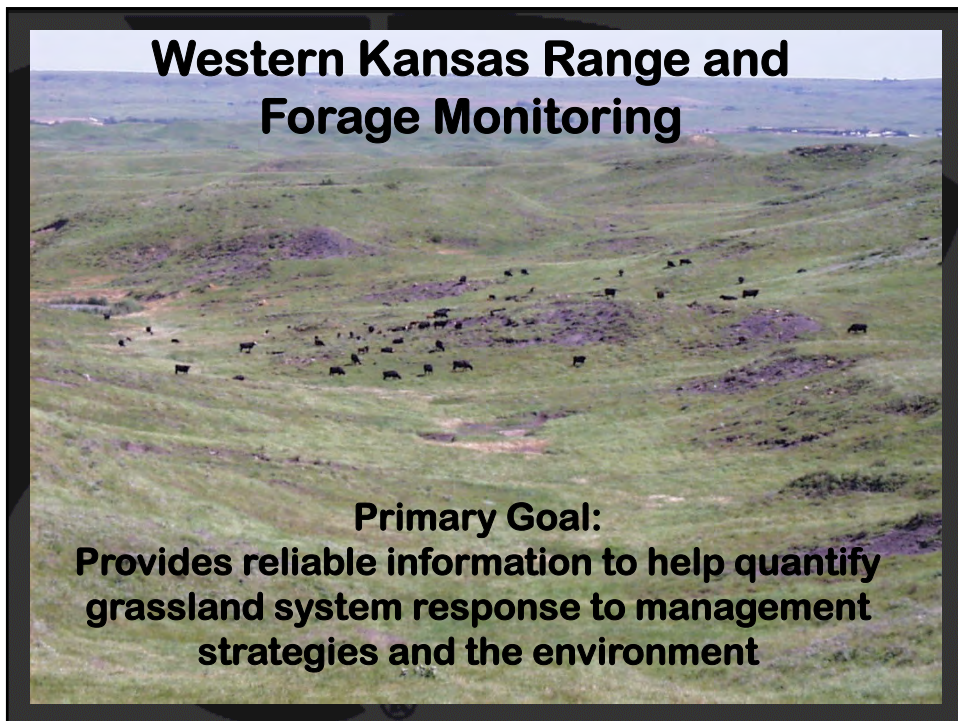


## **Western Kansas Range and Forage Monitoring**



**Keith Harmony - Ag Research Center - Hays**

## **Western Kansas Range and Forage Monitoring**



**Primary Goal:  
Provides reliable information to help quantify  
grassland system response to management  
strategies and the environment**

**Monitoring should measure:**



**Forage Production**

**Plant Composition**

**Soil Cover**

**Forage Production**

**Plant Composition**

**Soil Cover**



**Forage Production**

**Plant Composition**

**Soil Cover**



**These change over the growing season, so monitoring in a pasture should take place at the same time period each year to be able to detect trends.**

