Rangeland and Pasture Brush & Weed Control

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Brush control is a major problem in eastern Kansas. The species involved are buckbrush, locust, dogwood, hedge, elm, red cedar, brambles, oaks, and sumac. The main objective of brush control is to obtain an acceptable population of woody plants on rangeland to increase or maintain an optimum amount of area available for livestock grazing. Other potential benefits of brush control include: 1)increased forage quality; 2)increased animal production; 3)easier handling and care of animals; and 4)reduction of potential fire hazard if volatile fuels like cedars are removed. Total removal of all woody plants; however, may not be necessary or recommended. Brush and trees around watering areas, in ravines, and other areas where they are difficult and expensive to control can provide shade and winter protection for livestock. They also provide much needed habitat for wildlife. Complete removal of plants in that location would have little effect on livestock carrying capacity.

It seems that we focus on control after the problem develops instead of working to prevent the problem from developing in the first place.

Prescribed Burning

Prescribed burning can oftentimes keep rangeland almost free of unwanted brush. And, it can also be a low-cost way to control many woody species after establishment. Of course, it is most effective when brush and trees are small, and adequate fuel (old grass) is available to generate a hot fire.

Combined with other control methods, burning can reduce the total cost of obtaining control. Late spring burning is best for most brush species. The amount of control achieved is directly related to size of the woody plant, amount of fuel present (herbaceous material below the brush), kind of fire used, weather conditions favorable for a hot fire, and for most species, the level of food reserves.

Red cedar is effectively controlled by a burn. Seedlings and sprouts will be controlled by fire, whereas large, more mature trees probably won't be controlled. Burning in late spring for three or more consecutive years is required to control species that resprout. At that time, the plant food reserves are low. Buckbrush, elm, oak, and hedge are a few examples of species that can be effectively controlled by burning. However, sumac can be enhanced by a late spring burn because the plant may be dormant when the prescribed burn occurs. Cool season grass should not be burned except to eliminate red cedar. That prescribed burn should occur in mid-late February. Annual burning will harm brome and fescue

Chemical Control

All chemicals must be applied according to the directions on the label. Be sure to read all label information including rate, timing and safety issues.

Most woody plants are susceptible to herbicides when applied properly. Chemicals that are translocated to, or taken up by, the roots are preferred. After heavy stands are reduced to a manageable level, spot treatment rather than broadcast treatment is best. The application of herbicides can be done by one of several methods. Be sure method of application is approved on herbicide label.

Aerial or Ground Application: Chemicals may be applied by air or ground sprayers when heavy stands or large areas are to be controlled. Timing, correct herbicide, conditions (growth stage), amount of spray solution (plant coverage), and management following application are important factors to consider. Most foliar applied herbicides should be applied at full leaf stage and plants actively growing.

Basal Bark: Some species can be controlled by applying a mixture of diesel and herbicide to the lower 18 to 24 inches of the trunk. Wetting the bark to run off at the soil line is important to reduce root collar sprouts. Be sure to apply mixture all the way around the trunk.

Cut Stump: Cutting trees and brush at or near ground level will result in re-sprouting with many species, except red cedar. Treating the cut surface with an herbicide after cutting will usually prevent regrowth. Treatment should be applied soon after cutting. Red cedars do not require stump treatment when cut below the lowest limb.

Pellets or Granules: Spot treatments applied by hand or aerial application of pelleted or granular herbicides are effective when used properly. The herbicide is leached into the soil by rainfall and then taken up by the plants. Don't apply on frozen or water saturated soils. Soils of limestone or shale origin may contain enough clay that it will reduce effectiveness of these materials.

Soil Applied Liquids: Application and action is similar to pellets and granules except that they are for spot treatment only. They appear to work much better than pellets or granules on heavier clay soils. Once again, don't apply on frozen or water saturated soils.

Time of Herbicide Application

AS A GENERAL RULE OF THUMB, BRUSH IS MOST SUSCEPTIBLE TO FOLIAR APPLIED HERBICIDES JUST AFTER THE FULL LEAF STAGE IN THE SPRING. Herbicides applied at that time are absorbed and translocated to site of action. Since plants differ among species as to when the full leaf stage occurs, one needs to base application date on species selection. For example, buckbrush is in full leaf by early May or even late April, whereas hedge trees are not in full leaf until early June. Blackberries are most susceptible to herbicide control when sprayed in early to mid-June, well after the full leaf stage. Only sericea lespedeza is susceptible to summer or fall (June-September) applications, then only when they are actively growing or flowering.

