

## PRESCRIBED FIRE GO/NO-GO CHECKLIST

(Prescribed Fire Plan, Element 2B)

Preliminary Questions	Circle YES or NO
A. Have conditions in or adjacent to the ignition unit changed, (for example: drought conditions or fuel loadings), which were not considered in the prescription development? If <b><u>NO</u></b> proceed with the Go/NO-GO Checklist below, if <b><u>YES</u></b> go to item B.	YES    NO
B. Has the prescribed fire plan been reviewed and an amendment been approved; or has it been determined that no amendment is necessary? If <b><u>YES</u></b> , proceed with checklist below. If <b><u>NO</u></b> , <b>STOP: Implementation is not allowed. An amendment is needed.</b>	YES    NO
GO/NO-GO Checklist	Circle YES or NO
Have ALL permits and clearances been obtained?	YES    NO
Have ALL the required notifications been made?	YES    NO
Have ALL the pre-burn considerations and preparation work identified in the prescribed fire plan been completed or addressed and checked?	YES    NO
Have ALL required current and projected fire weather forecast been obtained and are they favorable?	YES    NO
Are ALL prescription parameters met?	YES    NO
Are ALL smoke management specifications met?	YES    NO
Are ALL planned operations personnel and equipment on-site, available and operational?	YES    NO
Has the availability of contingency resources applicable to today's implementation been checked and are they available?	YES    NO
Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?	YES    NO
If all the questions were answered " <b><u>YES</u></b> " proceed with a test fire. Document the current conditions, location and results. If any questions were answered " <b><u>NO</u></b> ", DO NOT proceed with the test fire: Implementation is not allowed.	
After evaluating the test fire, in your judgment can the prescribed fire be carried out according to the prescribed fire plan and will it meet the planned objective? <b>Circle: YES or NO</b>	

Burn Boss Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# Fire Management Practice (FMP) Checklist

## Preburn

- Identify the area to be burned, the burn objectives, site characteristics, and desired atmospheric conditions.
- Area Identification – location, size, proposed dates of burns.
- Objectives of the prescribed fires – forage improvement (yield, quality), weed/brush control (target weeds – recommended timing), wildlife habitat enhancement, CRP contract requirements.
- Site characteristics – fuel condition (moisture, loading, type), soil moisture, hazards.
- Desired atmospheric conditions – wind direction, wind speed, relative humidity, air temperature, and cloud cover.

## Day of Burn

Identify the conditions on the day of the burn. Check the Fire and Smoke Planning Resource web site (<http://www.ksfire.org>). It is also recommend that a test fire be used to ensure the conditions are favorable for burning.

- Time fire started \_\_\_\_\_
- Wind Speed \_\_\_\_\_
- Wind Direction \_\_\_\_\_
- Relative Humidity \_\_\_\_\_ (30%-55%)
- Air Temperature \_\_\_\_\_
- Cloud cover \_\_\_\_\_ (30%-50%)
- Trans. Wind Speed \_\_\_\_\_ (8-20mph) (7-17 knots) (3.6-8.9 m/s)
- Mixing Height \_\_\_\_\_ (min. 1800ft. or 548m)
- Soil Moisture \_\_\_\_\_ (saturated, moist, dry)
- Fuel Moisture \_\_\_\_\_ (moist, dry)
- Model Run \_\_\_\_\_ yes \_\_\_\_\_ no
- Test Fire Behavior

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## Post Burn

- Hotspots Extinguished \_\_\_\_\_
- Date/Time Fire Extinguished \_\_\_\_\_
- Mop-up Completed \_\_\_\_\_
- Final Perimeter Checked \_\_\_\_\_
- Equipment Collected \_\_\_\_\_
- Local Officials Notified Fire is Out \_\_\_\_\_
- Total Acres Burned \_\_\_\_\_

Objectives accomplished? (weed control, forage improvement, wildlife habitat enhancement, other)

Other issues (fire behavior, intensity and control, weather issues, fuel conditions, equipment problems, staff report out, complaints, etc.)

## A Written Prescribed Burning Plan Helps to Accomplish Goals

by Mike Porter, The Samuel Roberts Noble Foundation

Prescribed burning is one of the most important land management tools available to manage native plant communities for wildlife habitat or cattle forage in south-central Oklahoma and North Texas. When properly used, it helps accomplish land management goals, but it can impede accomplishment of goals when applied incorrectly. This article addresses the importance of a written prescribed burning plan.

I, like most land managers, would prefer to not write prescribed burning plans. I would prefer to "get on with it" and simply apply the tool of fire. However, safe and successful application of fire to accomplish specific land management objectives is far from simple. Sure, it is simple to light a match; but to make fire work for you in a safe, predictable manner is a much more complicated matter.

A well-written prescribed burning plan accomplishes several positive things: it forces us to thoroughly plan a burn; it forces us to understand and define the conditions when fire can accomplish our goals; it forces us to understand and define the conditions when it is not safe to burn; it makes us prepare contingencies for problematic situations that might develop; it helps us recognize our knowledge, equipment and preparation limitations for a prescribed burn; and it helps minimize our liability when we adhere to the plan because it demonstrates we are knowledgeable about fire and do not negligently apply this tool.

A prescribed burning plan can be prepared for any legitimate situation. The following items and issues should be addressed in most prescribed burning plans:

- Preparer's name
- Date of last revision prior to burn
- Legal description of burn unit and directions to it
- Map of burn unit
- Plant communities and topography in burn unit
- Prior burn history
- Goals and objectives for burn
- Fireguards, grazing deferment and other burn unit preparation
- Fire boss and fire crew
- Equipment list addressing vehicles, ignition, fire-fighting, safety and clothing
- Protection of fire sensitive locations within burn unit
- Fire and smoke sensitive areas outside burn unit and plans to minimize impact
- Civil authority and neighbor notification procedures and applicable permits
- Desirable and unacceptable burn dates and times
- Desirable and unacceptable fuel types and fuel loads



Flank fire ignition using the mowed wet line fireguard technique at Lake Murray Field Trial Grounds (photo by M.D. Porter).



- Desirable and unacceptable relative humidities and air temperatures
- Desirable and unacceptable wind directions and speeds
- Desirable and unacceptable 1-hour dead and live fuel moistures, such as grass and juniper
- Desirable and unacceptable near surface soil moistures
- Desirable and unacceptable atmospheric mixing conditions
- Ignition procedures
- Contingency plans for spot fires, escaped wild fire and other problematic scenarios
- Mop up and monitoring procedures
- Post burn management
- Records of forecasts examined prior to starting the burn
- Records of actual conditions measured at start and end of burn
- Post burn evaluation

Land managers should continually strive to learn more about fundamentally important land management issues, such as fire ecology. Acquisition and application of such knowledge is necessary to effectively manage native plant communities.

## NATURAL RESOURCES CONSERVATION SERVICE CONSTRUCTION SPECIFICATIONS

### PRESCRIBED BURNING

#### 1. Criteria

This practice will be applied in accordance with all state and local laws and ordinances. Refer to Section I, in the electronic Field Office Technical Guide (eFOTG). Contact the local fire department to determine current county burn policy.

All Natural Resources Conservation Service (NRCS) employees must have the proper certification and training to plan and to participate in prescribed burning activities. (Refer to General Manual Title 190, Ecological Sciences, Part 402.)

A 24-hour weather outlook is required prior to doing a prescribed burn.

The burned area must be incorporated into a system of management allowing for the response of the desired plant community. Refer to Conservation Practice Standards and Construction Specifications 528, Prescribed Grazing, and 511, Forage Harvest Management.

When wildlife habitat improvement is an objective, refer to the Habitat Appraisal Guides or Conservation Practice Standard and Construction Specifications 645, Wildlife Upland Habitat Management, for the desired plant community for the management species.

Plan precautionary measures to protect sensitive wildlife habitat, headquarters, oil and gas sites, windbreaks, highly erodible areas, archeological/cultural, or other areas that would be unsafe or undesirable to burn.

Prescribed burn plans shall be developed using the Form KS-ECS-338, Prescribed Burn. Burn plans shall include the necessary personnel, equipment, and firebreaks to conduct a safe burn.

Smoke management considerations should be addressed in the burn plan and included on the map or sketch.

Dimensions and types of firebreaks will be designed for each burn and recorded in the Prescribed Burn Plan. The effective width should be approximately 10 times the height of the vegetation being burned. The width of the firebreaks includes the constructed firebreaks and the burned firebreak. (Refer to Conservation Practice 394, Firebreak.)

Generally, create burned firebreaks or blacklines under the following criteria:

Wind velocity: 4 to 6 mph  
Relative Humidity: 40 to 60 percent  
Air Temperature: < 60°

When burning volatile fuels with potential for down-range spotting, a 300 to 500 feet minimum width shall be used for firebreaks.

Follow the manufacturer's label when using fire retardant.

Burning is not recommended when: (1) air temperature exceeds 80 degrees F (except for reclamation burns), (2) wind velocities exceed 20 mph, (3) relative humidity is less than 20 percent, or (4) variable or no-wind conditions.

The fireboss will be the sole leader and coordinator of all prescribed burning activities.

Burning is not recommended within 12 hours of a predicted wind shift.

For specific purposes and conditions for burning, see Table 1.

## **2. Considerations**

Timing of the burn is the most critical element for obtaining the desired results from the burn. The kinds and amounts of various plants in a rangeland area can be changed by fire. Forage yield is affected by burning dates. The earlier the burning date, the lower the forage yield.

If down-range spot fires from volatile fuels are a concern, conduct the burn with air temperature below 50 degrees and relative humidity above 35 percent (See Figures 1 and 2).

When a portion of a pasture is burned, grazing management should be based on the burned area within the context of the long-range management plan. Burning will alter grazing patterns and can mediate erosion on heavy use areas.

Some unwanted plants may be increased following burning such as sericea lespedeza. Remedial action should be recommended to prevent an increase in unwanted plants.

The rooting depth should have enough moisture to support recovery of the desired plant species following the burn.

Firewhirls can be caused by burning under "nowind" conditions, burning headfires into backfires, and in canyons or hilly terrain.

Summer, fall, or winter burning may result in wind erosion on sandy soils (erosion on other soils is dependent upon the topography) even though burning may have occurred historically. Usually sufficient plant material remains to prevent excessive erosion.

Burning in the fall or during dry conditions can result in crown damage to bunchgrasses, which may be an objective for certain wildlife habitat management practices. The decision to use fall burning vs. spring burning depends upon the forage management objectives of the client, risk, and the species of concern.

In light fuel loads, continuity is more important for a continuous fire front than fuel loading.

Mop up is the process of checking the entire perimeter of the burn area to ensure that all fires or smoldering materials are out or removed from the edge of the perimeter to a safe area inside the burned area. Maintain close observation of the burned area until the fire is extinguished. Cow chips, logs and dead trees, stumps, small areas still burning, and fenceposts may smolder for several days after the burn if left untreated.

Fire is only one tool in an overall management plan. The decision to burn should be compatible with the long-term objectives of the resource and the client. In many cases, a long-term regime of prescribed burning will be needed to achieve objectives, not one single burn.

## **3. Plans and Specifications**

Specifications (a Prescribed Burn Plan) shall be prepared for each burn in which NRCS is an easement holder or if a request is specifically made by a producer or client. The client and the certified NRCS employee designing and approving the burn shall sign the burn plan.

## **4. Operation and Maintenance**

All NRCS employees who participate in prescribed burning must have the proper certification and training.

All burn crewmembers will wear flame resistant clothing or cotton or wool, leather gloves, and leather boots. Polyester clothing will not be worn on a prescribed burn. Protective eyewear, hat, and aspirator or breathing apparatus is desirable.

Prescribed burning can be physically strenuous. All crewmembers should be in good physical condition to enable them to perform all necessary tasks.

Operation and maintenance requirements are not applicable for this practice.

## 5. References and Other Reading Material

- Ohlenbusch, P. D., Kunkel, J. W., 1991. Prescribed Burning - Safety. L-565 Revised, KS Coop. Ext. Serv., KSU, Manhattan, Kansas.
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- Bidwell, T. G., Engle, D. M., Claypool, P. L., 1990. Effects of spring headfires and backfires on tallgrass prairie. *J. Range Manage.* 43(3)209-212.
- Bidwell, T. G., and R. E. Masters, 1993. Using Prescribed Fire in Oklahoma. Circular E-927, OK Coop. Ext. Serv., OSU, Stillwater, Oklahoma.
- Davis, R. et.al, 1991. Oklahoma's voluntary Smoke Management Guidelines. ODA., Forestry Div., Oklahoma City, Oklahoma.
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- Engle, D. M., and Stritzke, J. F., 1995. Fire behavior and fire effects on eastern redcedar in hardwood leaf-litter fires. *Int. J. Wildland Fire* 5(3):135-141.
- Engle, D. M., Stritzke, J. F., Bidwell, T. G., and Claypool, P. L., 1993. Late-summer fire and follow-up herbicide treatments in tallgrass prairie. *J. Range Manage.* 46(6):542-547.
- Wright, H. A., and A. W. Bailey, 1982. *Fire Ecology*. John Wiley & Sons, Inc. NYC, New York.
- Wade, Dale D. et.al. 1989. A Guide for Prescribed Fire in Southern Forests. Technical Publication R8-TP 11.
- Engle, D. M., Bidwell, T. G., 2001, The response of central North American prairies to seasonal fire. *J. Range Management* 54:2-10.

