Using sUAS to estimate grassland biomass: Implications for habitat monitoring, grazing management, and fuel load estimates

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INTRO
- Biomass estimates are needed to manage natural resources.
- Traditional clip-and-weigh techniques are slow, costly, and labor intensive.
- Dormant season biomass cannot be estimated using current remote-sensing techniques such as NDVI.

METHODS
- North American tallgrass prairie sites were simultaneously sampled with drone and clip-and-weigh methods.
- A linear regression model was developed using drone imagery and Agisoft analysis.
- The model was validated at 2 sites.

RESULTS
- Vegetation dry mass $= 2268.3$ (vegetation height) $- 49.214$, $R^2=0.7491$
- Biomass estimated using the drone technique was significantly correlated with clipped biomass on validation sites.

DISCUSSION
- Drones can be used to estimate biomass relatively quickly using off-the-shelf components.
- Presence of brush or trees may require modification of sampling techniques and model development.

Biomass estimates using this technique are useful for managing grazing, wildlife habitat, and fuel loads.