USE ONLY LABELED CHEMICALS.
CONSULT YOUR LOCAL EXTENSION AGENT
FOR THE LATEST RECOMMENDED CHEMICALS.

BRUSH CONTROL CHEMICALS

	Basal Bark or Cut Stump— Applied	Key to Species[1]
Crossbow	Dow AgroScience Co Range, pasture and non-cropland 4 gallons/100 gallons of diesel fuel. Treat basal bark from ground level up to 24" completely around trunk to point of runoff. Cut stump, saturate cut face of stump	A, C, D, E, I
Remedy or Remedy Ultra	Dow AgroScience Co Range, pasture and non-cropland Mix 1.0 qt of Remedy in 3 qts diesel fuel, or 25 gallon Remedy in 75 gallons diesel fuel. Treat same method as Crossbow	J
Tordon RTU	Dow AgroScience Co. Non-cropland only Treat freshly cut stumps with undiluted chemical directly from container (RTU = Ready - to - Use). Treat tissue just inside of bark (cambium layer) for best results.	J
PastureGard	Dow AgroScience Co Range, pasture, and non-cropland Mix 50% PastureGard plus 50% diesel fuel. Apply to fresh-cut stump, sides, and root collar. Thin line basal bark, use PastureGard undiluted (see label).	A, C, D, E, H, I
Pathfinder II	Dow AgroScience Co. Range, pasture, and non-cropland Same active ingredient as Remedy. A ready-to-use product. Works best on woody plants less than 6 inches basal diameter. Spray basal trunk, wet thoroughly lower 12 - 18 inches. Use directly from container, no mixing	J

Soil — Applied

Velpar L	DuPont Range and pasture Ready to use liquid, spot treatment. Use 2 to 4 ml/inch diameter of trunk. Apply within 3 feet of trunk base. Don't apply on frozen or saturated soil. Treated plants may re-leaf several times. For thickets, apply 10 ml of chemical in a 6 ft grid.	J
Pronone Power Pellet	Pro-Serve, Inc. Range, pasture and non-cropland Same active ingredient as Velpar L, but is a nickle sized pellet. Ready-to-use, applied to soil surface under target plant. Apply 1 - 2 pellets/inch of stem diameter. Distribute uniformly under canopy. Don't apply on frozen or saturated soil. Best applied November - February. Comes in 3 oz, 22 oz and 5.5 lb. Approximately 44 pellets/oz.	J

Foliar — Applied

Crossbow	Dow AgroScience Co. Range, pasture, non-cropland Foliar broadcast 1.5 gallons/acre, at full leaf. Spot, high volume spray 1.5 gal/100 gallon of water. Spray all foliage to point of drip at full-leaf stage.	A, C, D, E, H, I
Remedy or Remedy Ultra	Dow AgroScience Co. Range, pasture, non-cropland Foliar broadcast 1.5 pt/A at full leaf. For spot, high volume, mix 2.0 qt Remedy/100 gallon water	A, C, D, E, H, I
Tordon 22K*	Dow AgroScience Co. Range, pasture, non-cropland Foliar, 1.0 pt/A at full leaf. For spot high volume 2.0 qt Tordon 22K/100 gallon of water	B, H, I
Remedy + Tordon 22K* + 2, 4-D LVE + non-ionic surfactant (NIS)	Dow AgroScience Co. Range, pasture, non-cropland Foliar 1.0 pt Remedy + 1.0 pt Tordon 22K + 1.0 pt 2, 4-D LVE/A. For spot high volume, 2.0 qt Remedy + 2.0 qt Tordon 22K + 2.0 qt 2, 4-D LVE/100 gallon water. NIS 2.0 qt/100 gallon water.	A, B, C, D, E, F, H, I
Remedy + Grazon P + D* + Non-Ionic Surfactant (NIS)	Dow AgroScience Co. Range, pasture, non-cropland Foliar broadcast 1.0 pt Remedy + 1.0 gallon Grazon P + D/A. Spot, high volume 1.0 qt Remedy + 1.0 gallon/100 gallon water when leaves are fully expanded. Spray foliage to wet. NIS 2.0 qt/100 gallon water	A, B, C, E, F, H, I
PastureGard (triclopyr 1.5 lb/gal + fluroxypyr 0.5 lb/gal)	Dow AgroScience Co. Range, pasture, non-cropland Foliar broadcast 5 to 8 pints/a at full leaf. For spot, high volume, mix 1% to 2% PastureGard in water. Best used on trees under 8 ft tall. That's 1 to 2 gallon in 100 gallons of water or 1.3 to 2.6 fl oz/gallon.	A, C, F, G, H, I
Surmount* (picloram 1.19 lb/gal + fluroxypyr 0.96 lb/gal)	Dow AgroScience Co. Range, pasture, non-cropland Foliar broadcast 4 to 6 pints/a at full leaf. For spot, high volume, mix 1 to 2 gallons/100 gallons of water. That is a 1 to 2% solution. Using a nonionic surfactant with this product is recommended.	A, B, G, I