**Table 1. Criteria for Burning**

<b>Vegetative Type and Specific Purpose</b>	<b>Season</b>	<b>Wind Velocity</b>	<b>Relative Humidity</b>	<b>Air Temp</b>	<b>Lbs. Fuel <sup>1/</sup></b>	<b>Frequency of Burning</b>
<b>Improve Quality/Quantity of Forage for Wildlife, Livestock Grazing Distribution, and to Stimulate Seed Production</b>						
Warm Season Grasses	late winter to green-up	4-15 mph	30-80	30-80	2000+	as needed
Improve Browse or Cover Structure	mid Jan. to 3 weeks prior to green-up of browse	4-15 mph	30-80	30-80	2000+	as needed
Increase Forbs and Low Panicum Production	8/15 to 9/15	4-15 mph	20-80	30-80	2000+	Approximately 3 years depending upon need
'Jose' tall wheatgrass <sup>3/</sup>	early winter to green-up	4-15 mph	30-80	30-70	2000+	as needed
Mature Oak	Fall/spring	4-15 mph	30-80	30-70	2500+	<sup>6/</sup>
<b>Control of Undesirable Vegetation</b>						
Prickly Pear Cactus	winter to green-up	4-15 mph	20-80	30-80	2000+	as needed
Juniper <6' tall	winter to green-up	4-15 mph	20-80	30-80	2500+	as needed
Juniper >6' tall	winter to green-up	4-15 mph	20-80	30-80	3000+	as needed
Annual herbaceous plants	after germination	4-15 mph	20-80	30-80	2000+	as needed
Annual cool season plants	before area is too green to burn	4-15 mph	20-80	30-80	2000+	as needed
Annual threeawn or broomsedge bluestem (w/20% desirable grasses) <sup>2/ 5/</sup>	8/15 - 11/1	4-15 mph	20-80	30-80	2000+	annually for 3-5 years or until desired results achieved
Broomsedge bluestem (w/20% desirable grasses) <sup>2/ 5/</sup>	late winter to green-up	4-15 mph	20-80	30-80	2000+	annually for 3-5 years or until desired results achieved
Annual threeawn (w/20% desirable grasses) <sup>4/ 5/</sup>	after germination	4-15 mph	20-80	30-80	2000+	annually for 3-5 years
<b>Suppression or Maintenance of Unwanted Vegetation</b>						
Postoak, Blackjack. and associated hardwoods	fall and spring	4-15 mph	20-80	30-80	3000+	prior to canopy closure limiting fuel loading and/or in years with heavy hardwood leaf litter with dry fuel conditions

**Table 1. Criteria for Burning (Continued)**

<b>Vegetative Type and Specific Purpose</b>	<b>Season</b>	<b>Wind Velocity</b>	<b>Relative Humidity</b>	<b>Air Temp</b>	<b>Lbs. Fuel <sup>1/</sup></b>	<b>Frequency of Burning</b>
Sand sagebrush	winter to green-up	4-15 mph	20-80	30-80	3000+	three to five years
Blackberry, Sumac, Plum	winter to green-up	4-15 mph	20-80	30-80	3000+	At least every 3 <sup>rd</sup> year until desired level of control is achieved. Thereafter, as needed for desired level of suppression.
Buckbrush	winter to green-up	4-15 mph	20-80	30-80	3000+	as needed
<b>Site Preparation, control of plant disease, slash and debris removal, reduction of wildfire hazard (Forestland or Woodland).</b> For these practice purposes, contact the Oklahoma Department of Agriculture, Forestry Services for developing and/or approving fire plans.						

**FOOTNOTES**

<sup>1/</sup> Fuel continuity must be considered along with fuel loading. If a complete burn is the objective, continuity must be high. If a mosaic burn is desired there should be areas of discontinuous fuel.

<sup>2/</sup> Burning during dry periods can damage the crown of broomsedge bluestem and shift the successional advantage to rhizomatous grasses as long as the desirable grasses exist. Studies are currently under way in the use of fall burning for broomsedge management. Fall burning of broomsedge bluestem will tend to break the allelopathic cycle and allow desirable plant communities to re-establish. Fall burning will reduce winter forage availability and increase the opportunity for cool season annual plants to germinate. This effect should only last the season after the burn. The standing seed crop of the annual threeawn will be destroyed if burned before the seeds fall to the ground.

<sup>3/</sup> 'Jose' tall wheatgrass is only approved for burning when seed production is desired or to maintain non-use fields such as Conservation Reserve Program (CRP).

<sup>4/</sup> Burning annual threeawn in the spring after germination will: (a) destroy the current season's germinated annual threeawn crop (reducing the abundance of a fall seed crop), and (b) tend to break the allelopathic cycle giving desirable plant communities the advantage to restart growth.

<sup>5/</sup> Management of broomsedge bluestem and annual threeawn should be accomplished by using fire as a tool along with soil fertility management, pest management, and grazing management to increase desired plant communities. If there are not enough desirable forage species present, such as in an old field, reseeding may be needed.

<sup>6/</sup> Burning in mature oak stands thins the understory and very gradually thins the overstory. Burning is best accomplished soon after leaf-drop and before leaves become weathered or get matted down by winter storms. It will take many years and multiple burns to open up the overstory with burning alone. Burning initially can prune lower limbs and scar the bark on the base of trees, which starts the process of disease invasion. Gradually, as sunlight penetrates to the ground, herbaceous vegetation increases and with prescribed grazing accumulates fuel loads for subsequent hotter burns.

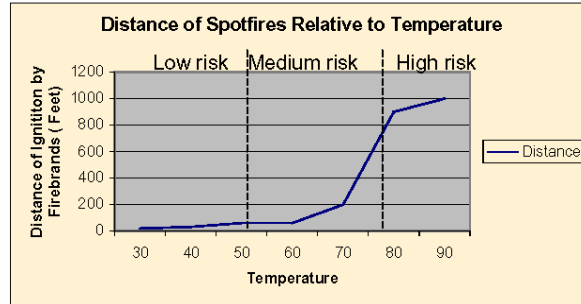


Figure 1. The maximum distance of spot fires from prescribed fires in relation to air temperature. Spotfires that started when temperatures were below 60 degrees were primarily by flaming firebrands. (From Bunting and Wright 1974)

(Risk factors have been added to the chart to offer guidelines as to the risk associated with temperature.)

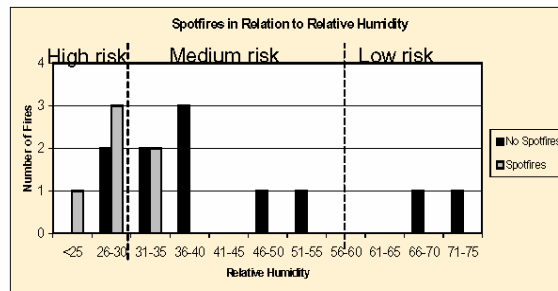


Figure 2. Spotfires were caused by fire brands from crowning cedar trees, fire brands from 60 ft. pine trees crowning, fire creeping across mowed lines, and oak leaves blown over the firebreak. Spot fires were related primarily to a critical level of relative humidity. (From Weir, 1999)

(Risk factors have been added to the chart to offer guidelines as to the risk associated with temperature.)

Name: \_\_\_\_\_ Date Plan Developed: \_\_\_\_\_ Ident No.: \_\_\_\_\_

Legal Desc.: \_\_\_\_\_ County: \_\_\_\_\_ Field No.: \_\_\_\_\_

Date burn will be implemented: \_\_\_\_\_ Burn Permit Required: Yes  No   
(Contact county offices for information on the requirements for legal burns in your county.)

**IMPORTANT NOTICE: Parties initiating prescribed burns may be liable for damages resulting from the fire and cost of suppression by others, should the fire escape from the designated area.**

**A. OBJECTIVE OF BURN:** (Check all that apply) (WSG = warm season grass; CSG = cool season grass)

- |  |  |
|--|--|
| Control woody plants (full leaf) <input type="checkbox"/>          | Improve wildlife habitat (before WSG emerge) <input type="checkbox"/>  |
| Stimulate WSG (1 to 3 inches) <input type="checkbox"/>             | Remove litter on WSG (1 to 3 inches) <input type="checkbox"/>          |
| Reduce CSG (1 to 3 inches) <input type="checkbox"/>                | Stimulate forbs (before forbs grow) <input type="checkbox"/>           |
| Distribute grazing on WSG (1 to 3 inches) <input type="checkbox"/> | Reduce wildfire hazard on WSG (1 to 3 inches) <input type="checkbox"/> |

**B. DESCRIPTION OF BURN AREA:**

1. Present plant cover:

Woody Plants

Species	Size/Height	Plant/Acre

Herbaceous Plants

Species	Cured	Plants/Acre	Lbs/Acre	Height
CSG				
WSG				
Broad Leaf Plants				

2. Describe existing firebreaks and identify contingency firebreaks: (Show on burn plan map.)  
(Use arrow key to advance to next line.)

**C. PREPARATION**

- Obtain burn permit, if required.
- Fireboss: \_\_\_\_\_
- Firebreak construction: (Show on burn plan map.) \*Date = Date or month the firebreak will be constructed.

	Plowed	Disked	Mowed	Burned	CSG
Width					
Length					
*Date					



Legal Desc.: \_\_\_\_\_

4. Specified conditions for backfire, flankfire, and headfire:

	Backfire	Flankfire	Headfire
a. Air temperature (30° to 80° F)			
b. Relative humidity (20 to 80%)			
c. Wind direction			
d. Wind speed (4 to 15 mph)			
e. Soil moisture conditions			

5. Adjacent areas:

a. Describe special precaution areas: (Show on burn plan map.) (Use arrow key to advance to the next line.)

b. Describe potentially hazardous areas: (Show on burn plan map.) (Use arrow key to advance to the next line.)

c. Describe protection plan for potentially hazardous areas: (Show on burn plan map.) (Use arrow key to advance to the next line.)

d. Necessity of snag felling: Required  Not Required

If required, describe plan: (Show on burn plan map.) (Use arrow key to advance to the next line.)

D. IMPLEMENTATION

1. Starting time of burn: \_\_\_\_\_

2. Equipment and manpower:

To activate this Table, open and save Form KS-ECS-338wksht.xls to the hard drive of your personal computer. Double click the Table to enter values. Position the Table and click outside the Table to exit and save entries.

Minimum Requirements (calculate columns per number of firelines)					
Execution of Burn	Vehicles per fire or fireline	Drip Torch	Manpower	Maps	Communication equipment
<b>Number of firelines</b> 0					
Four-wheeler unit w/spray equipment (1 per fireline, 1 person per unit)	0		0		
Drip torch (1 per fireline w/supplemental fuel, 1 person per torch)		0	0		
Site and plan maps (1 per vehicle)				0	
Communications equipment (1 per fireline)					0
**Fire suppression unit (1 per fireline, 2 persons per unit)	0		0		
<b>Mop-up</b>					
Communication equipment (1 per fireline)					0
Fire suppression unit (1 per fireline, 2 persons per unit)	0		0		
<b>Totals</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Legal Desc.: \_\_\_\_\_

2. Equipment and manpower continued:

Auxiliary water supplies located in a strategic defensive position: (Show location of auxiliary supply on burn plan map and describe.) (Use arrow key to advance to the next line.)

\*\*Auxiliary fire suppression unit: (Show location of unit on burn plan map and describe.) (Use arrow key to advance to next line.)

Equipment or manpower needed in addition to the minimum requirements: (List and explain.) (Use arrow key to advance to the next line.)

Location map: Import ArcView image, reference conservation plan map, or provide a sketch denoting field boundary, field number, land use, acres, and scale used.




**Technical Service Provider**

\_\_\_\_\_  
Layout by Date

\_\_\_\_\_  
Designed by Date

\_\_\_\_\_  
Checked by Date

\_\_\_\_\_  
Approved by Date

**Producer's Statement**

The design of this practice has been discussed with me, and I concur with the design. **No substitutions are allowed without the approval of the technical service provider.**

\_\_\_\_\_  
Signature Date

Scale: \_\_\_\_\_

**Certification**

This applied practice meets Kansas standards and specifications.

\_\_\_\_\_  
Technical Service Provider Date

This practice has been applied as designed.

\_\_\_\_\_  
Producer Date



Post-Burn Evaluation

Legal Desc.: \_\_\_\_\_

Date of burn: \_\_\_\_\_

Acres burned: \_\_\_\_\_

Actual weather at time of burn:

Air temperature: \_\_\_\_\_

Relative humidity: \_\_\_\_\_

Wind direction: \_\_\_\_\_

Wind speed: \_\_\_\_\_

Fire behavior:

Spotting	None <input type="checkbox"/>	Few <input type="checkbox"/>	Many <input type="checkbox"/>
Difficulty in control		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Convection column		<input type="checkbox"/>	<input type="checkbox"/>
Fire whirls		<input type="checkbox"/>	<input type="checkbox"/>

Additional comments: (Use arrow key to advance to the next line.)

Objective accomplished: (Use arrow key to advance to the next line.)

Additional remarks: (Use arrow key to advance to the next line.)

