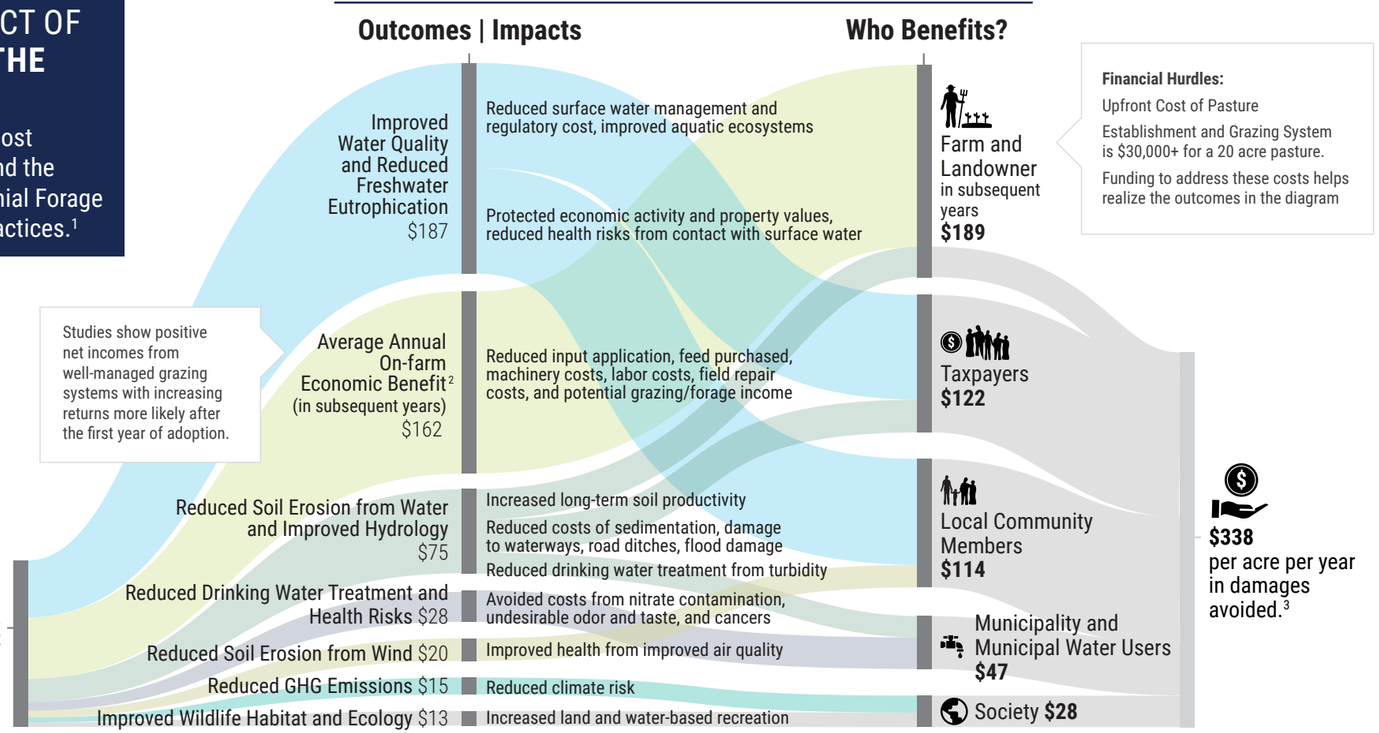
$1 → $3.38

For every $1 dollar invested in establishing a perennial grazing system there is a projected $3.38 in social and environmental value generated through net income gains, water quality, wildlife habitat, air quality and climate risk.

A 50% increase or decrease in both costs and benefits leads to an SROI range of $1.13 - $10.14.

Cost Scenario: 20 acre pasture establishment and production with costs for grass and legumes, depreciated over the 20 year expected lifespan of fencing and water system, and based on a partial enterprise budget. While figures here are amortized, establishment costs are an upfront investment.

Estimated Return on Investment per acre per year: $500



Studies show positive net incomes from well-managed grazing systems with increasing returns more likely after the first year of adoption.

Financial Hurdles:

Upfront Cost of Pasture Establishment and Grazing System is $30,000+ for a 20 acre pasture.

Funding to address these costs helps realize the outcomes in the diagram

1 Estimation is a modeled projection of value realized from Perennial Forage and Grazing practices in comparison to annual crops with cows on site, tilling, and no rotation or cover crops. Additional benefits per acre will vary over time, by location within the Upper Midwest, and as data availability changes.

2 This analysis utilizes a partial enterprise budget approach and assumes land costs are constant between production systems.

