

## A Transdisciplinary Framework for Promoting Diverse Perennial Circular Forage Systems

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Agricultural policy and market structures in the US are dominated by agricultural intensification reliant on annual crop monocultures and high amounts of external inputs. Although these systems have increased yield per unit of land, they lack resilience and are vulnerable to catastrophic losses due to climate change-associated extreme weather events and market volatility. Redesign of agricultural systems and changes in federal policy are needed to support resilience in agriculture. Redesign must encourage adoption of diverse, perennial, circular agricultural systems. To promote redesign of agricultural systems for greater resilience we developed a transdisciplinary framework within a project orientation focusing on crops and forages as agents of landscape transformation. Our diverse team includes more than 80 researchers, outreach experts and stakeholders from 23 universities, two federal research centers, 12 farmer organizations, several NGOs and industry organizations. We are applying our framework to agro-ecoregions within 23 states encompassing all major climate types of the US. Our framework features multiple transdisciplinary touchpoints including designed collaboration, project management grounded in transdisciplinary and team science best practices, designed strategic communications, joint governance by a multi-disciplinary steering committee, application of integrative methods, and counsel by a diverse advisory board. Special attention has been given to balancing the mix of gender, age, career stage, disciplinary background, ethnicity, and geographic location of collaborators. In spite of our intentionally designed transdisciplinarity, full integration of disciplinary knowledge remains a key challenge. Additional challenge includes lack of evidence-based methods for measuring overall effectiveness of collaboration and impact of transdisciplinary facilitators in project outcomes. Measurement of transdisciplinarity effectiveness and professional aptitude will expand the capacity of academic institutions for transdisciplinary work and transdisciplinary professionalism as a career path within academia, and in so doing will increase capacity of addressing complex problems such as landscape transformation for greater resilience.

### ¿Completó los datos de afiliación institucional y país de todos los autores?

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### Palabras clave

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### País o países del que provienen los autores

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