I have completed the post-burn evaluation.

\_\_\_\_\_  
Fireboss signature

\_\_\_\_\_  
Date

Follow-up Evaluation: (60 – 90 days after burn)

Legal Desc.: \_\_\_\_\_ Date: \_\_\_\_\_

Continued benefits of accomplished objective: (Use arrow key to advance to the next line.)

Estimated need for future burn: \_\_\_\_\_

Additional remarks: (Use arrow key to advance to the next line.)

I have completed the prescribed burn follow-up evaluation.

\_\_\_\_\_  
Signature Date

Ness County

### **Example: Prescribed Burn Plan for CRP**

#### **General:**

Area consists of CP-25 grass mix to be burned using back burns and a ring fire.

North adjacent: growing wheat, rangeland/fence, grass area, CRP, county road, milo stalks, wheat stubble

East adjacent: two-track trail, CRP, post hazard, kochia

South adjacent: rangeland/fence, two-track trail, kochia, CRP

West adjacent: trees, two-track trail, CRP

#### **Notes:**

Fuel load consists of 1500-2000 lbs/ac, 1-2' tall of warm season grasses to be burned with several back burns and a ring fire.

Hazards include rangeland/fence, grass area, CRP milo stalks and wheat stubble to the north, CRP, post hazard and kochia to the east, rangeland/fence, kochia and CRP to the south, trees and CRP to the west and rough areas and guzzler posts in the field to be burned. See Map.

Precautions include county road to the north and farmstead to the west 1 mile. See Map.

Safety Zones are county road to the north, growing wheat to the northeast and west and any black zones created by fire. See Map.

Traffic control on county road to the north.

Southwest wind is planned.

Planned Burn: March 1 – April 15.

#### **Materials:**

7 ATV units  
2 water trucks  
2 patrolling on road for traffic control  
2 drip torches  
2 butane lighters  
Extra fuel  
Shovels  
Hand radios for crew

Fence Pliers for crew  
10 plans/maps  
13 people  
2 flappers

**Pre-burn Preparation:**

Disk 30' guards around perimeter of field, see map  
Mow 60' guards inside of disk zone (90' total mowing/disking), see map  
Wet line perimeter (foam may be used so it stays wet longer)

**Burn Procedure:**

Adjacent land users and local sheriff and fire department notified  
Obtain current forecast – NOAA ([www.noaa.gov](http://www.noaa.gov))  
Temperature: 50-80 degrees F  
Humidity: 25-45%  
Wind Speed: 5-10 mph southwest  
Start time: 12:00 – 2:00 depending on humidity  
Adequate soil moisture  
Lookouts, ATV's, fire trucks and igniters posted, see map

The northwest quarter is planned to be burned with strip fires in several strips. One igniter will start in the NW corner and travel east, lighting a back burn. Once the fire has moved in 100 feet, another igniter can start on the west end, just north of the growing wheat, and travel to the east end, lighting another back burn. Let the back burn move in 100 feet before continuing this process until the northwest quarter has been burned out.

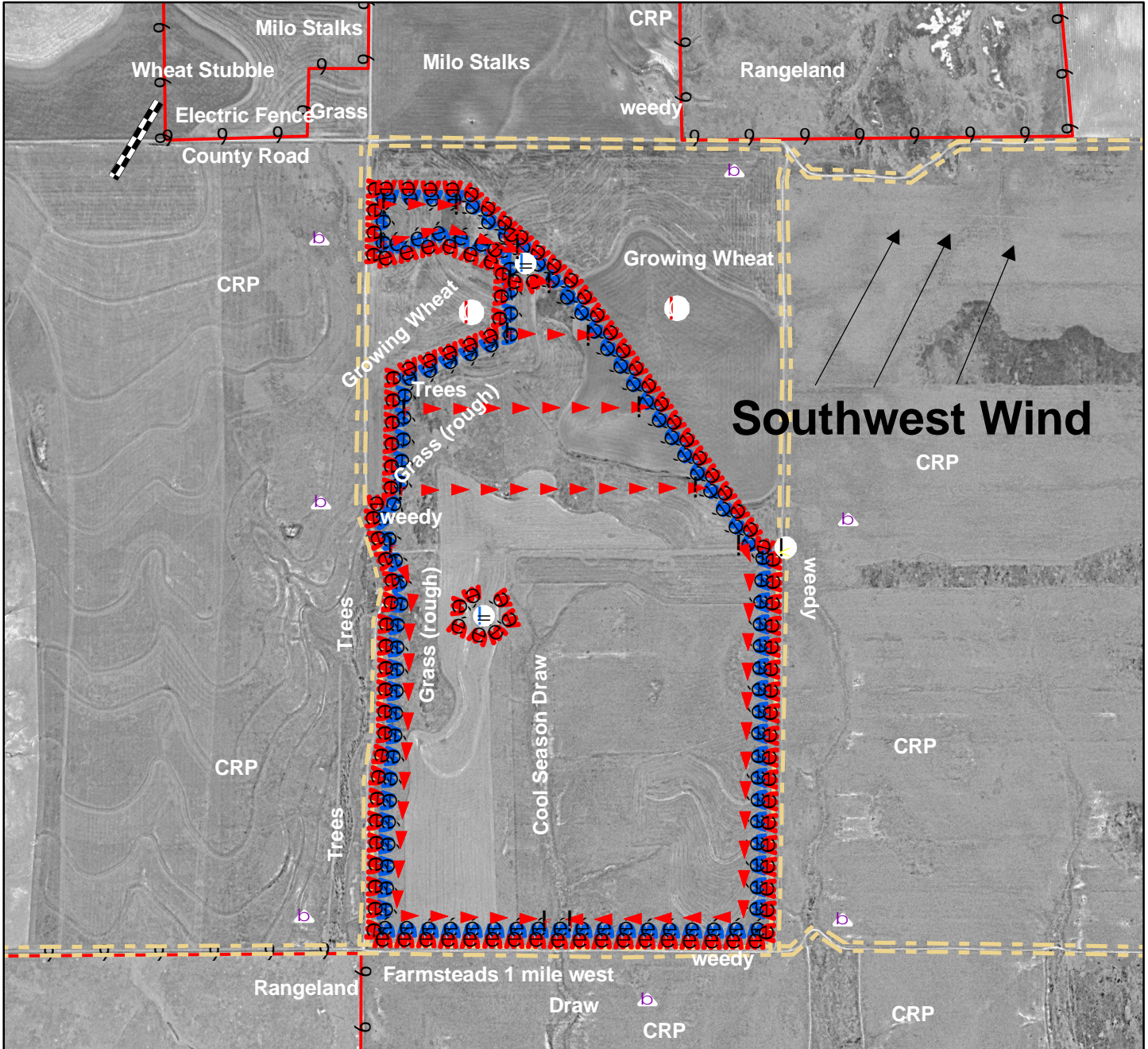
The southwest quarter is planned to be burned with a ring fire. Igniters will start in the NW and NE corners of remaining acreage to be burned. No back burn is needed due to the black zone created by the strip fires. Igniters will travel south to the SW and SE corners, lighting the flank fires. Let the flank fires burn in 150 feet. Igniters can then travel to the south central unit, lighting the head fire. Once igniters get within 75-100 feet from each other they can stop to leave a gap for wildlife to escape. Fire will close in behind.

# Burn Plan













Date: 2/9/2009

Customer(s):  
 District: NESS COUNTY CONSERVATION DISTRICT  
 Approximate Acres: 236.7  
 Legal Description:

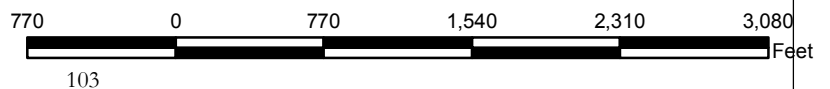
Field Office: Ness City Field Office  
 Agency: USDA-NRCS  
 Assisted By: Ness County  
 State and County: KS, NESS  
 Land Units: Tract:



## Legend

-  Lookouts
-  Burn Line
-  Mow
-  Safety Zones
-  Road Block
-  Post Hazard
-  Two-track Trail
-  Wind Direction
-  Guzzler Posts
-  Fence
-  Igniters
-  Disk

1:12,000





Name: John Rancher Date Plan Developed: 3/5/2010 Ident No.: N/A

Legal Desc.: SEC TWP RNG County: Geary Field No.: 2

Date burn will be implemented: 4/6/2010 Burn Permit Required: Yes  No   
(Contact county offices for information on the requirements for legal burns in your county.)

**IMPORTANT NOTICE: Parties initiating prescribed burns may be liable for damages resulting from the fire and cost of suppression by others, should the fire escape from the designated area.**

**A. OBJECTIVE OF BURN:** (Check all that apply) (WSG = warm season grass; CSG = cool season grass)

- |   |                                     |   |                          |
|---|-------------------------------------|---|--------------------------|
| Control woody plants (full leaf)          | <input checked="" type="checkbox"/> | Improve wildlife habitat (before WSG emerge)  | <input type="checkbox"/> |
| Stimulate WSG (1 to 3 inches)             | <input checked="" type="checkbox"/> | Remove litter on WSG (1 to 3 inches)          | <input type="checkbox"/> |
| Reduce CSG (1 to 3 inches)                | <input checked="" type="checkbox"/> | Stimulate forbs (before forbs grow)           | <input type="checkbox"/> |
| Distribute grazing on WSG (1 to 3 inches) | <input checked="" type="checkbox"/> | Reduce wildfire hazard on WSG (1 to 3 inches) | <input type="checkbox"/> |

**B. DESCRIPTION OF BURN AREA:**

1. Present plant cover:

Woody Plants

Species	Size/Height	Plant/Acre
Dogwood	4'	200
Smooth Sumac	3'	100
Elm	10-20'	10

Herbaceous Plants

Species	Cured	Plants/Acre	Lbs/Acre	Height
CSG	Green	na	200	3"
WSG	X	na	1500	4-6"
Broad Leaf Plants	X	na	100	4-6"

2. Describe existing firebreaks and identify contingency firebreaks: (Show on burn plan map.)

(Use arrow key to advance to next line.)

Dozed in firebreaks exists in the steep, treed areas in the NE corner of the ranch. A firebreak will be burned in around the entire ranch except where roads and highways provide an adequate firebreak. A mowed firebreak will be used in the SE corner. This will be done to provide protection to the 9 farmsteads that surround the ranch.

**C. PREPARATION**

1. Obtain burn permit, if required.

2. Fireboss: John Rancher - Owner

3. Firebreak construction: (Show on burn plan map.) \*Date = Date or month the firebreak will be constructed.

	Plowed	Disked	Mowed	Burned	CSG
Width	20'		30'	50'	250'
Length	11,000		1300'	28,584	1900'
*Date	3/20/10		3/20/10	4/6/10	Smooth Brome - Existing

Legal Desc.: SEC TWP RNG

4. Specified conditions for backfire, flankfire, and headfire:

	Backfire	Flankfire	Headfire
a. Air temperature (30° to 80° F)	50-65	50-80	50-80
b. Relative humidity (20 to 80%)	40-60%	30-80%	30-80%
c. Wind direction	SW	SW	SW
d. Wind speed (4 to 15 mph)	4-8	5-10	10-15
e. Soil moisture conditions	Moist	moist	moist

5. Adjacent areas:

a. Describe special precaution areas: (Show on burn plan map.) (Use arrow key to advance to the next line.)

East - Ungrazed native grass & timber/leaf litter, fractured limestone ledge with flammable plant material.

North - Timber/leaf litter, 5 houses, backfire prior to starting head fire.

West - 3 houses, backfire prior to starting head fire.

South - 1 house, backfire prior to starting head fire.

b. Describe potentially hazardous areas: (Show on burn plan map.) (Use arrow key to advance to the next line.)

Power lines - very high, 100+ feet off the ground

Deep/Steep draws with thick caprock - Difficult to get out of on an ATV, no access for water truck.

c. Describe protection plan for potentially hazardous areas: (Show on burn plan map.) (Use arrow key to advance to the next line.)

Stay out of smoke as it enters powerlines, check power poles as soon as fire passes and smoke is cleared.

Be certain of exit points and safe areas before entering draws.

d. Necessity of snag felling: Required  Not Required

If required, describe plan: (Show on burn plan map.) (Use arrow key to advance to the next line.)

Clear trees and branches from firebreaks.

D. IMPLEMENTATION

1. Starting time of burn: 9:00 AM

2. Equipment and manpower:

To activate this Table, open and save Form KS-ECS-338wksht.xls to the hard drive of your personal computer. Double click the Table to enter values. Position the Table and click outside the Table to exit and save entries.

Minimum Requirements (calculate columns per number of firelines)					
Execution of Burn	Vehicles per fire or fireline	Drip Torch	Manpower	Maps	Communication equipment
<b>Number of firelines</b> <b>2</b>					
Four-wheeler unit w/spray equipment (2 per fireline, 1 person per unit)	2		4		
Drip torch (1 per fireline w/supplemental fuel, 1 person per torch)		2	2		
Site and plan maps (1 per vehicle)				10	
Communications equipment (1 per fireline)					2
**Fire suppression unit (1 per fireline, 2 persons per unit)	1		4		
<b>Mop-up</b>					
Communication equipment (1 per fireline)					2
Fire suppression unit (1 per fireline, 2 persons per unit)	2		4		
<b>Totals</b>	<b>3</b>	<b>2</b>	<b>10</b>	<b>10</b>	<b>2</b>

Legal Desc.: SEC TWP RNG

2. Equipment and manpower continued:

Auxiliary water supplies located in a strategic defensive position: (Show location of auxiliary supply on burn plan map and describe.) (Use arrow key to advance to the next line.)