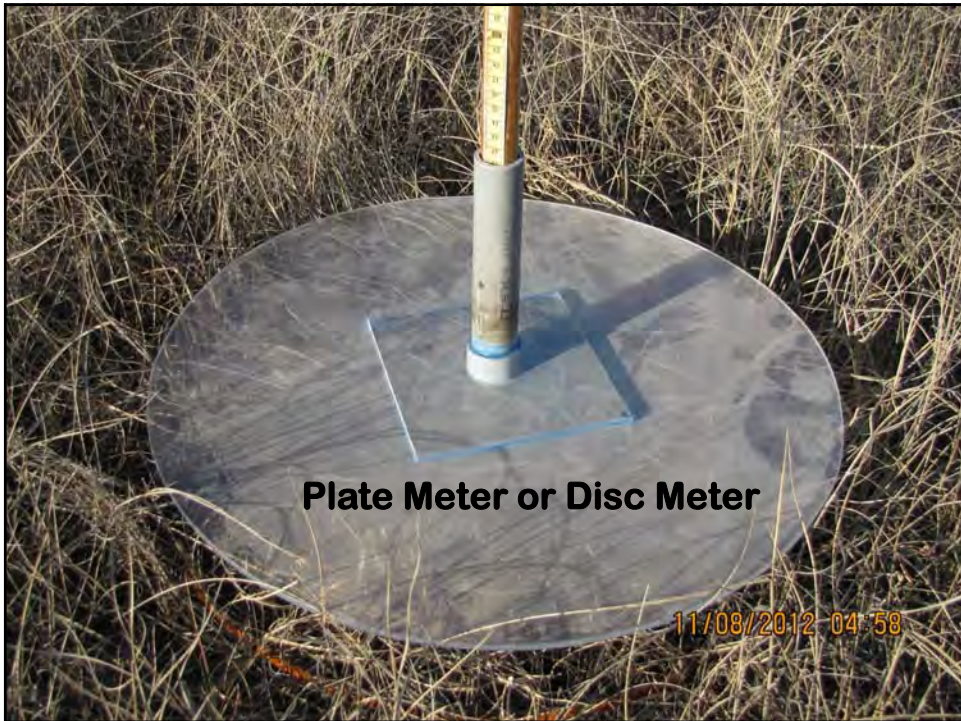
**Forage Production-**

**Clip available forage or residual forage**

**Measure forage heights**

**Measure forage canopy density**









In a 2ft<sup>2</sup> frame, (x)grams X 48 = lb/acre







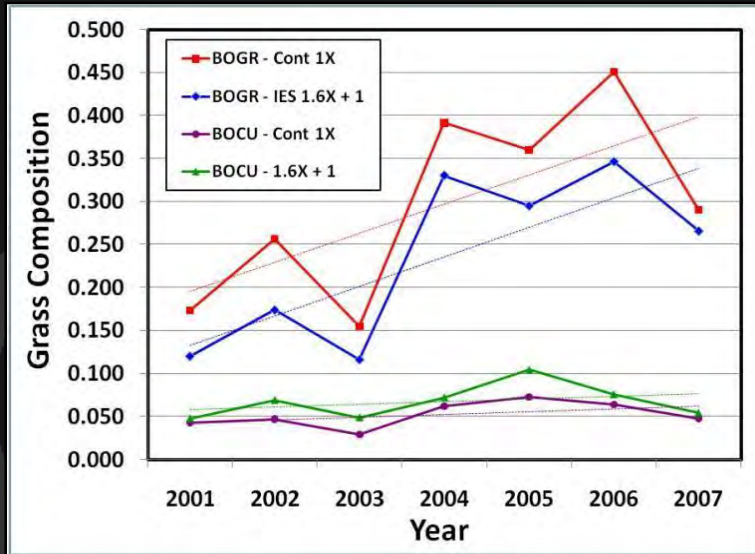
**Plant Composition and Ground Cover -  
estimates by modified step point method**



