Temporally variable rainfall does not limit yields of Serengeti grasses

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Abstract
Temporally variable rainfall, on scales ranging from intraseasonal to decadal, is characteristic of the climate of dry grassland ecosystems. A growth chamber experi- ment indicated that the Serengeti ecosystem's most abundant and widespread grass, red oat grass (Themeda triandra), collected at locations with different rainfalls, growing seasons, and grazing intensities, is insensitive to an ecologically realistic range of rainfall events if the total amount of rain is constant. The result was confirmed under field conditions since plots did not respond to different temporal variances in water supply, although they did respond to levels of water supply. The results suggest that these grasses are water "spenders", using it as fast as they can when it is abundant, and then being semi-dormant in intervals between downpours. This characteristic could provide a competitive advantage in environments character- ized by infrequent thundershowers. The ability to tolerate intervals between showers without losing living tissues, or dying, can contribute to the success of grasses in highly variable climates, and will tend