2 water supply trucks - 300 gallon capacity each - Central location in denuded area of the pasture.

3 spring tanks rigged to fill ATV sprayers at about 2 gal/min.

Well at headquarters

\*\*Auxiliary fire suppression unit: (Show location of unit on burn plan map and describe.) (Use arrow key to advance to next line.)

None

Equipment or manpower needed in addition to the minimum requirements: (List and explain.) (Use arrow key to advance to the next line.)

None

Location map: Import ArcView image, reference conservation plan map, or provide a sketch denoting field boundary, field number, land use, acres, and scale used.




**Technical Service Provider**

\_\_\_\_\_  
Layout by Date

\_\_\_\_\_  
Designed by Date

\_\_\_\_\_  
Checked by Date

\_\_\_\_\_  
Approved by Date

**Producer's Statement**

The design of this practice has been discussed with me, and I concur with the design. **No substitutions are allowed without the approval of the technical service provider.**

\_\_\_\_\_  
Signature Date

Scale:

Map Notes: The Danger/Warning areas are houses, The solid yellow line is the property line. You will see in 3 areas where we are burning the neighbors property at the same time. The water refill points are developed springs that are setup to fill an ATV sprayer.

See Attached "Prescribed Burn Plan Map"

**Certification**

This applied practice meets Kansas standards and specifications.



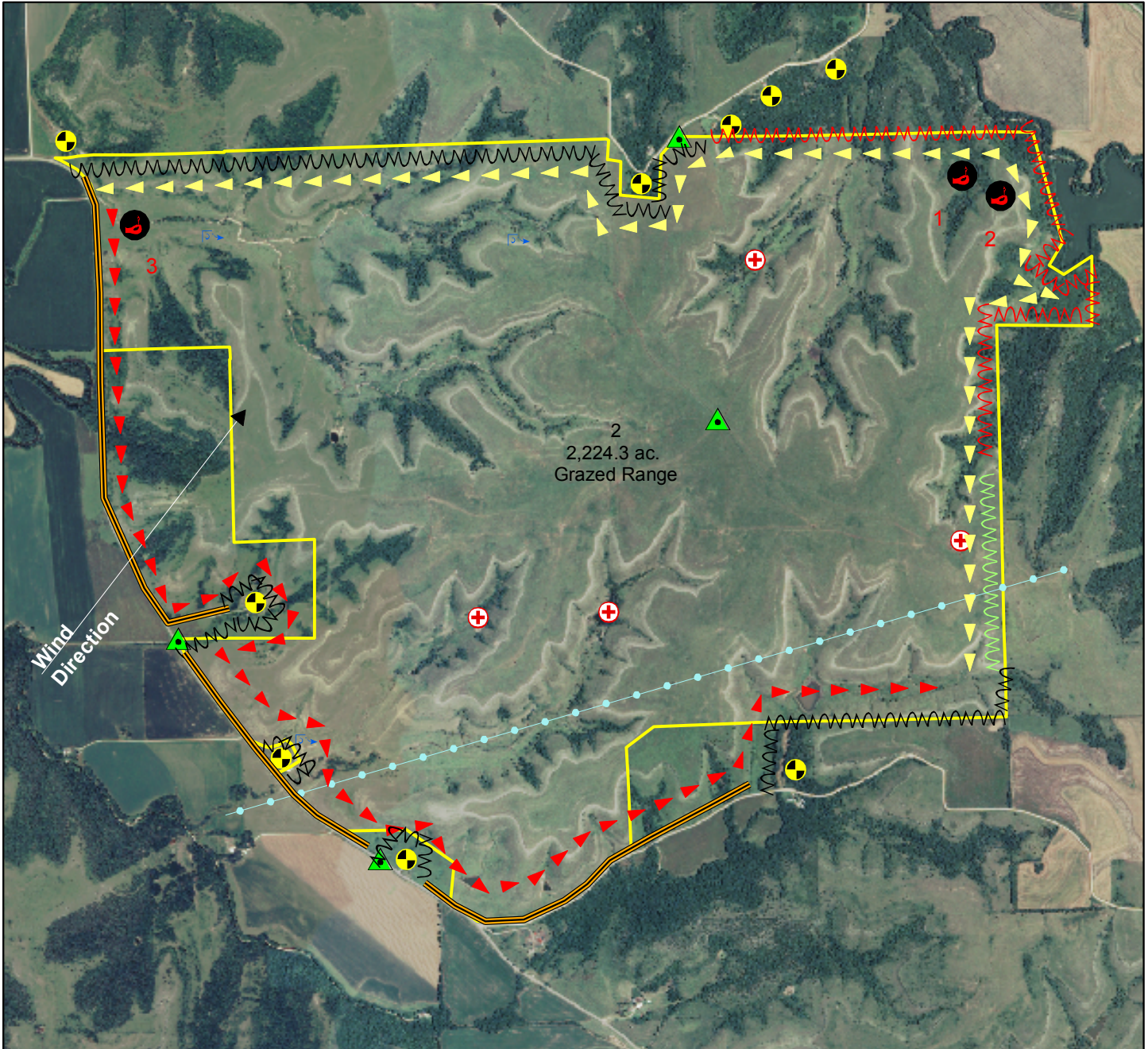
# PRESCRIBED BURNING PLAN MAP

Date: 4/14/2010

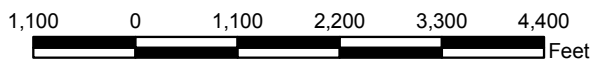
Customer(s): Example  
 District: GEARY COUNTY CONSERVATION DISTRICT

Field Office: JUNCTION CITY SERVICE CENTER  
 Agency: USDA-NRCS  
 Assisted By:  
 State and County: KS, RILEY

Legal Description:



<b>Burn Plan Lines</b>	Dozed Firebreak	Power Line	Water Refill Point
<b>LINETYPE</b>	Head Fire	Road Firebreak	<b>POINTTYP</b>
Backfire	Mowed Firebreak	Wind Direction	Ignition Point
Burned Firebreak	Safe Zone	<b>Burn Plan Points</b>	Danger/Warning
	Water Truck		



Name: Example Date Plan Developed: 4/24/2010 Ident No.: B

Legal Desc.: \_\_\_\_\_ County: Riley Field No.: B

Date burn will be implemented: 4/21/2010 Burn Permit Required: Yes  No   
(Contact county offices for information on the requirements for legal burns in your county.)

**IMPORTANT NOTICE: Parties initiating prescribed burns may be liable for damages resulting from the fire and cost of suppression by others, should the fire escape from the designated area.**

**A. OBJECTIVE OF BURN:** (Check all that apply) (WSG = warm season grass; CSG = cool season grass)

- |   |                                     |   |                          |
|---|-------------------------------------|---|--------------------------|
| Control woody plants (full leaf)          | <input checked="" type="checkbox"/> | Improve wildlife habitat (before WSG emerge)  | <input type="checkbox"/> |
| Stimulate WSG (1 to 3 inches)             | <input checked="" type="checkbox"/> | Remove litter on WSG (1 to 3 inches)          | <input type="checkbox"/> |
| Reduce CSG (1 to 3 inches)                | <input checked="" type="checkbox"/> | Stimulate forbs (before forbs grow)           | <input type="checkbox"/> |
| Distribute grazing on WSG (1 to 3 inches) | <input checked="" type="checkbox"/> | Reduce wildfire hazard on WSG (1 to 3 inches) | <input type="checkbox"/> |

**B. DESCRIPTION OF BURN AREA:**

1. Present plant cover:

Woody Plants

Species	Size/Height	Plant/Acre
Roughleaf Dogwood	36"	20
Eastern Red Cedar	12"-24"	10

Herbaceous Plants

Species	Cured	Plants/Acre	Lbs/Acre	Height
CSG	Green		100	2"
WSG	X		1500	6-12"
Broad Leaf Plants	Green		100	2-4"

2. Describe existing firebreaks and identify contingency firebreaks: (Show on burn plan map.)

(Use arrow key to advance to next line.)

Creeks will be used as a firebreak on the SE and NW side of the burn. Mowed and burned firebreaks will be created along the north, south, and west boundaries.

**C. PREPARATION**

1. Obtain burn permit, if required.

2. Fireboss: Landowner

3. Firebreak construction: (Show on burn plan map.) \*Date = Date or month the firebreak will be constructed.

	Plowed	Disked	Mowed	Burned	CSG
Width			30'	30'	
Length			6500'	7500'	
*Date			4/1/2009	4/15/2009	

Legal Desc.: \_\_\_\_\_

4. Specified conditions for backfire, flankfire, and headfire:

	Backfire	Flankfire	Headfire
a. Air temperature (30° to 80° F)	45 - 75	45-75	50 - 75
b. Relative humidity (20 to 80%)	35 - 60	35-60	35 - 60
c. Wind direction	SSW	SSW	SSW
d. Wind speed (4 to 15 mph)	4 - 12	4-12	4 - 12
e. Soil moisture conditions	Moist	Moist	Moist

5. Adjacent areas:

a. Describe special precaution areas: (Show on burn plan map.) (Use arrow key to advance to the next line.)  
Neighbors native grass on the south, west and north.

b. Describe potentially hazardous areas: (Show on burn plan map.) (Use arrow key to advance to the next line.)  
Deciduous Treed areas along burned firebreak. Cedar trees will be avoided or removed from the firebreak.

c. Describe protection plan for potentially hazardous areas: (Show on burn plan map.) (Use arrow key to advance to the next line.)  
If the leaf litter will burn, a mineral soil firebreak will be constructed through the trees to the creek. These 2 areas will be monitored until the fire is out.

d. Necessity of snag felling: Required  Not Required   
If required, describe plan: (Show on burn plan map.) (Use arrow key to advance to the next line.)  
Downed limbs will be removed from the firebreak in the treed areas.

D. IMPLEMENTATION

1. Starting time of burn: 10:00

2. Equipment and manpower:

To activate this Table, open and save Form KS-ECS-338wksht.xls to the hard drive of your personal computer. Double click the Table to enter values. Position the Table and click outside the Table to exit and save entries.

<u>Execution of Burn</u>	Vehicles per fire or fireline	Drip Torch	Manpower	Maps	Communication equipment
<b>Number of firelines</b> 1					
Four-wheeler unit w/spray equipment (1 per fireline, 1 person per unit)	2		2		
Drip torch (1 per fireline w/supplemental fuel, 1 person per torch)		1	1		
Site and plan maps (1 per vehicle)				3	
Communications equipment (1 per fireline)					2
**Fire suppression unit (1 per fireline, 2 persons per unit)	1		4		
<b>Mop-up</b>					
Communication equipment (1 per fireline)					2
Fire suppression unit (1 per fireline, 2 persons per unit)	1		4		
<b>Totals</b>	<b>3</b>	<b>1</b>	<b>7</b>	<b>3</b>	<b>2</b>

Legal Desc.: 12-9-6

2. Equipment and manpower continued:

Auxiliary water supplies located in a strategic defensive position: (Show location of auxiliary supply on burn plan map and describe.) (Use arrow key to advance to the next line.)

300 gallon Water truck will be located in the firebreak on the south side of the pasture to fill ATV's as needed.

\*\*Auxiliary fire suppression unit: (Show location of unit on burn plan map and describe.) (Use arrow key to advance to next line.)

Rural Fire Department

Equipment or manpower needed in addition to the minimum requirements: (List and explain.) (Use arrow key to advance to the next line.)

None

Location map: Import ArcView image, reference conservation plan map, or provide a sketch denoting field boundary, field number, land use, acres, and scale used.




**Technical Service Provider**

\_\_\_\_\_  
Layout by Date

\_\_\_\_\_  
Designed by Date

\_\_\_\_\_  
Checked by Date

\_\_\_\_\_  
Approved by Date

**Producer's Statement**

The design of this practice has been discussed with me, and I concur with the design. **No substitutions are allowed without the approval of the technical service provider.**

\_\_\_\_\_  
Signature Date

Scale: See attached Aerial Photo

**Certification**

This applied practice meets Kansas standards and specifications.

\_\_\_\_\_  
Technical Service Provider Date

This practice has been applied as designed.