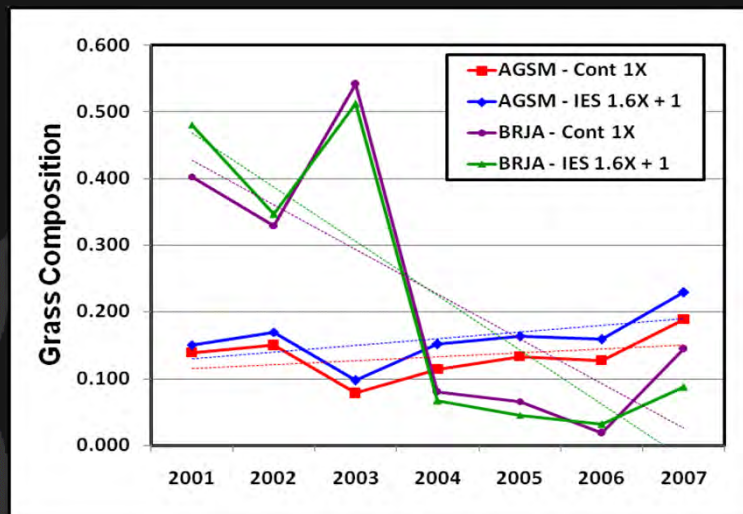




## Annual monitoring reveals plant species composition trends



## Annual monitoring reveals plant species composition trends

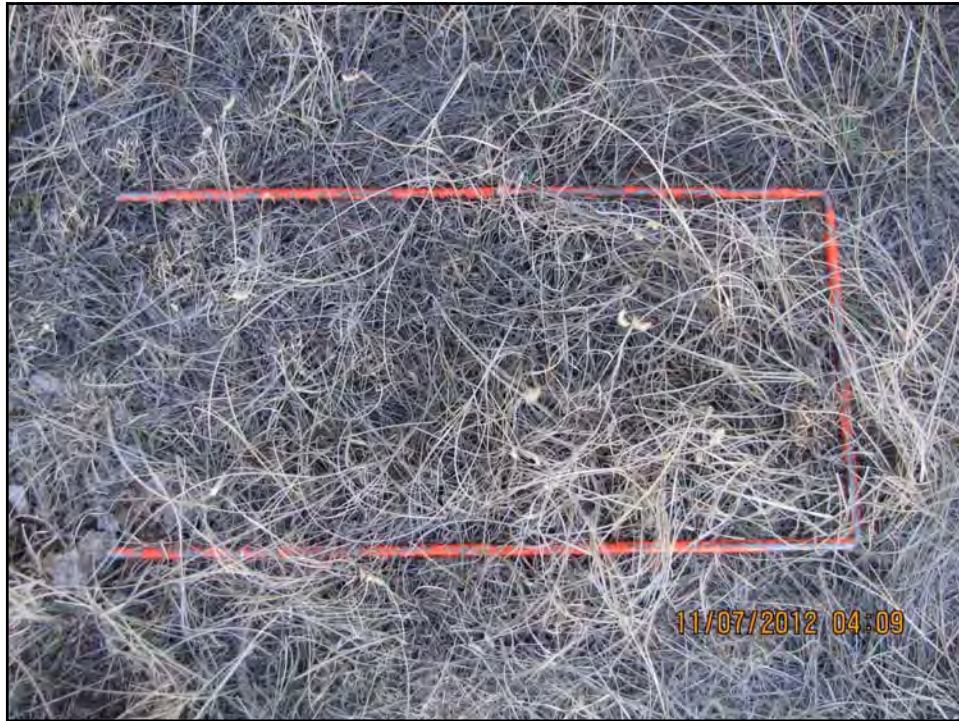




**Groundcover – use photopoints to take a picture from a transect marker toward a distinct landscape feature**

**Also take a picture of a sample frame at the transect marker**

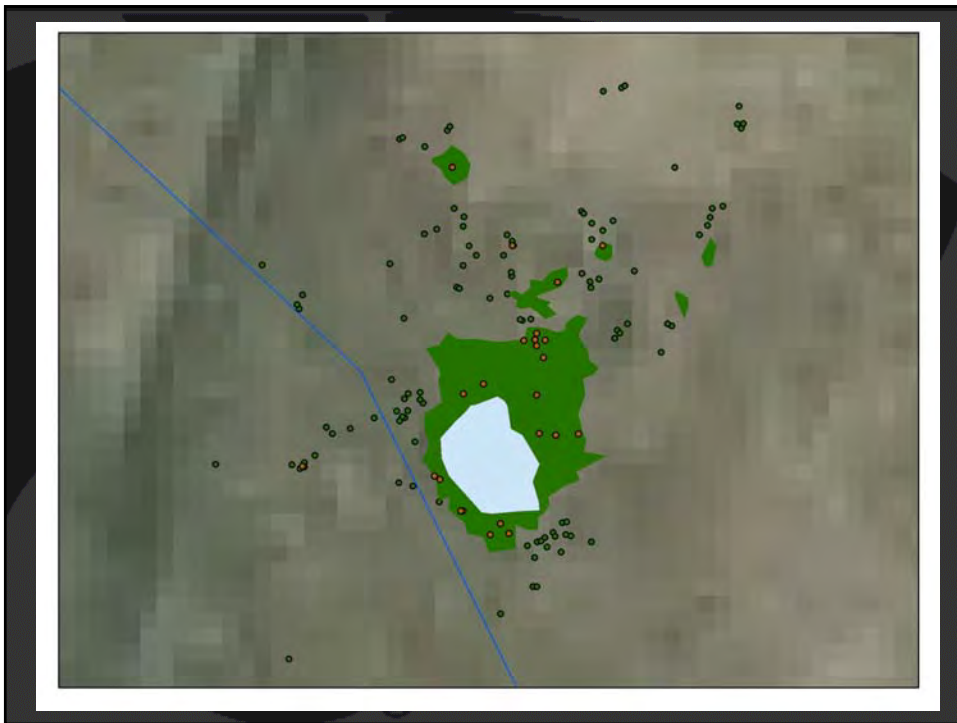
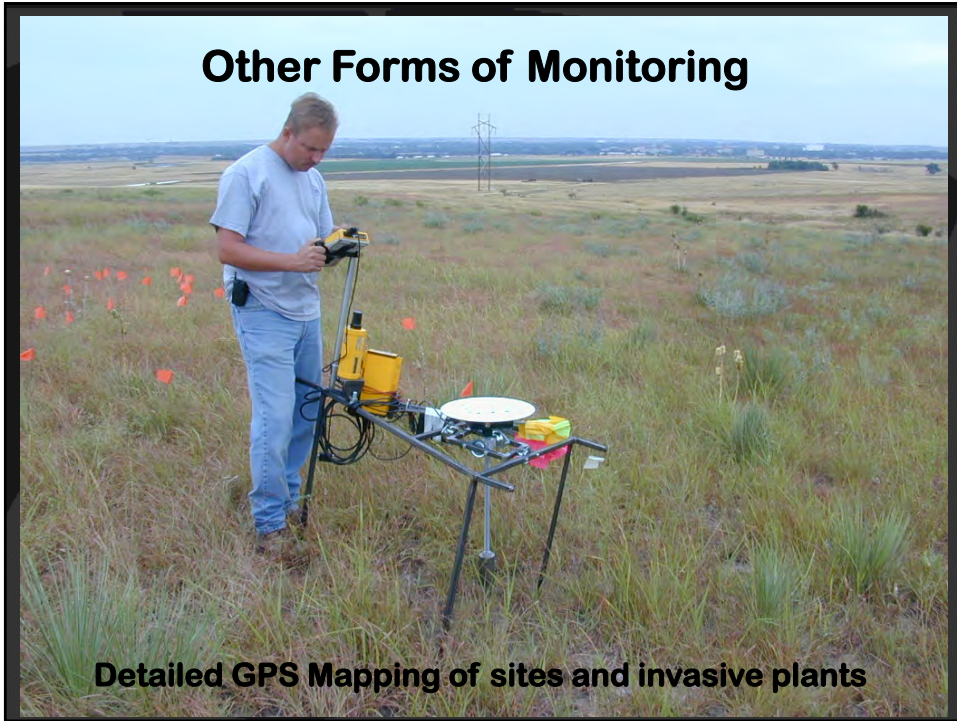




