NATURAL RESOURCES CONSERVATION SERVICE
ARKANSAS TECHNICAL NOTE

RESOURCE CONCERNS RELATED TO GRASSLAND MANAGEMENT

INTRODUCTION

This information is intended to stimulate critical thinking processes regarding conservation planning of grazing lands. The original objective was to address resource concerns and potential practices for discussions regarding EQIP; however, the basic premise is to use the information for integration into all conservation farm planning regarding grasslands. Recently discussions have indicated the need to address these resource concerns when evaluating Conservation Security Program applications for tier 3.

RESOURCE CONCERNS

Soil: Erosion

Maintain adequate ground plant cover to prevent sheet and rill erosion. Prevention of soil erosion necessitates managing to decrease bare soil and keeping forages of heights that will slow water runoff. Topics to be addressed also include animal use areas, stream bank management within the pasture/hayfield and using practices that minimize soil disturbance (no-till planting). Additionally, management of livestock or vehicle use that minimizes trailing should be considered.

Practices: Prescribed grazing, No-till planting, Pasture and hay planting, Cover crop, Critical area planting, Heavy use area protection.

Assessment:

Erosion—No signs of erosion are present. Signs of erosion would be present throughout the pasture; rills are 3-8 inches deep at close intervals and/or grazing terracettes are close-spaced with some slope slippage. Active gullies are present caused by vehicle use, livestock trailing.

Plant residue—Ground cover: 30-70% is covered with dead leaves or stems but there is no thatch buildup.

Livestock concentration areas—No untreated livestock concentration areas in the pasture (ex. Gravel pad around waterers, possibly at gates, no evidence of trails in pasture).

Soil: Condition

Maintain soil tilth and adequate organic matter for optimal water infiltration. This also requires reducing soil compaction threats and reducing contaminants. Soil tests should monitor organic matter with a conservation plan to increase organic matter to a minimum of 2% and optimally to 4%. Pesticides and herbicides should be used minimally by emphasizing good management practices and use the pesticides/herbicides when management has not alleviated the concern.

Practices: Forage harvest management, Pasture and hay planting, Prescribed grazing, Nutrient management, Pest management, Brush management.

Assessment:

Soil compaction—Survey flag pushes easily into ground except for rocks. Soil is friable, earthworm and dung beetle activity should be evident, especially around manure piles.

Soil tests—Include estimates of organic matter (costs extra).

Earthworms and dung beetles—More than 10 earthworms per shovelful of soil, dung beetle activity present in fresh manure piles

or indications of activity by "holes" in manure.

Water: Quantity
Excess water accumulation should be prevented by managing seeps, flooding, ponding on grasslands. These areas should be monitored and incorporated into the management plan. Drought management through good grazing management practices for building organic matter and greater root development is important to conserve water. Awareness of management of wetlands should be addressed. Practices that encourage water absorption and reduce water runoff should be emphasized.

Practices: Critical area planting, Pasture and hay planting, Prescribed grazing.

Assessment: Observe water flow patterns, evaluate water absorption, and inventory wetland indicators.

Water: Quality
Both groundwater and surface water contaminants should be reduced through maintenance of adequate plant cover to slow water flow and decrease contaminants in the management of the grasslands. Minimize overgrazing and rotationally graze pastures so that each pasture is a buffer/filter strip. Proper fertilization and manure management should be part of the conservation plan. The premise is that woody vegetation and filter strips are of lower value when grassland is properly managed; however, there are times those practices could be used in riparian management.

Practices: Brush management, Cover crop, Critical area planting, Filter strips, Heavy use area protection, Nutrient management, Pasture and hay planting, Pest management, Prescribed grazing, No-till planting.

Assessment:
Live plant cover—Canopy: 90%. Forages are maintained in leafy condition for best photosynthetic activity. Stands are very thick with slow or no water runoff.

Plants: Suitability
Ensure plants are adapted to the site and used in a manner that optimizes the conservation needs of the grasslands. Encourage diversity of composition of grasslands through the use of warm season and cool season grasses in combination with legumes.

Practices: Brush management, Forage and harvest management, Pasture and hay planting, Pest Management, Prescribed grazing, Nutrient management.

Assessment:
Percent desirable plants--Desirable species exceed 80% of plant community with the remainder being scattered intermediates. Plant diversity—Three to four forage species with at least one being a legume (each 20% of DM weight and total .75% of DM). Well intermixed compatible growth habit and comparable palatability. Plant canopy is managed to ensure long term sustainability through grazing, mowing or burning on a regular basis to keep the plants vigorous and capable of coexistence.

Plants: Condition
A high priority is to maintain plant health and vigor through management. Grazing management to ensure adequate rest of plant and recovery of stored root reserves is important. Having adequate leaf area (optimum grazing heights) contributes to plant recovery and general health.

Practices: Forage harvest management, Nutrient management, Prescribed grazing.

Assessment:
Plant vigor—rapid recovery after grazing. More than 80% of the plants are of healthy green color for the forage. No signs of insect or disease damage. No leaf wilting. Yields are at site potential for the species adapted to the site's soil and climate. Desirable plants competitive with invasive species.

Plants: Management
Management includes establishment, growth and harvest. This can include pest management and nutrient needs. Productivity is important to meet the animal habitat needs and can be enhanced by proper grazing management to stimulate growth through adequate leaf area, etc. Other items listed under plant condition are also important. Forage plants are managed to produce the desired nutritive value and palatability for the intended use.

Practices: Brush management, Forage harvest management, No-till planting, Nutrient management, Pasture and hay planting, Pest management, Prescribed grazing,

Assessment:
Uniformity of use—No more than 10% of the pasture spot grazed. 90% of the pasture falls within the minimum and maximum grazing heights for cool season grass/legume mixture (3-8").

Animals: Habitat
This includes both domestic animals and wildlife and necessitates providing adequate food and cover for animals. Timing of haying is a large component of wildlife habitat as well as ensuring good grazing management with adequate pasture rest. Previous discussions on plant diversity and desirable plants also should be considered here; however, desirable plants should be modified for the species of animals being considered.

Practices: Prescribed grazing, Brush management, Cover crop, Filter strips, Forage harvest management, Pasture and hay planting, Pest management.

Animals: Management
Management includes primarily the population/resource balance to ensure adequacy of forage available for the grazing/browsing of the animals. Animal health as impacted by disease, parasites, insects or poisonous plants is a component of animal management. Plant diversity and management contributes to this component.

Practices: Prescribed grazing, Brush management, Cover crop, Forage harvest management, Pasture and hay planting, Pest management, No-till planting.

Assessment:
Animal condition scoring—Beef cattle are maintained in a minimum of low 5 condition score (9-pt scale), dairy cattle a minimum of 2+ on a 5-pt scale, and goats/sheep accordingly.