UNIVERSITY OF MISSOURI Extension

Pasture Weed & Brush Control

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Weeds and brush can be and in many cases are serious problems in pastures in southwest Missouri. Reasons for controlling weeds and brush in our pastures and hay fields include the fact that they can reduce the quantity and quality of the desired forage species. Certain species such as blackberries, dewberries and thistles may exclude livestock from grazing certain areas or consuming contaminated hay.

Control Methods

There are several methods to control weeds and brush including cultural, mechanical, biological and chemical. These methods can be used alone or in most cases in combination with each other.

Cultural methods are basically management practices that promote a vigorous, healthy stand of the desired forage. They include proper forage variety selection, good fertilization practices, maintaining an adequate pH and good harvest management, whether by grazing or haying. Soil testing to insure the soil pH, phosphorus and potassium levels are adequate for the forage species is essential.

Mechanical control most often refers to mowing or brush hogging. In combination with other control methods such as good fertilizer and liming practices and herbicides, mowing can be an effective tool in weed and brush management. When used alone, mowing hides a problem but rarely gives good control. Mowing brush like sumac, hedge (Osage Orange) or honey locust can actually make the problem worse. A person can gain slow control over blackberries by timely mowing; namely, from full leaf to blossom in the spring. Even with proper mowing, one should expect control to take several years to make meaningful progress. A late-season mowing of blackberries or other species of brush is only cosmetic and will give no long-term control.

Biological control can be used to control targeted weed species. The targeted species in southwest Missouri is the musk thistle. The introduction of the musk thistle head and rosette weevils has been very effective in reducing the population in Southwest Missouri.

Chemical control involves the use of selective herbicides, and generally provides the most effective control of troublesome weeds once they have become established. Before using any herbicide, read and follow label directions to determine appropriate rates, carrier volume and spray additives. Caution: The herbicides listed are safe on most grasses when used at labeled rates but will kill or injure legumes in a mixed (grass/legume) pasture.

Application

With any application method utilizing a sprayer, be sure to take the time to calibrate the sprayer and ensure that the sprayer is in good working condition. Directions for calibrating boomed and boomless sprayers are available.

Surfactants are often recommended by the herbicide manufacturer and will be clearly stated on the label if needed. These products may help the herbicide to have better coverage of on leaf surface and reduce surface tension of the water they are sprayed in. The most common surfactant recommended is a non-ionic surfactant. The use of ammonium sulfate is also recommended when using glyphosate, which takes hardness out of the water used in the spray.

Foliar broadcast is the use of a boom type sprayer, boom-buster nozzle, airplane, or helicopter to treat larger weed infestations. Herbicides are usually mixed with water.

With the foliar broadcast, good coverage is essential. Generally, a spray volume of 15 to 20 gallons per acre by ground or 3 to 10 gallons per acre by air is desirable. Check the herbicide label for recommended spray volumes. Foliar applications may not be effective if plants are under stress from drought or other conditions. Do not use diesel as a carrier with foliar applications.

Spot treatment is treating the foliage of individual plants or small areas of infestation. It is usually accomplished with a hand sprayer or handgun. Thorough coverage is essential with many species and herbicides and some desirable vegetation can be damaged if contacted by the spray.

Basal bark treatment is applying herbicide to the lower 12 to 18 inches of the trunk. This type of treatment works best on trees 6 inches or less in diameter. Herbicides will be mixed with oils or diesel and applied until bark is saturated.

Cut stump is the application of herbicide to the freshly cut surface of the brush or tree. Apply treatment immediately after cutting for maximum effectiveness. On trees larger than three inches in diameter, only the outer cambium layer next to the bark will need to be treated.

Selected Species

Timing of application is crucial for successful control. Refer to Table 3 for a calendar of best times to control specific weeds. The following scenarios are based on experience and do not include all possible treatments.

Thistles (Musk, Bull, Tall) – Cimarron, Cimarron Max, Banvel, Grazon P+D, Milestone, GrazonNext and Tordon 22K have provided good results. If application is made during the rosette stage of growth (fall or early spring), 2,4-D gives good control but offers no residual activity. Do not spray thistles after flower buds begin to develop. At that stage, leave control to the musk thistle weevil.

Chickweed – Use 2,4-D or Grazon P+D in the fall or Grazon P+D in the early spring

Henbit – Use Banvel or Clarity in the fall or early spring.