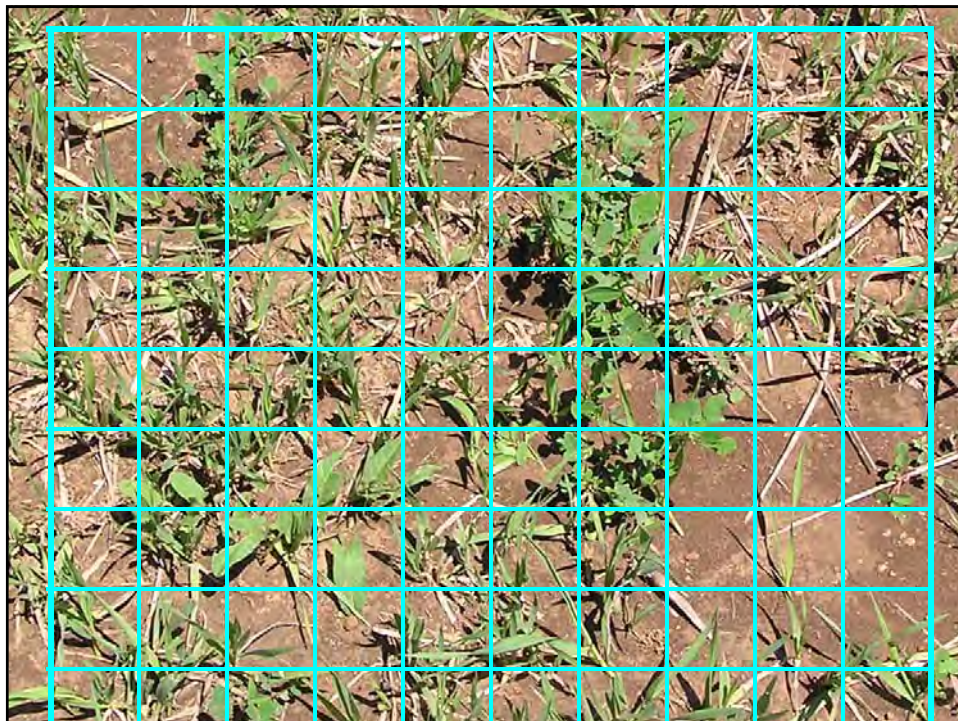
**Mark key areas and compare before and after samples and photos**