\_\_\_\_\_  
Producer Date

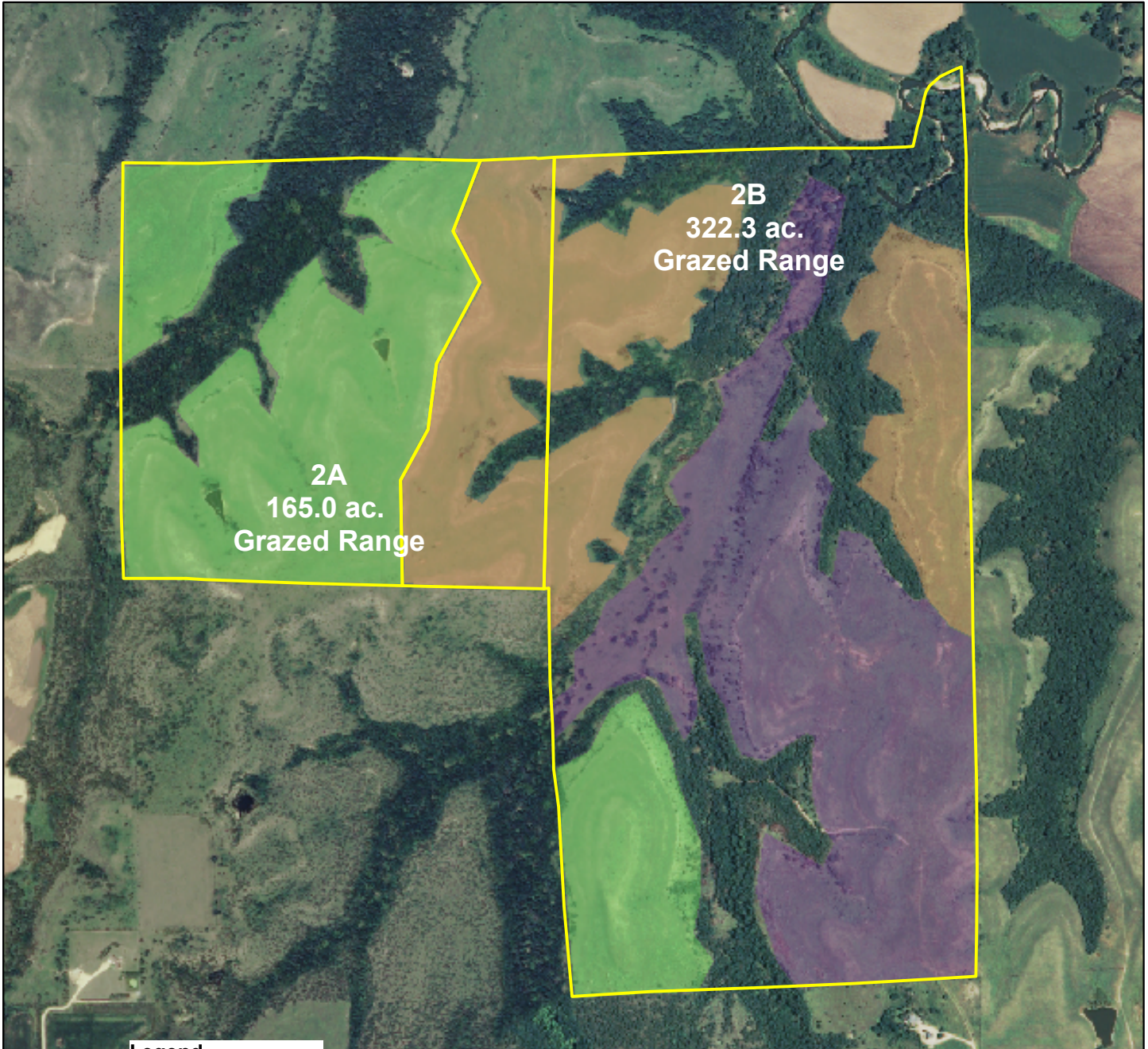


# PATCH BURN PLAN

Date: 4/19/2010

Field Office: MANHATTAN SERVICE CENTER  
Agency: NRCS

Legal Description:



## Legend

 Consplan

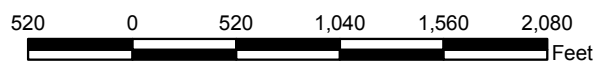
## Patch Burn Areas

### POLYTYPE

 Year 1

 Year 2

 Year 3



Example: Urban/Natural Area Burn  
Sternberg Prairie Restoration  
SE ¼ 27-13-18  
Prescribed Burn

Burn 1: 2.9 ac  
Burn 2: 6.4 ac  
Burn 3: 0.4 ac  
Burn 4: 0.5 ac

**Objectives:**

Eliminate standing cover for restoration of interpretive native trail  
Improve warm season natives  
Suppression of Smooth Brome  
Reduce litter  
Brush management  
Improve wildlife habitat

**Adjacent Land Uses**

North: Mowed state right of way, I-70, Rangeland, Sorghum stubble  
East: Nursing Home, Sternberg museum  
South: Creek bottom, Residential houses  
West: Creek bottom with trees, Residential houses

**Burn 1:**

North: Mowed state right of way, I-70, Rangeland, Sorghum stubble  
East: Burn Area 2  
South: Creek bottom, Residential houses  
West: Creek bottom with trees, Residential houses

**Burn 2:**

North: Mowed state right of way, I-70, Rangeland, Sorghum stubble  
East: Burn Area 3, Sternberg Museum  
South: Creek bottom with trees, Residential houses  
West: Burn Area 1 (Black)

**Burn 3:**

North: Mowed state right of way, I-70, Rangeland, Sorghum stubble  
East: Grass area, Sternberg Museum  
South: Creek bottom with trees  
West: Burn Area 2 (Black)

**Burn 4:**

North: Burn Area 2 (Black)  
East: Trees, Burn Area 2 (Black)  
South: Residential houses

West: Burn Area 1, Trees, Residential houses

**Notes:**

1. Obtain weather report 2 hours prior to start of fire
2. Notify County sheriff, fire department, Kansas Highway Patrol, Kansas Department of Transportation, utility company, and all landowners/homeowners 24 hours and 3 hours before starting. Also notify all the County sheriff, fire department, Kansas Highway Patrol, Kansas Department of Transportation after mop up.
3. Smoke Management: Notify sheriff's office and Highway patrol that smoke will be over Interstate 70.
4. Lookouts, water, and ATV's needed to be posted as shown on map.
5. Hazards:
  - a. Interstate 70, Windbreak,
  - b. Over head power line(smoke and water into) Do not water down poles prior to burn
6. All trees will be cut and larger branches removed. Scattered small branches that will be laying in the burn areas
7. Fuel Loads: 1000-3000lbs 50% warm season/50% cool season. Height 6"-24"
8. Burn Window: **February 15 – April 1 2011**
9. Notify Hospital to south east (has a helicopter). Notify airport 4 miles south east.
10. Notify campus police about crowd control
11. KDOT to supply electronic billboard on I-70.

**Conditions: Very stable weather pattern; High ceiling**

Wind: South/South West 5 - 10 mph

Relative Humidity: 25%-45%

Temperature: 40-80 degrees

Start Time: 10am to Noon. All flames out by 6pm

**Man Power/Equipment**

10-13 people

2-4 ATV with Spray tanks

5 shovels

5 flappers

1000 gallons extra water

10 gallons torch fuel

2-3 drip torches

10-13 radios

Extra radio batteries

4 butane lighters

10-13 maps/plans

4-5 engines

### **Pre Burn Plans**

1. Smooth Brome on north side of the fence along I-70 is mowed to 3 inches tall
2. All trees in burn areas cut down, large trunks and branches removed; small pieces scattered in field.
3. Firebreaks are mowed as low as possible with a rotary mower all the way around the burn area 30' wide. Then use a wheel rake or side delivery rake to rake duff and vegetation over into the area to be burned a minimum of 20 feet.

### **Safety Zones & Escape Routes**

Any black area and the Sternberg museum parking lot

### **Procedures:**

1. All fire strips need to be perpendicular to the wind. (The actual strips may not look like what is on the map depending on slight wind direction variations)
2. These fires will use a mowed area with a wet line for firebreaks. A wet line is accomplished by sending one engine to pre-water a 5' strip in front of the igniter. The igniter will then light the fire on the inside of the wet line. Another engine will follow behind the igniter extinguishing the fire that tries to creep over the firebreak. This will be done for all fire breaks.

### **Burn 1:**

Start fire 30' from fence on the south side of firebreak in the North West corner and move to the east corner. Hold until the fire has back burned in 50'. Then the igniter can start the next strip which will be a head fire into the back fire. Continue on using strip fires at 50' to 75' increments. Make sure all fires out before moving on to next burn area.

### **Burn 2:**

Start fire 30' from fence on the south side of firebreak in the North West corner and move to the east corner. Hold until the fire has back burned in 50'. Then the igniter can start the next strip which will be a head fire into the back fire. Continue on using strip fires at 50' to 75' increments. This one will take 6 or 7 strips. Make sure all fire out before moving on to next burn area.

**Burn 3:** Start fire 30' from fence on the south side of firebreak in the North West corner and move to the east corner. Hold until the fire has back burned in 50'. Then the igniter can start the next strip which will be a head fire into the back fire. Continue on using strip fires at 50' to 75' increments. Make sure all fires out before moving on to next burn area.

### **Burn 4: Optional Burn:**

Engine will not be able to cross drainage but everything to North will black. Place engines as noted on map for back protection. All ATVs will be on the same side as igniter. Igniter will start in the North West corner, lighting the back fire along the drainage. An ATV with water will follow. Again once the back fire has moved in 50' the next strip can be lit. Continue with the strip fire method at 50'-75' increments.

### **Mop Up:**

Everyone needs to help patrol the field making sure everything is out and hot spots are taken care of. Any wood that is on fire needs to be put out.



# Burn Plan

Customer(s): FORT HAYS ST UNIVERSITY

Agency: NRCS

Assisted By: TONI FLAX



## Legend

← Wind Direction

▲ Look outs

☑ Interstate 70

■ Engines

▣ Box Culvert

--- Two Track Trail

— Highlines

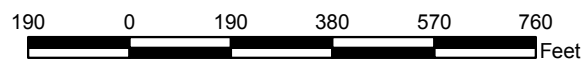
— State Fence

⊕ Hydrant

~ Mowed Firebreak

● Start/End Ignition

▶ Fire Line



## CRP Maintenance

*The information contained in this handout is subject to change in policy and program regulation. Always check with your local FSA office before conducting any maintenance or management practices on acreage under an active CRP contract to ensure you have the most up-to-date information.*

**Always contact the local FSA office prior to conducting any type of burn or maintenance activity on acreage that is under a CRP contract.**

Maintaining acres under an active CRP contract is a requirement and must be maintained in order to stay in compliance with the CRP program.

CRP maintenance practices are the responsibility of the CRP participant and will be carried out without additional cost share - the CRP maximum payment rate calculation considers the cost of maintenance for the participant for the life of the contract, or CRP-1 period.

CRP participants will work with NRCS and FSA to plan appropriate maintenance practices, such as mowing, spraying, or prescribed burning.

Maintenance practices are different than management practices.

Management practices are a required element for CRP contracts, and must be carried out during certain times during the lifespan of the contract, depending on the length of the contract. For instance: under a 10 year contract, the required management practice must be completed by the end of year 6, on an 11-15 year contract, the required management practice must be completed no later than the period of year 6 thru 9.

CRP participants must ensure:

- that adequate approved vegetative cover is maintained to control erosion for the contract period.
- Compliance with State noxious weed laws
- Control other weeds that are not considered noxious
- That undesirable vegetation, weeds (including noxious), insects, rodents, etc., that pose a threat to existing cover or adversely impact other landowners in the area are controlled

## **Burning and the Conservation Reserve Program**

The following are things that should be considered when planning a prescribed burn on land enrolled under an active CRP contract:

Prescribed burning can be either a maintenance practice without cost-share or a management practice with cost-share.

- realize if a burn is selected as a management practice in the Conservation Plan of Operations, then the burn must be carried out in the timeframe applicable to the CPO

Firebreaks, fire lanes, and fuel breaks may be authorized on a case-by-case basis providing:

- they are at the producer's expense
- Clean Till Firebreaks Must be included in the CPO
- they are approved by the COC
- cover destroyed by the producer is replaced at his/her cost

Clean tilled firebreaks:

- may be installed only if NRCS certifies and County Committee approves prior to installation, there will be no erosion problems
- shall not exceed 30 feet in width and shall only be permitted adjacent to the identified high-risk areas

Establishment of short-mown fuel breaks is encouraged over clean tilled firebreaks if pre-fire preventative measures are performed. If approved by the County Committee:

- short-mown fuel breaks, with or without residue removed, may be established up to a maximum of 300 feet. If residue is removed:
  - o it must be destroyed without use
  - o an inspection to verify destruction must be paid.
- firebreaks and fuel breaks may include a combination of clean tilled and short-mown areas not to exceed a total width of 330 feet.

## **References**

Page 1 information: National Handbook 2-CRP (Rev. 5) Amend. 2, paragraphs 427 & 428. Publicly available at

<http://www.fsa.usda.gov/FSA/webapp?area=home&subject=empl&topic=hbk>

Page 2 information: Kansas Supplement to National procedure. 2-CRP (Rev. 5) KS Amend. 3, KS Page 13-8. Publicly available through the Kansas Farm Service Agency.