Poison Hemlock – Use Tordon 22K (1 pt/A) or Grazon (1 qt/A) before it bolts in the early spring. It may also control it in the fall in the rosette stage.

Spotted Knapweed – Use Milestone (5-7 oz/A), Tordon 22K (1 pt/A) or Grazon (2 qt/A) in the rosette to bud stage. Treat before it gets 12" tall.

Plantain (Broadleaf, Buckhorn, Bracted) **–** Use 2,4-D ester or Grazon P+D (1 qt/A) in the fall or early spring

Buckbrush – Spray plants before leaves reach full size, typically mid to late April. Herbicides effective on buckbrush are Cimarron (0.4 oz/A or 1 oz/100gal), the various forms of 2,4-D (1-2 qt/A or 2% v/v mix) and other formulations containing 2,4-D. GrazonNext has shown some good activity on buckbrush. Do not use spray additives or soaps with 2,4-D as they may reduce the level of control.

Perilla Mint – Use 2,4-D, Grazon P+D or Remedy Ultra while actively growing.

Blackberry / Dewberry – Foliar applications of Cimarron (0.5 oz/A or 1 oz/100gal), PastureGard (4 pt/A) and Remedy Ultra (1-2 pt/A or 1% v/v mix) have given good results. MU research has found that Cimarron worked best post-flower and PastureGard was better mid-flower. Banvel is recommended at the rate of 1 to 2 quarts per acre broadcast. Good results have been found with 1 pt/A Remedy Ultra tank mixed with 1 qt/A Grazon P+D. Treat when blackberries are flowering. Canes should have two or more years of growth. Spraying one year will not give good control of blackberries. It generally takes three or more applications to get adequate control.

Honey Locust – Foliar applications of Grazon P+D (1-2 qt/A or 2% v/v mix) mixed with Remedy Ultra or Surmount gives excellent control of small sprouts. Total coverage of the leaves is essential. Multiple mowings (3 to 4 per year over several years) can give acceptable levels of control. For larger trees, basal bark treatments with Pathfinder II or cut stump treatment with Tordon RTU give acceptable levels of control to smaller trees.

Horsenettle (Bullnettle) – Tordon 22K (1 pt/A) or Grazon P+D (1 qt/A) have given best results on the control of horsenettle. Seed in the ground can make it a perennial problem.

Osage Orange (Hedge) - Remedy is somewhat effective as a foliar treatment. Best control may be achieved with basal bark treatments of Pathfinder II or cut stump treatments with Tordon RTU. Double girdling the tree near the base about an inch deep and then treating the girdled area with Tordon RTU or Pathfinder II can be effective.

Oaks – Use Remedy Ultra when oaks are actively growing after new leaves have expanded in the spring. May be difficult to control.

Sassafras – Very difficult to control. Use Remedy Ultra as basal treatment. Tordon 22K will do a fair job as a foliar treatment. Another good option is a Grazon and Remedy Ultra combination.

Persimmon – Use Surmount, Grazon P+D or Tordon 22K in May or early June. Surmount is a preferred product for this species. Very difficult to control.

Sumac – Use Crossbow or Remedy Ultra when actively growing. 2,4-D works well if applied early.

Red Cedar – Although a few herbicides have been used to control red cedars, the most common and cost effective means of control are cultural or mechanical. Because the bark is very thin, red cedar is extremely sensitive to fire. Prescribed fires are the easiest and most cost-effective control method for red cedar. Small trees are killed if enough fuel surrounds the tree. For trees larger than three feet in height, any form of cutting below the lowest branch, girdling or removing all of the needles will kill the tree. Tordon 22K may work well on cedars smaller than four feet.

Sericea Lespedeza – PastureGard (2 pt/A), Cimarron(0.4 oz/A or 1 oz/100 gallons of spray solution) and Remedy Ultra (1-2 pt/A or 1% v/v mix) are recommended for control of sericea lespedeza. PastureGard has shown very consistent control in test plots. Apply when sericea is 12 or more inches in height which usually occurs sometime in June. May also apply from bud to flowering. This usually occurs in late August to early September. Do not apply if sericea is under drought stress. Seed in the ground can make it a perennial problem for a few years.