## Other Forms of Monitoring

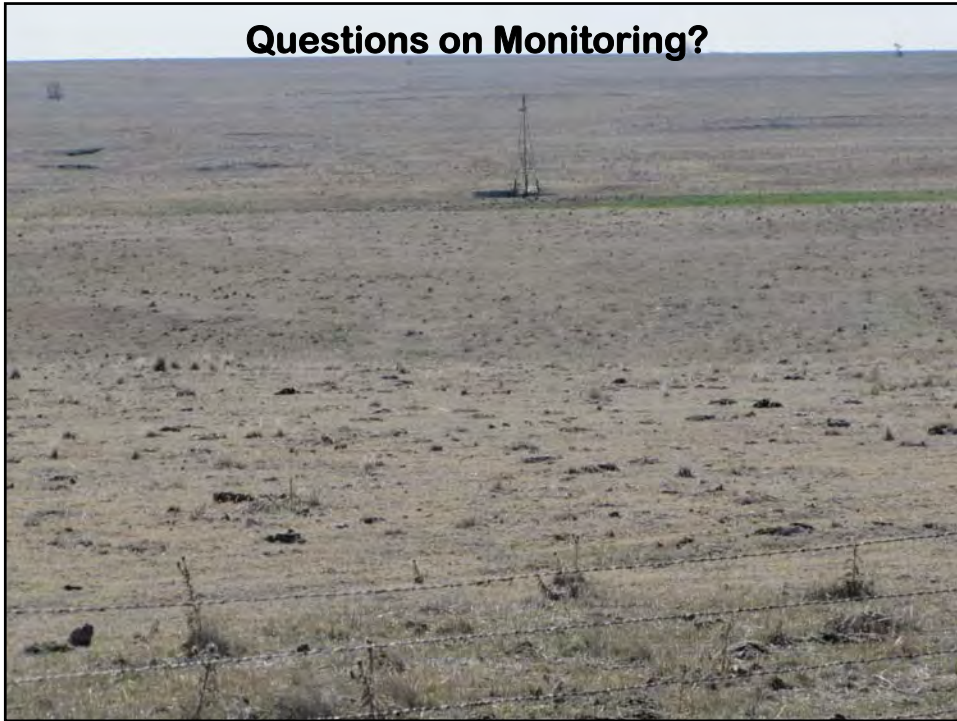


**In seeded pastures, plant frequency is a fast and easy measure of plant density**

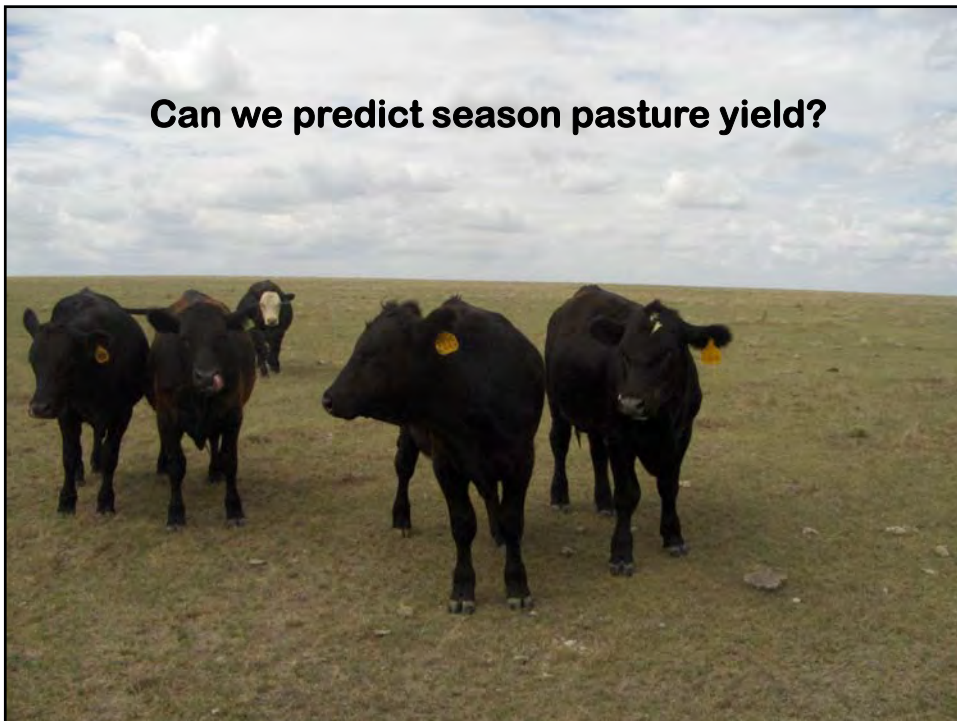




**Questions on Monitoring?**

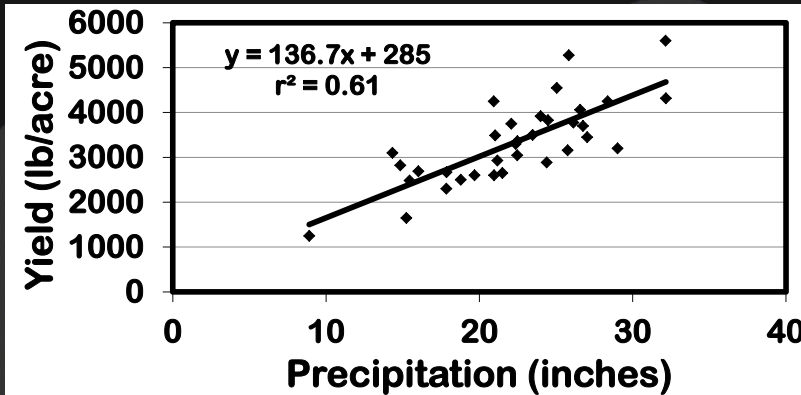


**Can we predict season pasture yield?**



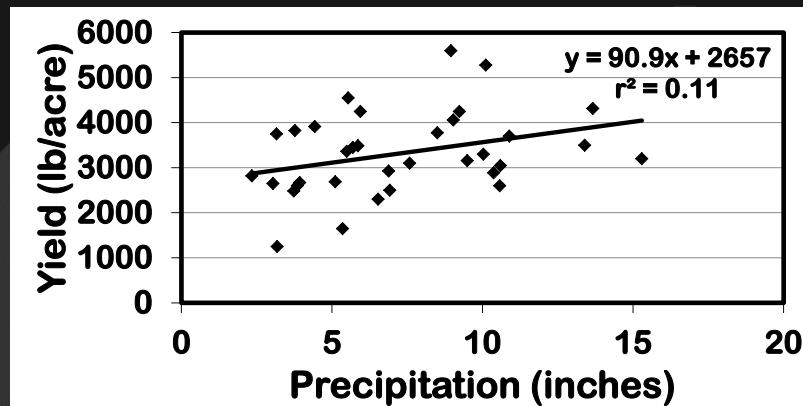
## Predictability of End of Year Yield from Precipitation Intervals - 35 Years

Total Year	