*Restricted use herbicide

[1]Species Key

A. Hedge
B. Locust
C. Elm
D. Mulberry
E. Hackberry
F. Oak (Blackjack/Post)
G. Persimmon
H. Buckbrush & Sumac
I. Multiflora Rose
J. All A - I

Table 1. Measurement Information

3 teaspoons - 1 Tablespoon
2 Tablespoons = 1 fluid oz.
16 Tablespoons - 1 cup = 8 oz.
2 cups = 1 pint = 16 oz.
2 pints = 1 quart = 32 oz.
4 quarts = 1 gallon = 128 oz.

1 teaspoon = approximately 5 cc or ml
1 Tablespoon = approximately 15 cc or ml

Table 2. Amount of Remedy, Crossbow, Grazon P + D or Surfactant to use in smaller amounts of water for spot spray.

Sprayer Size	Remedy*		Crossbow*	Grazon P+D*	Tordon 22K*	Surfactant
	0.5%	1%				
1.0 gal	4 tsp	8 tsp	8 tsp	8 tsp	4 tsp	4 tsp
5.0 gal	3.2 fl oz	6.4 fl oz	6.4 fl oz	6.4 fl oz	3.2 fl oz	3.2 fl oz
10 gal	6.4 fl oz	12.8 fl oz	12.8 fl oz	12.8 fl oz	6.4 fl oz	6.4 fl oz
100 gal	2.0 qt	4.0 qt.	4.0 qt	2.0 qt	2.0 qt	

*Use chemical or combinations to control your target specie.

Table 3. Amount of PastureGard, Surmount and non-ionic surfactant to use in smaller amounts of water for spot spray.

Sprayer Size	PastureGard* 1%	PastureGard* 2%	Surmount* 1%	Surmount* 2%	Surfactant 0.25% U/V
1.0 gal	1.28 fl oz	2.56 fl oz	1.28 fl oz	2.56 fl oz	0.32 oz
5.0 gal	6.4 fl oz	12.8 fl oz	6.4 fl oz	12.8 fl oz	1.6 fl oz
10 gal	12.8 fl oz	25.6 fl oz	12.8 fl oz	25.6 fl oz	3.2 oz
100 gal	4.0 qt	8.0 qt	4.0 qt	8.0 qt	1.0 qt

*Label rate range is 1 to 2 gallons/100 gallons

Red Cedar Control

Foliar	Apply a 1% spray solution of Tordon 22K in water when cedars are actively growing (May - June). Spray entire tree to point of drip — works best on trees less than 10 feet tall.			
Ingredient	Concentration	Tank Size		
		1 gal	5 gal	14 gal
Tordon 22 K[1]	1%	1.3 oz	6.5 oz	18 oz
Surfactant	0.25%	.33 oz	1.7 oz	5 oz
Soil Spot	Apply Tordon 22K undiluted from container 3 to 4 ml/3 feet of height on soil under branches in April - May or September - October.			
Cut Off Tree	Cut off tree below lowest branch. It will not sprout.			
Fire	A controlled burn can destroy all cedars, but must burn entire tree.			

[1]Restricted use herbicide.

Blackberries

A perennial plant that will grow in "thickets" or single plants scattered over a large area. Once established, fire can reduce their spread, but only continuous fire for several years reduces infestation.

Chemical control should be applied in spring after plants have dropped their flower petals. This is usually late May. Plants flower on year-old wood, so if plants were mowed off last summer or burned this spring, plants will not flower. In that case, wait until new growth has produced 18 inch long stems, then spray. That will be in early June most years.

Herbicides to use are Remedy and Escort XP.