Spiny pigweed (Amaranth)—Use a mixture of 2,4-D and Banvel /Clarity, Grazon P+D (1 qt/A). Residual activity of Grazon P+D keeps the remaining seeds from sprouting that year.

Multiflora Rose—For a broadcast application, spray Tordon 22K (1 pt/A). Spot treat with a 1% solution of Remedy Ultra, Tordon 22K or PastureGard when in full bloom. Soil treatment with Spike pellets.

Tall Ironweed—Spray PastureGard or Remedy Ultra. Some control can be achieved with Grazon P+D (2-3 pt/A) or Tordon 22K (1 pt/A) just prior to or at bud stage and control will be enhanced with the addition of Remedy Ultra.

Prickly Pear Cactus – Use Surmount (2-3 pt/A) or Tordon 22K. Effectiveness of the treatment may be enhanced if the leaf surface area is damaged by mowing or running a light harrow over the plant prior to treatment. Some labels prefer a fall treatment.

Johnsongrass – Selective herbicide options on grass pastures don't exist. Glyphosate works well on Johnsongrass when it is actively growing and not stressed but will destroy the forage stand. To protect desirable grass species and legumes, use a weed wiper. A Glyphosate burndown application followed by reestablishment of the pasture may be the best option.

Effective control of many pasture weed species such as pigweeds, common and giant ragweed, asters, cocklebur, plantains, bitter sneezeweed and woolly croton may be achieved with 2,4-D if applied during good conditions for weed control.

Below are recommended MU Guides that can be obtained through MU Extension Centers:

G4852	Cleaning Field Sprayers to Avoid Crop Injury
G4970	Plants Poisonous to Livestock
IPM 1010	Biological Control of the Musk Thistle in Missouri
M 169	A Guide to the Common Forages and Weeds of Pastures
MP581	Weed and Brush Control Guide for Forages, Pastures and Non-Cropland.

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Table 1. Common Pasture Herbicide Brands

Single Ingredient Products

2,4-D – Weedar 64; Weedone LV4; Opti-Amine; HiDep; etc.
dicamba – Banvel; Clarity
triclopyr – Remedy Ultra; Relegate; Clear Pasture
picloram – Tordon 22K; Trooper 22K; Triumph 22K, Outpost 22K
metsulfuron – Cimarron; Purestand (Follow directions closely. This can be hard on fescue)
aminopyralid – Milestone