OctPY-Sep	OctPY-Apr	Mar-May	May-Jun	Jun-Jul	May-Jul	Apr-Sept	Prior 2 yrs	AprPY-Apr
0.59	0.61	0.11	0.30	0.48	0.25	0.46	0.52	0.00	0.07



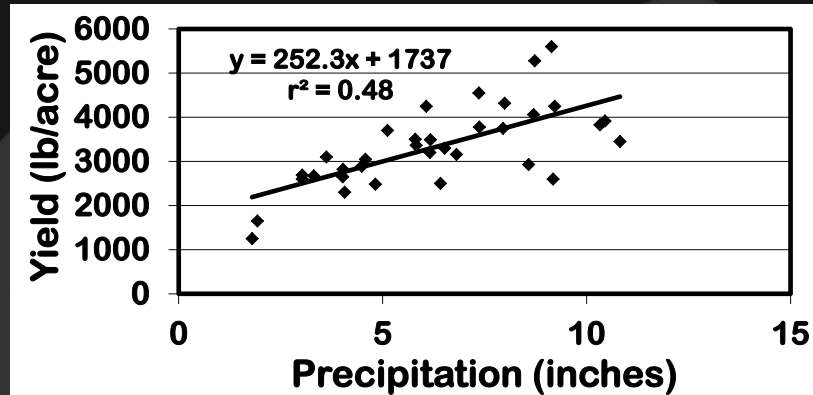
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## Predictability of End of Year Yield from Precipitation Intervals - 35 Years

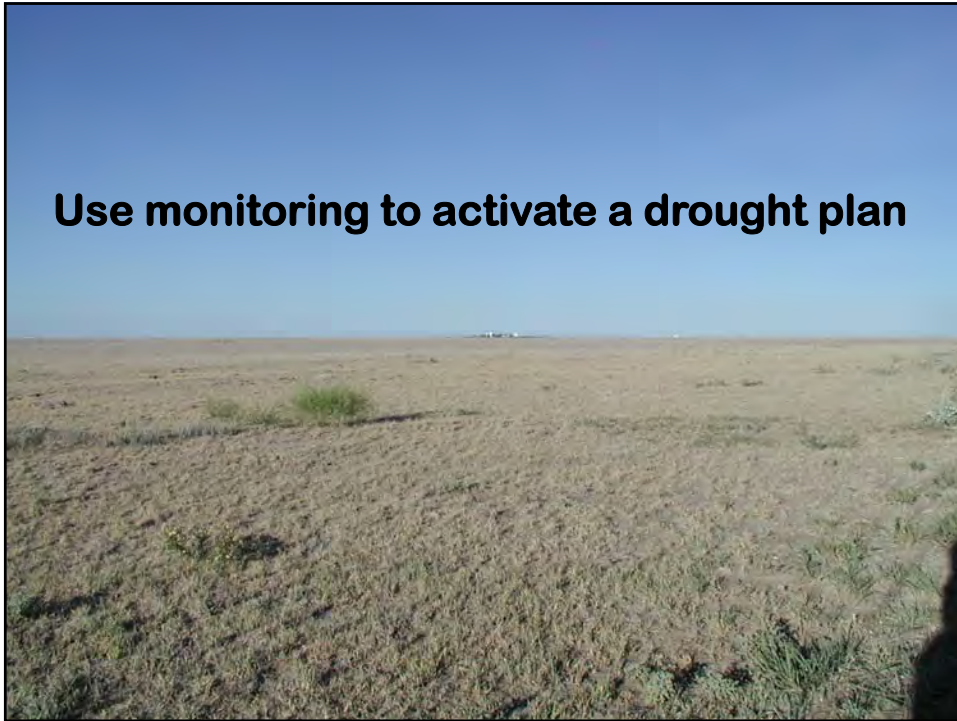
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0.59	0.61	0.11	0.30	0.48	0.25	0.46	0.52	0.00	0.07