*Prepared by Michael Martin, FSA, Ellsworth, KS Feb. 2010*

*Updated by Rod Winkler, FSA, Manhattan, KS Aug. 2011*

## Required Management Practices and Applicable CRP Practices (Continued)

### B Prescribed Burning

- NRCS Practice and Standard Specification No. 338, Prescribed Burning, will be used for this management activity.
- This management activity shall not occur until the cover is established.
- Prescribed Burning for wildlife habitat:
  - Soils with an "I" value of 86 or greater (these are sandy soils) have an allowable burning period of April 1 thru April 30.
  - All other soils in the western part of the State from Smith to Barber County and all counties west thereof have an allowable burning window from February 1 thru April 30 (15 days into the Kansas nesting period).
  - All other soils in the counties east of the line described in the previous bullet have an allowable burning window from February 1 thru April 5.
  - Effective with 2011, an additional burning window statewide from July 16 thru August 31 except soils with an I value of 86 or greater.
  - \*--Effective March 22, 2017, an additional late summer burn window from September 1 thru September 30 is applicable to counties from Jewell to Harper and east thereof.--\*
- A firebreak is permitted with Prescribed Burning if completed according to the standard and specifications.
- The first Prescribed Burn conducted under Practice CP25, Rare and Declining Habitat, may be considered either a management practice with cost-share or as a non cost-share maintenance burn.
- Counties shall establish this average cost in future years.
- Prescribed Burning (burn with cost-share) cannot be conducted in two consecutive years on the same acreage or in the same year as managed haying or grazing.

**Note:** Although burning is not recommended for Sand Sage and Sand Prairie it can be performed one time based upon recommendations of the District Conservationist under the right conditions. Moisture conditions must be favorable (good re-growth) and the burning conducted towards the end of the burning window (quick re-canopy). Burning should not be performed on the acreage planted to shrubs.

A prescribed burn planned as a management practice for a certain year of the contract may need to be delayed to another year if NRCS recommends conditions are not right to complete a burn on these types of soils.



**Department of Agricultural Economics**

The Conservation Reserve Program (CRP) is a valuable tool for moderating the effects of soil erosion and providing reliable income.<sup>1</sup> It also provides wildlife habitat and water quality benefits.<sup>2,3</sup> As of April 2006, there were 3 million acres enrolled in the CRP in Kansas through government contracts with private landowners.<sup>4</sup> More than half of Kansas CRP acres (2.4 million acres) came up for renewal or release in 2006.<sup>5</sup> Many of these acres have already been re-enrolled in new contracts or short-term, 2- to 5-year, extensions, which were offered on expiring CRP land. The ability to re-enroll these acres in long-term CRP contracts depends on the inclusion of renewed CRP funding in the upcoming farm bill.

This publication is intended to help landowners and operators plan for the future of their CRP land.

Local economic conditions can be either favorably or unfavorably affected by CRP enrollment.<sup>6</sup> Stable income for participants may change how money is spent in their communities. It is possible that with reduced crop acreage, more money could be spent on personal living and less on farm inputs.<sup>6</sup> Local water supplies and air quality have been positively affected by CRP enrollment, but these benefits are difficult to quantify.<sup>6</sup> Returning land to crop production may negatively influence crop prices as surpluses accrue. Using CRP vegetation for grazing or haying may negatively influence livestock prices as livestock numbers climb.

There are seven broad options open to those with expiring CRP contracts: 1) re-enrollment in the CRP or enrollment in other conservation programs; 2) returning CRP land to crop production; 3) retaining CRP vegetation for livestock or forage production; 4) leasing or selling CRP land; 5) using the land for non-agricultural purposes such as leased hunting; 6) selling easements on the CRP land while retaining ownership; and 7) selling carbon credits. The best strategy depends on a producer's circumstances, expectations, and goals.<sup>6</sup>

CRP land from one tract can be split between options or used for multiple options. CRP-established vegetation along a stream could be retained as a buffer when converting to cropland. Retaining contour grass strips instead of constructing terraces could decrease the costs of converting land to crop production while

meeting government program compliance. Leased hunting could be complementary with forage production and carbon credit sales.

**1. Re-enroll in the CRP or other government programs.** Short-term re-enrollment may be available. The duration of the re-enrollment period is determined by the environmental score on the CRP evaluation done at the first enrollment.

- *Guaranteed annual cash rental payment.* Re-enrolling acreage in the CRP provides a guaranteed annual rental payment that can equal or exceed the land's cash rental value at time of enrollment.<sup>6</sup> These payments can decrease the overall risk of the farm operation.<sup>6</sup> However, CRP rates are locked in for multiple years and do not respond to inflation increases. Changes in CRP program rules may require more inputs or management to qualify for re-enrollment.
- *Decreased labor requirements.* CRP participation allows controlled ownership with less management than returning the land to crop farming, freeing labor for a second job<sup>12</sup> or retirement, while retaining the ability to capture possible increases in land values.
- *Improved condition of adjacent land.* Land in the CRP may mitigate the need for conservation structures on adjacent land and improve overall environmental conditions.
- *Increased land values.* Land value may be positively affected by re-enrolling land in the CRP.<sup>13</sup>
- *Enrollment in other government programs.* Enrollment in other government programs such as Environmental Quality Incentives Program (EQIP), Wetlands Reserve Program (WRP), or continuous CRP may be possible.

**2. Return the land to crop production.**

- *Increased income potential.* Crop production may be more profitable than CRP payments.
- *Increased input purchases.* Labor, equipment, management, and input costs would be increased. Local purchase of supplies might support agricultural businesses in the community.

- *Ability to change operators.* Returning land to crop production offers the opportunity to change farm operators, which can be difficult while under a CRP contract.
  - *Conversion costs.* Existing CRP vegetation will need to be destroyed by tillage or chemical methods. Depending on the producer or the operation, no-till or reduced till cropping systems could be the most cost-effective method of returning the land to crop production by using chemicals in place of deep tillage for destroying CRP vegetation and immediately planting a crop. Underlying weed problems (residual seed in the soil) can become important when the land returns to production. Higher than normal nitrogen rates may be required for 2 years after conversion.<sup>14</sup>
  - *Ability to participate in government programs.* Expired CRP acres returned to crop farming may be eligible for participation in government programs. Government programs provide some income protection and risk reduction, as well as cost-share opportunities and technical assistance. Changes in the farm program may change the economics of participation. CRP acres protected with CRP<sup>15</sup> agreements have protected base acres. However, base acres plus CRP acres combined cannot exceed cropland acres on a farm. Acres that exceed this amount are permanently subtracted from the base acres. If CRP land is returned to crop production, a reduced base acreage may decrease government program benefits. For CRP contracts expiring or terminated before October 1, 2007, base acres can be restored. Contracts expiring or terminated after that date will be subject to the regulations of the new farm bill.
  - *Compliance costs for highly erodible land.* Conservation practices may be required to comply with government program requirements when returning highly erodible land (HEL) to crop production. Compliance costs are up-front and may increase the owner's debt load. Cost-share funds may be available from the state or EQIP. Leaving contour grass strips when converting CRP land to cropland may meet some of the HEL compliance requirements. Some conservation practices, such as grassed waterways and buffer strips, decrease the amount of land available for cropping. Conservation structures require maintenance, which increases cost and management. Without compliance, up-front costs are lower, the conversion to cropland is rapid, and early income is maximized. There is neither income protection from declining commodity prices nor any ability to benefit from cost-sharing or other program incentives.
  - *Environmental costs.* The decreased soil protection associated with removing perennial vegetation may lead to increased sediment, herbicide, and fertilizer runoff, and may affect adjacent land, which may subsequently need conservation treatment. Soil compaction would also increase. Soil and water resources can be protected when returning CRP land to crop production by leaving a buffer of CRP vegetation around surface water such as streams and in areas prone to erosion, or by cropping only the most productive acres and managing the remaining CRP vegetation as hay and forage. Buffers may be eligible for continuous CRP (CCRP) enrollment, even if the rest of the field is ineligible for re-enrollment. Implementing conservation practices can delay income from crop production but also protect future yields by conserving topsoil from wind and water erosion.
- 3. Retain existing CRP vegetation for hay and forage.**
- *Low conversion costs.* Using the expired CRP vegetation for hay or forage may require less up-front investment than returning the land to cultivation. Maintenance and management costs may be lower than for crop farming, although some grazing options are management intensive. Leaving expired CRP land in grass and/or trees gives continued protection to the land from water and wind erosion, enhancing water quality. Hay and pasture income is generally less than crop income. Under current rules, expired CRP is treated as pastured cropland, making it eligible for higher Conservation Security Program (CSP) payments than native rangeland. CSP base payments will be lower than CRP payments, but additional income can be realized from haying and grazing.
  - *Management flexibility.* Expired CRP vegetation provides management flexibility since

it can be used as either hay or forage. Hay can be fed or sold depending on the relative economics each year. Hay can provide immediate, first growing season income with little or no expenditure on permanent improvements. Haying costs may include harvesting equipment, custom harvesting fees, and forage marketing. Labor demands may be greater than with grazing. Haying may be detrimental to wildlife at certain times of the year<sup>7</sup> but beneficial at other times.<sup>8</sup> Good grazing management, including prescribed burning, will be required to maintain productivity and species composition.

- *Leasing opportunities.* The inability of operators or landowners to handle the debt associated with stocking former CRP land can be avoided by leasing the land to another livestock owner. There may be an opportunity for the landowner to provide management of the operator's livestock as an additional source of income.
- *Special use opportunities.* Former CRP land allocated to grazing can be used to provide winter-feeding sites, birthing pastures, and to serve as a forage reserve for drought periods. It can be incorporated into grazing systems that improve herd performance, maximize grass health, and provide wildlife cover. Fencing and water development costs can be substantial, but cost sharing is available.<sup>5</sup> Grazinglands located adjacent to croplands can provide opportunities for complementary grazing, which can extend the grazing season and improve profitability.<sup>11</sup> This may be the best use of small CRP acreages where separate fencing is not economically viable.

#### **4. Lease or sell CRP land.**

- *Realize the increased value of the land.* For some landowners, selling former CRP land allows them to capture capital gains generated by land value increases while the land was enrolled in CRP. This can free labor and management for other activities and provide money for other investments. Retaining ownership, but leasing the land, can capture potential future capital gains while freeing labor and management for other enterprises. Landowner costs are associated with converting CRP land to cropland or grazing. Rental rates can be adjusted down-

ward to reflect operator contributions toward conversions or improvements. Multiple-year leases increase the economic incentive for operators to improve and conserve the land. Leases need to specify who controls hunting rights.

#### **5. Use the land for non-agricultural purposes.**

- *Utilize intrinsic values.* Expired CRP land can have recreational, environmental, and aesthetic values.<sup>2,9,13</sup> Neighboring land uses can enhance or decrease these values. To capture these values, a marketing plan will have to be developed and implemented. CRP land can provide good hunting opportunities in some locations, especially if it provides habitat for a desirable species.<sup>3</sup> Hunting leases can provide a source of income for the landowner or operator. Management needs vary with the site and with the intensity of wildlife production desired. Wildlife plantings may improve hunting success and thus increase lease rates, as well as costs and management. In some instances, grazing is a compatible, and even desirable, component of wildlife management.<sup>8</sup>

#### **6. Leave the land in grass and protect it with an easement.**

- *Retain agricultural use of land.* Urban sprawl can place pressure on expired CRP land for development. Where available, conservation easements<sup>5</sup> can provide an economically viable alternative to development.<sup>10</sup>

#### **7. Contract carbon credits.**

- *Garner additional income from carbon credits.* About 50 percent of the carbon sequestered in the soil is lost by tillage. It can be re-sequestered by reducing tillage operations or planting grass. A market for carbon sequestration credits is emerging. In a pilot program, the Chicago Climate Exchange (CCX) is contracting with Farm Bureau and Farmers Union, which are functioning as a carbon credit aggregators.<sup>15</sup> Producers in parts of Kansas can contract carbon credits on no-till crop acres or land seeded to grass that meet specific criteria. Currently, land established in grass before 1999 cannot be contracted, but this may change in the future. Current rates are \$1 to \$2 per acre; land must be maintained according to contract terms for 4 years.



## Summary

Economics will undoubtedly dictate how CRP acres are managed. Landowners have several options, including keeping land under CRP contract, converting land to crop production, or using the land for forage and/or livestock production. These alternatives can be compared using the CRP decision tool and spreadsheet available at: <http://www.agmanager.info/livestock/budgets/production/default.asp>

Click on *CRP Decision Tool: For managers with expiring CRP contracts*. In addition to economics, landowners may also consider the environmental benefits of retaining CRP land in permanent vegetative cover.

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Acknowledgments: This publication would not have been possible without the assistance of FSA and NRCS. The Kansas Department of Health and Environment has provided financial assistance to this project through EPA Section 319 Nonpoint Source Pollution Control Grant #20003-0023 and the Kansas Water Plan Funds.

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## Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF-2827

March 2008

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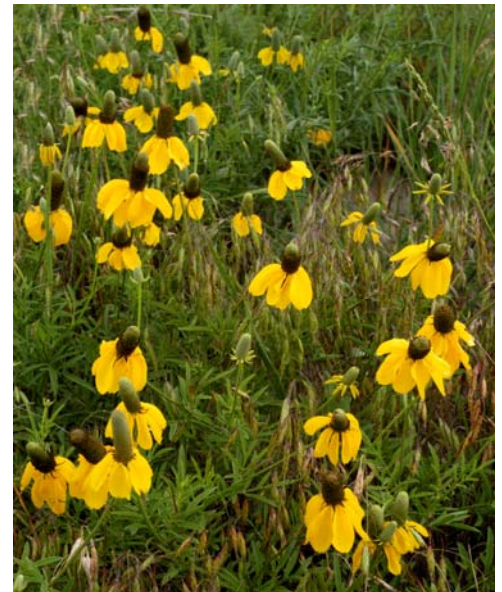
# Expiring CRP?