Packaged Mixes

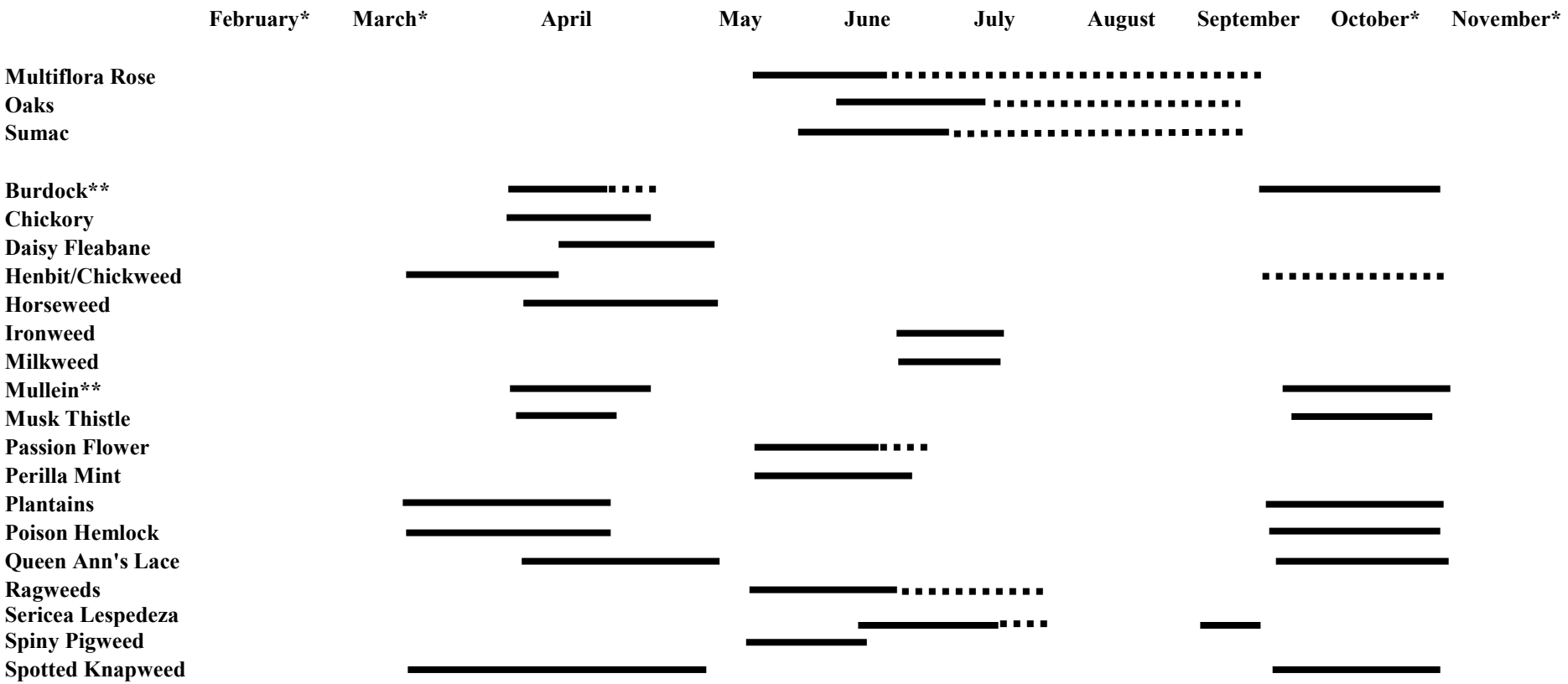
2,4-D + dicamba – Weedmaster; Rangestar
picloram + 2,4-D – Grazon P+D; Gunslinger; Hired Hand
triclopyr + 2,4-D – Crossbow; Candor; Crossroad
triclopyr + fluoxypyr - PastureGard
picloram + fluoxypyr - Surmount
aminopyralid + 2,4-D – GrazonNext (formerly marketed as ForeFront)
metsulfuron + dicamba + 2,4-D – Cimarron Max (Follow directions closely. This can be hard on fescue)
metsulturon + aminopyralid – Chaparral (Follow directions closely. This can be hard on fescue)

Table 2. Restrictions for some common pasture weed and brush herbicides.

Herbicide	Grazing and Haying Restrictions Following Application (Days)					Interval Between Application and Planting	
	Beef		Lactating Dairy		Removal of meat animals before slaughter	Forage Grasses	Alfalfa / Clovers
	Grazing	Haying	Grazing	Haying			
2,4-D amine or ester*	0	0	7	30	3	NGS	NGS
Banvel / Clarity							
up to 1 pt / ac	0	0	7	37	30	see label	see label
up to 2 pt / ac	0	0	21	51	30		
up to 4 pt / ac	0	0	40	70	30		
Chaparral	0	0	0	0	-	12 mo.	FB
Cimarron (0.1-0.2 oz)	0	0	0	0	0	fescue18 mo.	12 mo.
Cimarron Max (Rate 1)	0	0	7	37	30	fescue18 mo.	12 mo.
Crossbow*	none	14	<2 gal - 14 next season			21 days	NGS
GrazonNext	-	7	-	7	-	-	FB
Glyphosate*							
renovation	56	56	56	56	0	anytime	anytime
spot application	14	14	14	14	0	anytime	anytime
Grazon P + D*	0	30	7	30	3	FB	FB
Tordon 22K*	0	>1 qt. - 14	14	14	3	FB	36 mo.
Milestone	0	0	0	0	-	-	FB
PastureGard	0	14	next season	14	3	120 days	1 mo.
Remedy Ultra*	0	14	next season	14	3	-	-
Spike (spot treatment)	0	1 year	0	1 year	0	> 2 years FB	> 2 years FB
Surmount	0	7	14	14	3	1 year	FB
Weedmaster	0	37	7	37	30	see label	see label

The label is the final word on all restrictions. Verify all information with the label on your container.
FB – Field bioassay required prior to establishment; NGS – Next Growing Season
* A variety of trade names exist. Check product labels for specific restrictions. 8/24/10

Table 3. Best times to control specific weeds with herbicides.



* Observe temperature restrictions on herbicides

** Treatment should be applied in the rosette stage of growth

Optimum period for control

Reduced control or higher rates of herbicide required