Dig up plants to compare roots –  
and probe for moisture



**Use monitoring to activate a drought plan**



## **Drought Planning**

**Establish moderate recommended stocking rates as a baseline**

**Manage for greater plant vigor and soil cover**

**Diversify with stocker cattle**

**Set critical dates for destocking**

**Monitor rainfall**

**Monitor range production & utilization**

**Early weaning**

**Early culling**



**Establish moderate recommended stocking rates as a baseline...**

**Moderate to lightly grazed forage is more productive than heavily grazed forage**

**Excess forage not utilized during one year is carried over as dry matter for the next early season**



**Manage for greater plant vigor and soil cover**

**Look for changes or shifts in composition:**

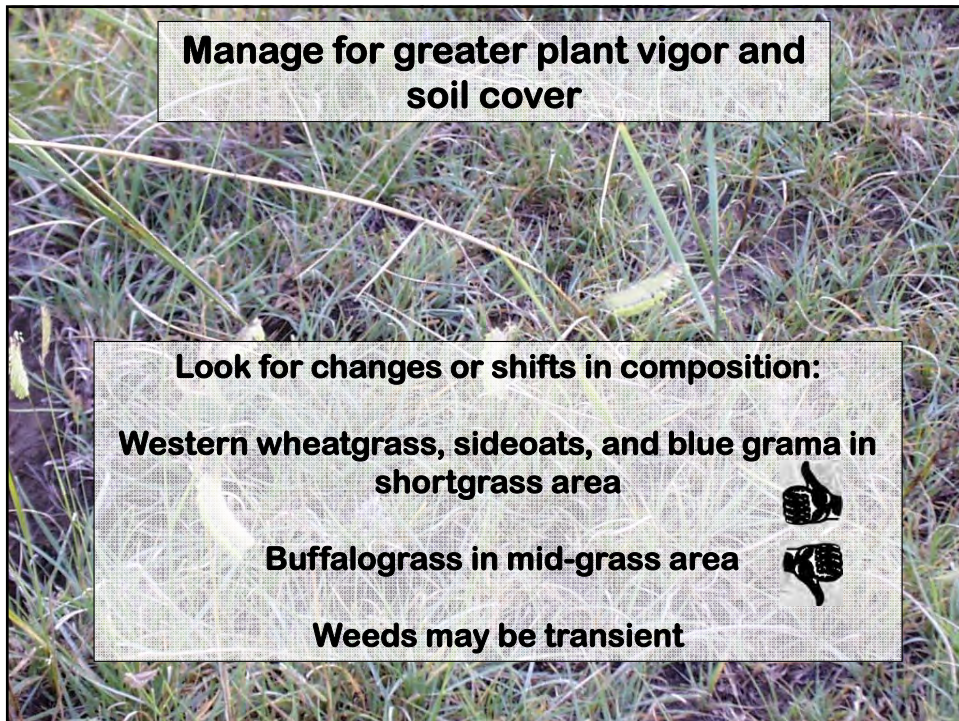
**Western wheatgrass, sideoats, and blue grama in shortgrass area**