Herbicide	**Amount/Acre**
Remedy	1.5 pts
Escort XP	0.4 - 0.5 oz + non-ionic surfactant

Rangeland Weed Control

It is common for ranchers to consider most broadleaf plants to be weeds, even though they may be an important forage resource. From a strict livestock production aspect, the key to determine whether control should occur is whether that control will actually increase forage production for use by the grazing animal. And another criteria is to determine if the particular weed is "noxious" or not.

Musk thistle and sericea lespedeza must be controlled if considered noxious in your county. Annual weeds such as ragweed may not be a problem especially if they are eaten by the grazing animal.

A prescribed burn can greatly reduce annual weeds when the burn is conducted after initial emergence of seedlings.

If you decide to control weeds with chemicals, please check with your County Extension Ag Agent and follow recommendations in the latest issue of Chemical Weed Control for Field Crops, Pasture, Rangeland and Non-Cropland publications from Kansas State University. Some of the herbicides that could be used include: 2,4-D, Banvel, Tordon 22K*, Grazon P+D*, PastureGard, Surmount*, Milestone, Overdrive and Rave. Chemical selection and rate will depend on weed species and weed size. Follow label for rates, directions, restrictions and cautions.

Musk Thistle

Chemicals that can be used include: Banvel (2/3 pt/A) or Banvel (½ pt/A) + 2,4-D LVE (3/4 qt/A) or Tordon 22K* (½ pt/A) or Tordon 22K* (6 oz/A) + 2,4-D LVE (1.0 qt/A) or 2,4-D (1.5 - 2.0 qt/A) or Escort XP (0.2 - 0.3 oz/A). Please follow label directions. Most can be applied in fall or spring while thistle is in the rosette stage, and soil moisture and air temperature is favorable for growth. Escort XP is the only pesticide that will kill thistles that have sent up a flower stalk, but apply it before flower has started.

*Restricted use herbicide.

Sericea Lespedeza

This is a perennial legume that has invaded rangeland in Kansas and seems to respond to best range management practices. It may be eaten by cattle during the first 30 to 45 days of spring growth providing the old, mature stems from the previous year are removed by fire. Once the plant has much size or maturity, it is not palatable because of tannic acid content and woody stem condition.

Three chemicals work well on Sericea lespedeza. They are Remedy, PastureGard and Escort XP.

Remedy and PastureGard applications work best when the new growth is 12 to 15 inches tall, which usually occurs in June. The broadcast application rate for Remedy is 1.5 pt/a. The rate for PastureGard is 2.0 pts/a.

Escort XP works best when applied in the fall when the sericea lespedeza plants are flowering. Depending on moisture, that could be as early as mid-August, but generally occurs in September. If fall weather is dry, delay application until flowers open. Dry weather will result in poor herbicide uptake and poor control. Apply Escort XP at the broadcast rate of 0.5 fl oz/a. Add a non-ionic surfactant to Escort XP.

Spot Treatment. The above herbicides can also be used for spot treating individual plants or scattered infestations. Timing is the same for spot treatments as broadcast treatments.

Table 4 gives mix rates for different size sprayers. Remember non-ionic surfactants need to be used with Escort XP.

Table 4. Small quantity herbicide mixtures for spot spraying sericea lespedeza.

Volume	Remedy[1]	PastureGard[2]	Escort XP[3]	NIS[a4]
1 gallon	1.33 fl oz (2.66 tbsp.)	1.0 fl oz (2.0 Tbsp)	0.3 gm ---	0.3 oz (2 tsp.)
5 gallon	6.5 fl oz (13 tbsp)	5.0 fl oz (10 Tbsp)	1.5 gm ---	1.5 oz (3 tbsp)
15 gallon	19.5 fl oz (1 pt + 7 tbsp)	15.0 fl oz ---	4.5 gm ---	4.5 oz (9 tbsp)
25 gallon	1 qt	1.5 pt	7.5 gm	7.5 oz (1 cup)

[1]Equal to 1% solution of Remedy.
[2]Equal to 1.0 fl oz PastureGard per gallon. This product rate is not as effective as Remedy herbicide.
[3]Equal to 1.0 ounce per 100 gallons of water, or equivalent to applying 100 to 200 gallons per acre.
[4]Non-Ionic Surfactant (NIS) equal to 0.25% volume to volume, or 1 qt/100 gallons of solution. Use only with Escort XP.

All chemicals are subject to label statements. Those who apply chemicals are responsible for correct use. **Always read the label before purchase and/or use.** Be sure you know how to apply, rate to apply, time of year to apply and use restrictions. **The User is Responsible.**

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