## Keeping Wildlife in Mind

As of 2009, Kansas had just over 3 million acres enrolled in the Conservation Reserve Program (CRP). Established in 1985 to protect highly erodible and other environmentally-sensitive lands, CRP has created valuable habitat for many species of wildlife, including popular game species such as pheasants, Bobwhite Quail and prairie chickens. By 2011 over one-half of the CRP contracts in Kansas will have expired. Due to a national reduction in authorized acres some of these expiring acres will not qualify for re-enrollment.

When a CRP contract expires, landowners are faced with management decisions that will affect wildlife populations, water quality, soil erosion and income producing opportunities. The basic alternatives include returning all or part of the land to crop production, retaining the vegetation for livestock or forage production, using the land for recreational purposes such as hunting or enrolling at least parts of the land into other conservation programs or some combination of these. Economics will generally determine land use decisions, and each alternative will need careful consideration. The real estate value of rural land with good wildlife habitat is increasing as many buyers look for opportunities for outdoor activities.

Most land enrolled in the CRP was highly erodible and difficult to farm. Returning such land to crop production requires meeting highly erodible land conservation compliance rules to retain eligibility for U.S Department of Agriculture (USDA) commodity or conservation programs. Landowners should consider “farming the best and leaving the rest” if the land is returned to crop production. Fortunately, the Continuous Conservation Reserve Program (CCRP) can help landowners do exactly that. Marginal lands with the least potential for profitable farming may be eligible for payments through the CCRP and therefore could be maintained as permanent vegetation and left for wildlife. The CCRP practices can diversify farm income and maintain the environmental benefits achieved by CRP. Under CCRP, USDA’s Farm Service Agency (FSA) may enroll eligible land devoted to certain conservation practices at any time. The FSA accepts qualified offers without a bid process. CCRP contracts are for 10-15 years and may pay an enhanced rental rate.



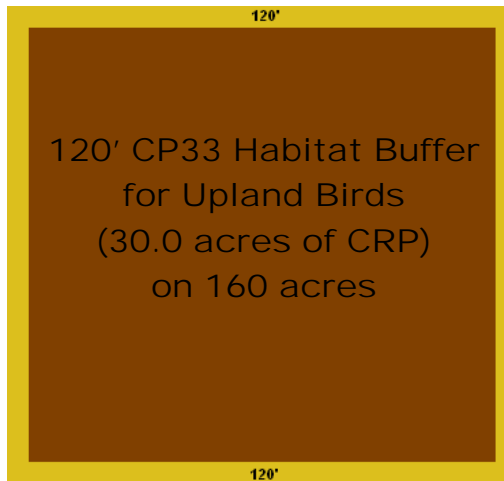
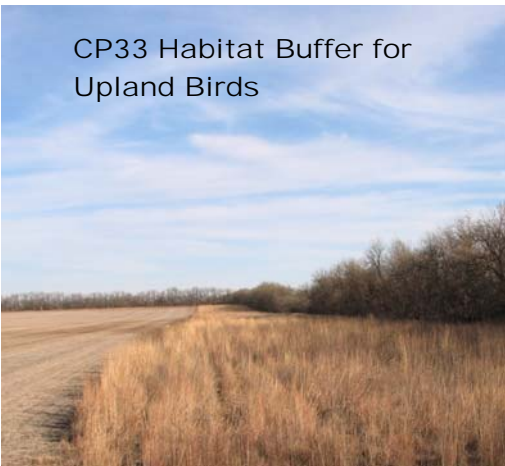


# Options for Re-enrolling Parts of the Field in Continuous Conservation Reserve Program (CCRP)

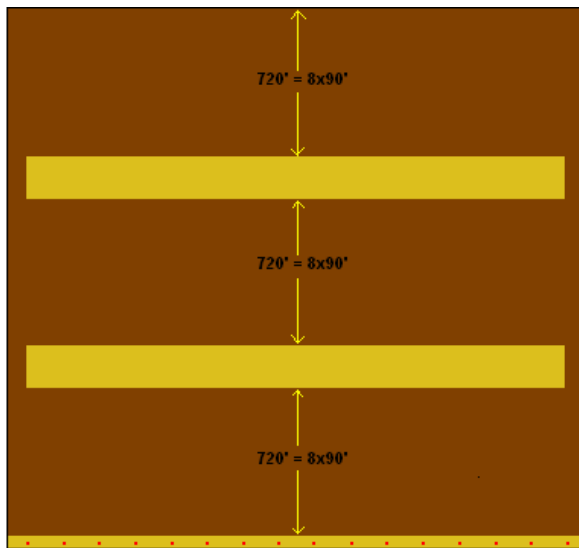
Careful planning before breaking out CRP grassland will help maintain critical habitat for wildlife and provide other environmental benefits. Areas around streams and other water bodies can be protected with CP21, Filter Strips. Wetlands within cropland may be eligible for protection and restoration providing valuable habitat for waterfowl and pheasants using continuous practices CP23, CP23a, CP27 and CP28. Practices devoted to creating habitat for wildlife include CP33, Habitat Buffers for Upland Birds and CP38E, State Acres for Wildlife Enhancement (SAFE). These practices and others may give landowners financial incentives to maintain nesting, brood rearing, travel corridors and winter cover that is often lacking within intensively farmed areas.



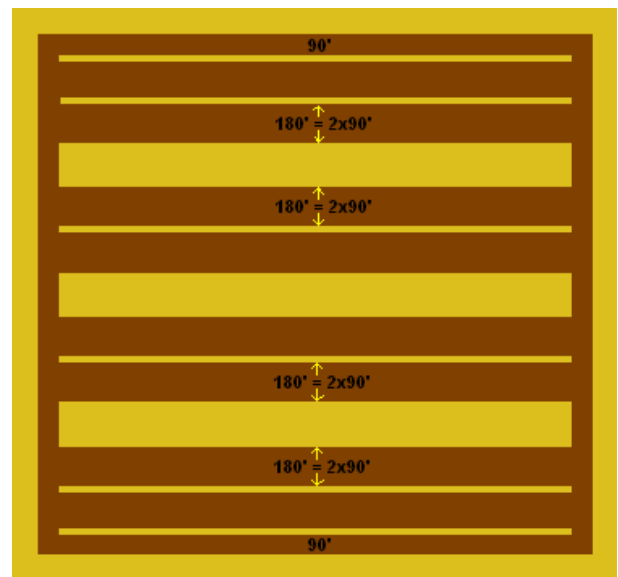
By combining multiple CCRP practices on the same field it may be possible to maximize re-enrolled acres on expiring CRP. These examples were laid out to accommodate a 90 foot sprayer but can be tailored for any planter, sprayer or drill width. Landowners should contact their local Natural Resources Conservation Service (NRCS) office for planning assistance.



Waterway straightened to facilitate farming with "Flexible Buffer" CP38E State Acres for Wildlife Enhancement (SAFE)



(2) 200' CP38E Safe Buffers and (1) 60' CP38E SAFE Buffer underneath the power line adds up to 26.0 acres of CRP.



Multiple CCRP practices adds up to 66.0 acres of CRP on 160 acres. 120' CP33 Habitat Buffer (3) 200' CP38E SAFE buffers and (6) 25' CP24 Cross Wind Trap Strips.

**R**anching and wildlife management are generally very compatible. Good rangeland management and good wildlife management, go hand in hand, especially for prairie chickens. Because CRP land was formerly cropped, adequate fencing and water sources are often lacking. Landowners who want to use expired CRP for livestock production should check with the local NRCS office about the Environmental Quality Incentives Program (EQIP), which offers cost-share funding for cross-fencing, watering, controlling invasive trees, managed grazing and prescribed burning on eligible land. Landowners with an interest in improving habitat for wildlife can contact their local wildlife biologist and check on cost share opportunities and planning assistance through the Wildlife Habitat Incentive Program (WHIP) and Kansas Department of Wildlife and Park's Landowner Incentive Program.



For additional information on Continuous CRP visit: <http://www.fsa.usda.gov>

For information on EQIP and WHIP visit: <http://www.ks.nrcs.usda.gov/programs/>

To contact a Kansas Department of Wildlife and Parks Biologist go to: <http://www.kdwp.state.ks.us/news> or call 620-672-5911

For additional information on the economics of alternative uses of CRP go to: [www.oznet.ksu.edu/library](http://www.oznet.ksu.edu/library) See - MF-2827 "Decision Considerations for Expiring CRP Contracts" March 2008.

**Examples of Continuous CRP Practices that can maintain many of the benefits achieved with CRP**

- CP8A Grass Waterways**
- CP15A Contour Grass-Strips**
- CP15B Contour Grass Strips on Terraces**
- CP21 Filter Strips**
- CP23 Wetland Restoration, Floodplain**
- CP23A Wetland Restoration, Non-flood plain**
- CP24 Cross Wind Trap Strips**
- CP27 Farmable Wetlands**
- CP28 Farmable Wetlands Buffer**
- CP33 Habitat Buffers for Upland Birds**
- CP38E State Acres for Wildlife Enhancement (SAFE)**



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## Grazing and Haying CRP Ground after Contract Expiration

As CRP contracts expire, some landowners are considering what needs to be done to transition the acres into a productive grazing or haying enterprise. Maintaining these acres with a perennial grass cover will reduce erosion, improve water quality, enhance wildlife, and reduce sedimentation.

### Grazing

Getting CRP ready to graze will probably require fencing and water development. Fence off CRP that is adjacent to native rangeland. Experience has shown that animals will not utilize seeded grass as well as native sod when given a choice. One can partially overcome this problem by using grazing distribution tools such as water development, placement of salt and mineral, and burning. Care should be taken in determining where to place water developments. If feasible, water developments should be positioned in a way that will encourage uniform grazing of the land.

Most CRP stands coming off contract are initially not in condition for full grazing pressure. A management strategy covering 2 to 4 years may be necessary to condition the plants to use. After years of non-use the plants are in a state of low vigor and may have a limited root system. Loss of topsoil from previous cropping and large spacing between grass plants is common, often resulting in low total forage production.

Increasing plant density and vigor is the first step to improving the stand for use as pasture. If the land has not been burned for a few years, it would be a good idea to conduct a prescribed burn. Spring burning is an effective method of removing the standing dead material and mulch to allow sunlight to reach the crown of the plant. If allowed to remain, previous years forage growth will dilute the diet of grazing animals and suppress growth of young plants. Burning will also help control undesirable plants such as eastern red cedar.

Burning will not only get rid of old dead material, but should increase tillering and help the grass stand continue to develop. Frequent burning is not recommended in western Kansas. In eastern Kansas, do not burn unless heavy growth remains. Avoid annual burning until the stand is completely developed (2 to 4 years).

Mowing or haying in March or April is another method to remove litter, although hay removed at this point would be relatively low in protein and energy. A 2009 study by B. Andersen from the University of Nebraska indicated that burning was the most effective in improving subsequent production with grazing and haying providing intermediate improvement compared to shredding or no treatment.

Year-end yields following one year of treatment on CRP: Nebraska, 2009	
Treatment	Yield (lbs/acre)
Burn	4420
Graze	3200
Hay	3080



Shred	2160
Control	2130

A three-year study by K-State from 1994-96, with sites in Edwards, Greeley, Kearny and Reno counties, compared spring burning or spring mowing in year one to non-treated CRP. At the Edwards County site, calves from cow-calf pairs showed similar gains with all treatments.

<b>Effect of CRP Mowing and Burning on Calf Gains: Edwards County</b>			
	Average Daily Gain (lbs/day)		
	1994	1995	1996
No treatment	2.36	2.20	2.36
Mowed, spring 1994	2.44	2.22	2.48
Burned, spring 1994	2.48	2.12	2.32

Stocking rate (cow/calf pair): 212-267 lbs/acre; Days grazed: 144 (1994); 168 (1995); 130 (1996)

Source: Langmeier, et al. K-State Cattlemen's Day 1997 Cattlemen's Day 1997

<http://www.ksre.ksu.edu/library/lvstk2/srp783.pdf>

Season-long stocker grazing was done at the Kearny and Reno county sites. Stocker gains were generally highest where the CRP was burned. Stocker performance increased 6 to 38 percent after spring burning compared to no treatment.

<b>Effect of CRP Mowing and Burning on Stocker Gains from Season-Long Grazing: Kearny County</b>			
	Average Daily Gain (lbs/day)		
	1994	1995	1996
No treatment	1.16	1.61	1.57
Mowed, spring 1994	1.27	1.60	1.57
Burned, spring 1994	1.93	2.10	1.96

Stocking rate: 112-156 lbs/acre; Days grazed: 130 (1994); 103 (1995); 94 (1996)

<b>Effect of CRP Mowing and Burning on Stocker Gains from Season-Long Grazing: Reno County</b>			
	Average Daily Gain (lbs/day)		
	1994	1995	1996
No treatment	2.01	1.15	1.79
Mowed, spring 1994	2.55	1.24	1.44
Burned, spring 1994	2.65	1.39	1.68

Stocking rate: 162-169 lbs/acre; Days grazed: 103 (1994); 141 (1995); 112 (1996)

The Greeley County site tested early intensive heifer grazing. Prescribed burning increased grazing performance at that location, largely due to the magnitude of the difference the first year.