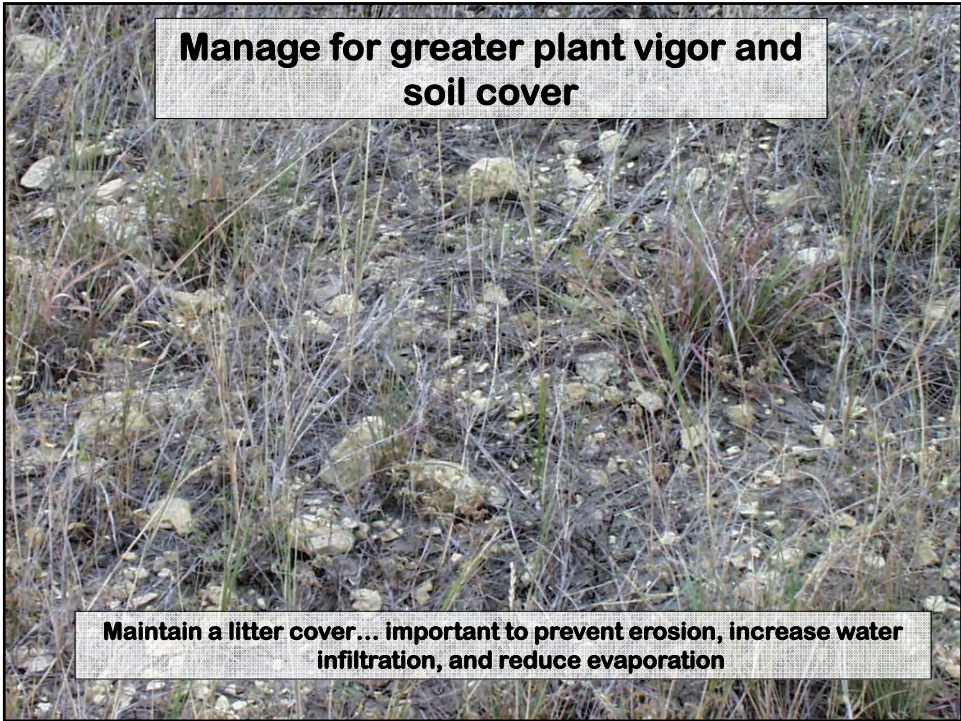


**Buffalograss in mid-grass area**



**Weeds may be transient**





**Manage for greater plant vigor and soil cover**

**Maintain a litter cover... important to prevent erosion, increase water infiltration, and reduce evaporation**



**Diversify with stocker cattle...  
25-35% of acres...**

**110 cow/calf pairs for 6 months, 1920 acres  
Shift to...**

**72 cow/calf pairs, 1260 acres  
72 stocker animals, 660 acres**

**Can destock yearlings, and replace with cow/calf pairs on those acres during drought**

**Fewer animals to feed in winter, less overall hay requirement**



## **Set critical dates for destocking**

**Monitor rainfall**

**Monitor range production & utilization**

**Early weaning**

**Early culling**

**Nov. 1- Drought and grass overutilized**  
**-reduce stocking rate by 10-15%**

**May. 30- low May precipitation**  
**-plan for early stocker removal**

**June 30- May and June precipitation < 80%, reduce stocking rate by 30%**

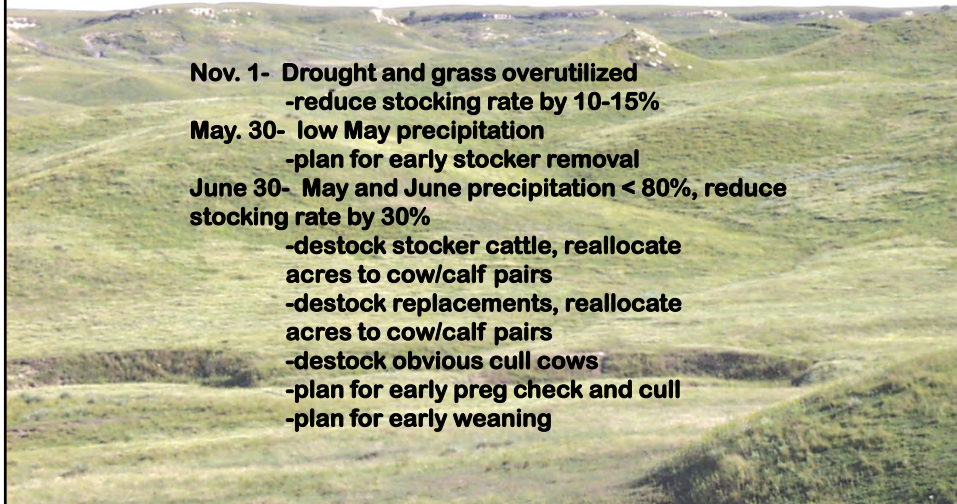
**-destock stocker cattle, reallocate acres to cow/calf pairs**

**-destock replacements, reallocate acres to cow/calf pairs**

**-destock obvious cull cows**

**-plan for early preg check and cull**

**-plan for early weaning**



**Precipitation and Stocking Rate are the Main Factors Affecting Current Year's Growth Potential**

**Monitoring allows producers to measure and manage that growth**



**Any Questions or Comments?**

**Keith Harmoney**

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