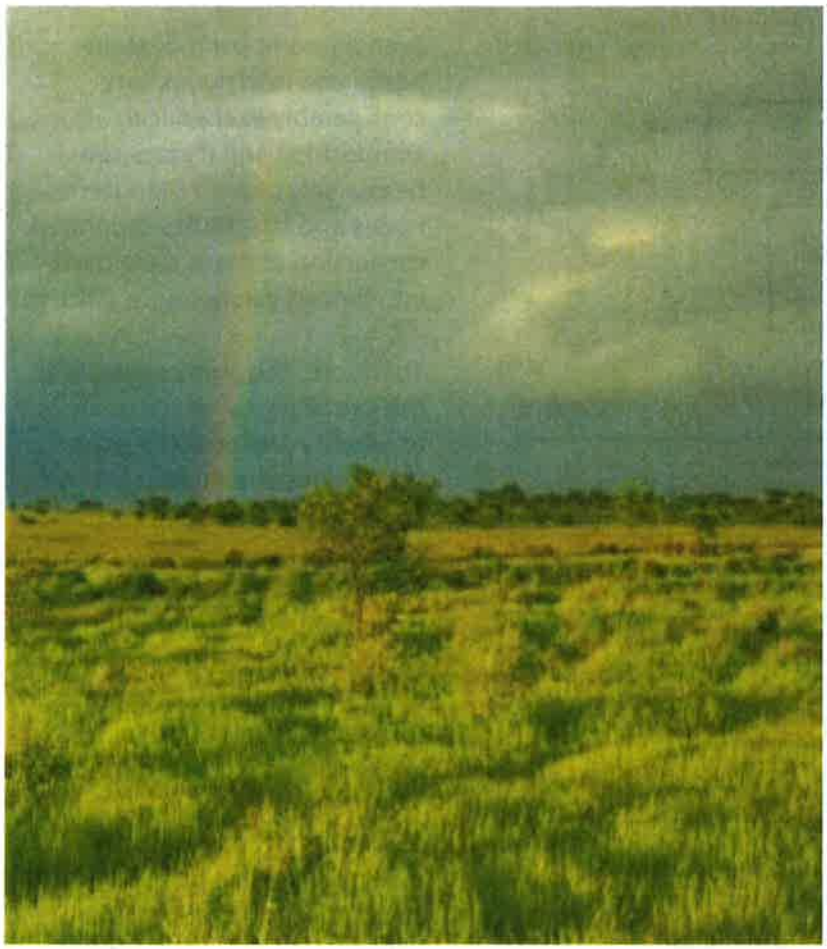
Multifunctional management of grassland agroecosystems

Matt Sanderson, ARS

The demand for provisioning ecosystem services (e.g., food, feed, fiber, fuel) from agricultural land is great and increasing. At the same time, society is expecting agriculture to provide regulating (e.g., pollination), cultural (e.g., recreation), and supporting (e.g., water cycling) services.



Meeting the demands for multiple services from grassland agroecosystems requires a multifunctional management approach. For example, diversifying agroecosystems via increasing plant species in pastureland is a multifunctional approach that can enhance production (provisioning service), the use of natural resources (regulating, supporting, and cultural services), and in some instances improve economic returns.

Much of the research on potential benefits of diversification, however, is based on studies focused on a single ecosystem service. There is a great need for research on comparing various systems and measuring multiple ecosystem services in multiple environments. This will enable analyses of potential tradeoffs among services and will better inform management and policy guidelines.

To this end, in the USA the USDA is coordinating 18 of its research watersheds and rangelands as a Long-Term Agro-ecosystem Research Network. These locations will engage in synergistic, network-wide research to address questions related to the condition, trends, and sustainability of agricultural systems and resources on large scales of space and time.

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