<b>Effect of CRP Mowing and Burning on Heifer Gains from Early Intensive Grazing: Reno County</b>			
	Average Daily Gain (lbs/day)		
	1994	1995	1996
No treatment	2.73	2.49	1.31
Mowed, spring 1994	3.07	2.21	1.39
Burned, spring 1994	3.47	2.27	1.22

Stocking rate: 175-196 lbs/acre; Days grazed: 58 (1994); 74 (1995); 79 (1996)

When grazing any CRP ground for the first time, it's best to use a light stocking rate to allow good plant growth the first year. Adjust stocking rates in subsequent years based on stand development.

Since burning and mowing won't fit all situations other options should be considered. CRP acres could be used as a calving pasture and would provide plenty of bedding and clean ground. Lactating cows would need supplementation to meet both protein and energy needs.

“Extreme grazing” has a goal of leaving little residual forage. It is achieved by using a very heavy stocking for a short period of time (80 - 100 cows per acre for one to seven days). This results in trampling the dead litter into the soil and opening up new areas for seedlings and tillers. Temporary electric fencing is often needed to concentrate animals in a smaller area and then allow movement to the next section. If grazed as early as allowed in the fall, nutrient content will be relatively higher, reducing supplement needs.

### **Haying**

Management decisions related to hay production include fertilization, burning, and time of cutting. Most CRP in Kansas was seeded to warm-season native grasses. Although fertilization with nitrogen and/or phosphorus might increase production, it is not recommended because of potential changes in plant composition. Cool-season grasses and broadleaf plants will be stimulated by fertilization.

If you want to fertilize, it would be best to start by treating a small area. Observe and measure what happens. Warm-season grasses will respond to early May applications of 30 pounds per acre nitrogen, 10 pounds per acre phosphorus, and 0 to 30 pounds per acre potassium. Fertilization of cool-season grasses such as smooth brome and tall fescue should be based on a soil test. Follow recommendations found in the Kansas State University Research and Extension publications:

Smooth Brome Production and Utilization C-402

<http://www.oznet.ksu.edu/library/crpsl2/samplers/c402.asp>

Tall Fescue Production and Utilization C-729.

<http://www.oznet.ksu.edu/library/crpsl2/samplers/c729.asp>

If the land has not been burned for a few years, it would be a good idea to conduct a prescribed burn. Burning will remove mulch and standing dead litter. Although this material will add yield when baled, forage quality will be reduced.

The proper time to hay native warm-season grasses in Kansas is during July. Crude protein will drop a half percentage point every week during July, but will usually be 6 to 8% during this time. Peak yield on warm-season grasses will probably not occur until

August, but by that time crude protein content will be less than 5%. A mid-July haying date on native grass is a good compromise between yield and quality. Cool-season grasses should be hayed during the heading to full bloom stage to optimize yield and quality.

### **Other considerations**

Other limiting factors in CRP productivity are undesirable weeds and brush. These problems may be best addressed while still under contract since herbicide options are broader for CRP than for use for hay or grazing. Mechanical control may be needed for larger trees and brush. Goats may be an option for biological control of some weed species. In the long run, increasing the vigor of the stand through good grazing management is the best weed control.

-- Walt Fick, Rangeland Management Specialist  
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eupdate Feb 12, 2010

## Factors to Consider Before Burning Wheat Residue

Many producers may be planning to burn their wheat stubble this summer to help control volunteer plants, weeds, and certain diseases. While burning is inexpensive, producers should understand the true value of residue ahead of time. Some of the information below comes from K-State Extension publication MF-2604, *The Value of Crop Residue*, available at your local county Extension office or at: [www.ksre.ksu.edu/library/crpsl2/mf2604.pdf](http://www.ksre.ksu.edu/library/crpsl2/mf2604.pdf)

There are four main factors to consider.

### Loss of nutrients

The products of burned wheat stubble are gases and ash. Nutrients such as nitrogen (N) and sulfur (S) are largely combustion products, while phosphorus (P) and potassium (K) remain in the ash. When residue is burned, about one-third to one-half of the N and S will combust. The nutrients in the ash may remain for use by the plants, if it doesn't blow away first. Therefore, instead of cycling these important plant nutrients back into the soil, they can essentially become air pollutants when the residue is burned.

Amounts of nutrients remaining in wheat stubble (assuming 50 bu/ac yield)	
Nutrient	Pounds present in 5,000 lbs of wheat straw
N	27.0
P <sub>2</sub> O <sub>5</sub>	7.5
K <sub>2</sub> O	37.5
S	5.0

### Protection from soil erosion

Bare soil is subject to wind and water erosion. Without residue, the soil will receive the full impact of raindrops, thus increasing the amount of soil particles that may become detached during a rainfall event. Bare, tilled soils can lose up to 30 tons per acre topsoil annually. In no-till or CRP systems where residue is left, annual soil losses are often less than 1 ton per acre. The detachment of soil particles can lead to crusting of the soil surface, which then contributes to greater amounts of sediment-laden runoff, and thus, reduced water infiltration and drier soils.

Leaving residue on the field also increases surface roughness, which decreases the risk of both wind and water erosion. Most agricultural soils in Kansas have a "T" value, or tolerable amount of soil loss, of between 4 and 5 tons per acre per year, which is about equal to the thickness of a dime. To prevent water erosion, 30% ground cover or greater may be needed to reduce water erosion to "T" or less, especially in fields without erosion-control structures such as terraces.

Standing stubble is more effective at preventing wind erosion than flat stubble.

### Moisture infiltration rates and conservation

Wheat residue enhances soil moisture by increasing rainfall infiltration into the soil. Residues physically protect the soil surface and keep it receptive to water movement into and through the soil surface. Without physical protection, water and soil will run off the surface more quickly.

Ponded infiltration rates were measured at Hesston in September 2007. Very low infiltration rates (1.9 mm/hr) were observed for continuous winter wheat in which the residue was burned each year prior to disking and planting the following crop. In contrast, high infiltration rates (13.3 mm/hr) were observed for a no-till wheat/grain sorghum rotation.

Another way residue increases soil moisture is by reducing evaporation rates. Evaporation rates can decline dramatically when the soil is protected with residue. Residue blocks solar radiation from the sun and keeps the soil surface cooler by several degrees in the summer.

### **Soil quality concerns**

Over time, the continued burning of cropland could significantly degrade soil organic matter levels. By continually burning residue, soil organic matter is not allowed to rebuild. Soil organic matter is beneficial for plant growth as it contributes to water holding capacity and cation exchange capacity. Soil organic matter binds soil particles into aggregates, which increases porosity and soil structure and thus, increases water infiltration and decreases the potential for soil erosion. One burn, however, will not significantly reduce the organic matter content of soil.

If producers do choose to burn their wheat stubble, timing is important. It's best to burn as late as possible, close to the time when the next crop is planted. This minimizes the time that the field will be without residue cover and vulnerable to erosion. Before choosing to burn residue, producers should check with the USDA Natural Resources Conservation Service and/or the Farm Service Agency to find out if this will affect their compliance in any conservation programs.

-- DeAnn Presley, Soil Management Specialist

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eUpdate July 8, 2011

## Technical and Financial Support Available for Prescribed Burning

A wealth of information and assistance is provided by federal, state, and local agencies. For more information about prescribed burning, contact the following:

### **KANSAS DEPARTMENT OF WILDLIFE, PARKS, AND TOURISM**

<http://kdwpt.state.ks.us/Services/Private-Landowner-Assistance/Wildlife>

Kansas Department of Wildlife, Parks and Tourism (KDWPT) private land wildlife biologists can provide information and recommendations to landowners about the impacts to wildlife depending on the size, intensity, frequency and timing of the prescribed burn. Considering the needs of wildlife during the planning process can enhance wildlife habitat and minimize potential harmful effects to wildlife from the burn.

Many private land biologists have training to help assist on prescribed burns but will not be in charge of the burn on private land. Biologists have various kinds of prescribed burning equipment available for loan to private landowners and other equipment only used by KDWPT staff assisting with a burn. KDWPT biologist can also help locate other equipment available from local conservation organizations. To contact your private lands biologist call 620-672-0760.

*Matt Smith, KDWPT Wildlife Biologist*

### **NATIONAL WILD TURKEY FEDERATION**

[http://www.nwtf.org/in\\_your\\_state/lists.php?STATE=KS](http://www.nwtf.org/in_your_state/lists.php?STATE=KS)

The NWTF purchases prescribed burn equipment for agencies that can check the equipment out to landowners for their use in conducting prescribed burns. Additionally, the NWTF sometimes provides funding for partner programs offering assistance to landowners for prescribed burn planning and implementation.

*Jared McJunkin, NWTF Conservation Field Supervisor*

### **PHEASANTS FOREVER and QUAIL FOREVER**

<http://www.kansaspfqf.org/>

Pheasants Forever Farm Bill Biologists are private lands wildlife biologists that work in a partnership with PF/QF chapters, NRCS, and KDWPT in Kansas. There are five biologist positions in the state, covering 44 counties, and all have experience applying prescribed fire. Farm Bill Wildlife Biologists work directly with landowners and can provide technical assistance on burn plan development and a number of other conservation practices. While they cannot actively assist with prescribed burning during work time, they can offer advice and work with partners to ensure that landowners get well thought out plans that will minimize risk of fire escape or personal injury. Many Farm Bill Biologists also work closely with local prescribed burn associations and may volunteer their free time to help associations complete prescribed burns. In addition, Farm Bill Biologists work directly with NRCS and other agency staff to develop necessary plans and contracts that can provide financial assistance for prescribed burns. In some cases, the Farm Bill Biologist will be the first point of contact on prescribed burning through the NRCS office.

Pheasants Forever and Quail Forever also have 48 local chapters across the state that work with landowners to help them with their upland habitat goals. Prescribed burning is a habitat management tool that many Kansas chapters actively support. Please visit [www.PheasantsForever.org](http://www.PheasantsForever.org) or [www.QuailForever.org](http://www.QuailForever.org) to find your local chapter and contact them about your prescribed burning needs.

*Zac Eddy, PF Senior Farm Bill Wildlife Biologist*

## **NATIONAL WEATHER SERVICE**

<http://www.weather.gov/>

See Weather section of the handbook for a description of services and contact information.

## **KANSAS MESONET**

<http://mesonet.k-state.edu/>

See Weather section of the handbook for a description of services and contact information.

## **CONSERVATION DISTRICTS**

<https://agriculture.ks.gov/divisions-programs/division-of-conservation/conservation-districts>

Each county in Kansas has a Conservation District that directs and assists with natural resource conservation efforts in the county. Some Conservation Districts have prescribed burning equipment available for rent or to use at no cost. Equipment typically available may include spray units, drip torches, and fire swatters. Conservation District equipment inventory varies widely from county to county, so check with your local Conservation District to determine what is available and the rules for its use.

*Pamela Hays, Ellsworth Count Conservation District*

## **FARM SERVICE AGENCY**

<http://www.fsa.usda.gov/FSA/stateoffapp?mystate=ks&area=home&subject=prog&topic=landing>

As a Management Practice under the Conservation Reserve Program, cost-share assistance is provided to landowners and operators by FSA for completing prescribed burns to enhance the cover as a mid-contract management practice. Maintenance burns are also permitted under the program without cost-share, but if completed as a management practice, the prescribed burn is eligible for cost-share assistance.

*Rod Winkler, USDA FSA Program Specialist Conservation Reserve Program*

## **NATURAL RESOURCES CONSERVATION SERVICE**

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/ks/contact/>

Individuals who request technical assistance from NRCS are provided technical assistance by an approved Prescribed Burn Planner. Depending upon the complexity of the proposed burn area, (size, fuel amount, and fuel type) an approved planner will meet with and help the producer develop a prescribed burn plan. After NRCS develops and approves the plan the producer will then have the plan reviewed with them to assure understanding and responsibility. This is done at no cost to the producer or landowner.

Only NRCS employees with Job Approval Authority can plan or approve prescribed burns developed by NRCS. However, a producer can perform a prescribed burn without NRCS assistance and still meet NRCS specifications as long as a NRCS employee reviews and certifies that the completed burn meets the purpose and intent for which prescribed burning was included in a conservation plan of operations.

In both EQIP and WHIP, NRCS will financially assist producers to complete prescribed burning at the rate of \$5.25/acre. Those are the primary funding sources for assisting landowners or producers with prescribed burning.

*David Kraft, USDA NRCS State Rangeland Management Specialist*

FOR COUNTY CONTACT INFORMATION FOR CONSERVATION DISTRICTS, FSA, NRCS

<http://offices.sc.egov.usda.gov/locator/app?state=ks&agency=fsa>

KANSAS FOREST SERVICE

<https://www.kansasforests.org/programs/fire/prescribedfire.shtml>

<https://www.kansasforests.org/about/staff.shtml>

KANSAS STATE UNIVERSITY EXTENSION

<http://www.agronomy.k-state.edu/extension/range-and-forage/prescribed-burning.html>

<http://www.ksre.ksu.edu/Map.aspx>