3 $27 benefit from reduced soil erosion is also a Farm benefit

LOGIC MODEL | Network Approach to CLC

Investment Opportunity: CLC adoption incentives for long-term impacts

INPUTS	ACTIVITIES	OUTPUTS
Green Lands Blue Waters and Network Partners:		
• Human and Social Capital (research, practitioner/farmer expertise, trust, relationships, GLBW collaborative network) • Assets and financial capital (funding, outreach materials, research sites, etc.)	• Work collaboratively and strategically to effect change together • Implement CLC through research, technical assistance, communications, policy, and market developments • Transform methods with strategic approaches to input and leadership with equity top of mind • Encourage and engage stakeholders	• Communications/ outreach/ educational tools • Supportive infrastructure and policies • # of perennial crops with diverse market opportunities
On Farm Adoption:		
• New farm investments (training, farm inputs [seed, amendments], etc.) • Support and technical assistance network	• Application of CLC and best practices to farm context	• # of farms integrating perennial crops • # of acres/fields implementing CLC strategies

Estimated Cost per acre per year (annualized): $148

SHORT TERM OUTCOMES	INTERMEDIATE OUTCOMES	LONG TERM OUTCOMES	IMPACTS
↑ Crop diversity and continuous living cover	↓ Soil erosion	↓ Sedimentation	↑ Soil health
↑ Livestock integration with cropping systems	↓ Nutrient runoff and input application	↑ Crop yields and productivity	↑ Water quality and quantity
↑ Root structure and soil health	↑ Flood resiliency	↑ Air, water, and drinking water quality	↑ Air quality
↓ Energy consumption	↑ Carbon sequestration	↑ Community health	↑ Rural economic/ social vitality
↑ Income diversity	↑ Wildlife and pollinator habitat	↑ Wildlife and biodiversity	↑ Healthy people
↑ Potential increase in labor	↓ Ecotoxicity	↓ Eutrophication and hypoxia	↑ Biodiversity
↑ Socioeconomic justice work embedded in agroecological transformation efforts	↓ Risk of insurance claims	↓ Global climate risks	↑ Landscape resiliency
	↑ Potential increased net income	↑ Socioeconomic benefits fairly distributed across ag/ food supply chain	↑ Climate adaptation and climate change mitigation
	↑ Diversity of leadership and ownership in ag/ food sector		↑ Equity

Projected Benefits per acre per year: $500

Continuous Living Cover (CLC) FIVE DIMENSIONS OF IMPACT

IMPACT MANAGEMENT PROJECT

WHAT: CLC cropping strategies and the perennialization of the agricultural landscape produce food, feed, fuel and fiber and deliver environmental and socioeconomic benefits, including soil health, biodiversity, climate change resilience, quality of life, and equitable access/support for all farmers.

WHO: Midwest farmers; local, downstream, and regional communities and ecosystems; global climate.

HOW MUCH: Farmer income streams are diversified and stabilized, mitigating weather and market crises. Ecological and socioeconomic benefits accrue on individual farms, across communities, and at a landscape level.

CONTRIBUTION: CLC and perennial cropping strategies offer longer growing seasons, deeper roots, improved soil health and water quality, more resilient ecosystems, and varied market opportunities over annual monocropping production systems.

IMPACT RISK MITIGATION: Farmers can adopt CLC cropping strategies in a variety of ways; various on-ramps offer flexibility and expanded accessibility; a network approach informed by multiple sectors de-risks investment in adoption and supportive infrastructure.

AG TRANSFORMATION INDICATORS

↑ Farmer Adoption
↑ Soil Health
↑ Funding, Policies, Markets
↑ Regional Food System Stability
↑ Equitable Ag Opportunities

↓ Ecosystem Degradation
↓ GHG Emissions and Climate-Related Risk
↓ Damage to Infrastructure

WHY THE GREEN LANDS BLUE WATERS NETWORK APPROACH?

Photo by Aaron Reser

"Shifting a complex system like Midwest agriculture takes more than just good ideas. It requires building bridges between diverse interests, developing trust, and taking collective action. For 15 years I have watched GLBW take these steps and create the initial conditions for a thriving agriculture."

MARK MULLER
Executive Director, Regenerative Agriculture Foundation

"The change we want requires concerted action at intersectional leverage points - practices, policies, markets, research, and education. The GLBW network provides this opportunity."

JERI NEAL
GLBW Chair

"As a young scientist in agriculture today, I am encouraged by the increased public dialogue regarding racial justice and the active work being done to address the issues of the lack of diversity in both our crop systems and farmer/ landowner demography."

ZENITH TANDUKAR
UMN PhD Candidate & GLBW Civic Scientist writer


Photo by Katherine Frels


Photo by Mette Nielsen

ROOTS IN THE GROUND YEAR ROUND: Five CLC cropping strategies

This analysis focuses on well-managed perennial forage and grazing systems. Other CLC strategies offer comparable types of benefits.

Agroforestry	Perennial Biomass	Perennial Forage & Grazing	Perennial Grains	Cover Crops, Winter Annuals & Rotations

Green Lands Blue Waters

ECOTONE ANALYTICS