Weed and Brush Control

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What is a weed?

- Plant growing out of place
- A plant whose virtues have yet to be discovered
- Any plant not eaten by livestock

Weeds

- **Annuals**
  - Cocklebur
  - Common ragweed
  - Horseweed
- **Biennial**
  - Musk thistle
  - Common mullein
  - Teasel
- **Perennials**
  - Baldwin ironweed
  - Goldenrods
  - Johnsongrass
  - Sericea lespedeza
  - Old World Bluestems

Brush → woody vegetation considered undesirable for planned use of the area

- Buckbrush
- Smooth sumac
- Roughleaf dogwood
- Blackberry
- Multiflora rose
- Honeysuckle
- Eastern redcedar
- Osage orange
- Common honeylocust
- Siberian elm
- Willow
- Cottonwood

Causes of brush/weed invasion

- Reduction of fire
- Climatic fluctuations
- Seed transport by animals, wind, water, etc.
- Grazing by domestic livestock
- Decreased fertility in tame pastures

Approach to Problem

- Identification
- Life cycle
- Sprouting vs non-sprouting
- TNC cycle and bud location
- Density/cover relationships
- Environmental conditions

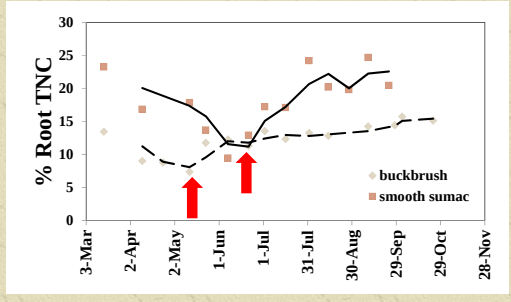
Osage Orange (hedge)

Honeylocust pods

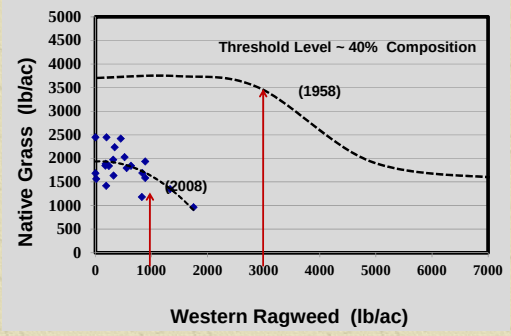
Non-Sprouting Species
Eastern redcedar

Sprouting Species
Saltcedar

Timing of foliar herbicide application

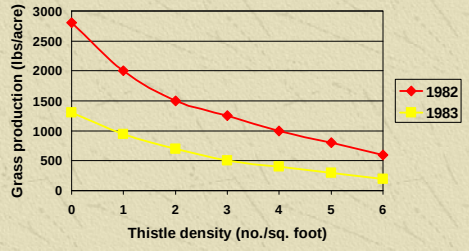


Ragweed Composition in Mixed Grass
1958 and 2008

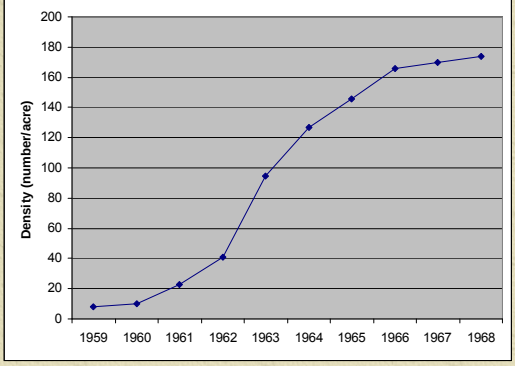


Prepared by Keith Harmoney

Musk Thistle Density Effects on Grass Production



Redcedar Invasion in NE Kansas



Control Options

- Grazing management
- Mechanical
- Prescribed burning
- Biological
- Chemical

Principles of Grazing Management

- Kind of animal
- Season of use
- Distribution of grazing
- Stocking rate
- Grazing system

Mechanical Control

- Hand tools
- Mowing
- Tree cutters
- Bulldozers

Prescribed Burning

- Removal of litter
- Fuel reduction
- Suppression of woody plants
- Enhanced wildlife habitat
- Enhanced stocker gains

Rhinocyllus conicus

Photo by Norman E. Rees

Musk thistle head weevil

Chemical Control

- **Soil applied**
- **Basal/cut-stump**
- **High-volume**
- **Ground rig**
- **Aerial application**

Soil-Applied Herbicides

- **Spike 20P [tebuthiuron]**
- **Pronone Power Pellets [hexazinone]**
- **Tordon 22K [picloram]**
- **Velpar L [hexazinone]**

Pronone Power Pellets

Basal/Cut-Stump Herbicides

- Crossbow [triclopyr + 2,4-D]
- Remedy Ultra [triclopyr]
- Pathfinder II [ready to use triclopyr]
- PastureGard HL [fluroxypyr + triclopyr]
- Banvel/Clarity [dicamba]
- Roundup WeatherMax [glyphosate]
- Arsenal [imazapyr]

Common honeylocust

Cut-stump of common honeylocust Treated December 18, 2012

Basal bark/cut-stump treatment of common honeylocust Treated November, 2011

Herbicide	Rate	Basal % Mortality (10 MAT)	Cut-stump % Mortality (10 MAT)
Remedy Ultra	10%	100	
Remedy Ultra	25%	94	70
PastureGard	25%	100	
PastureGard	50%	100	60
Crossbow	4%	92	
Arsenal	10%		86
Pathfinder II	RTU		92

Cut-stump treatment of common honeylocust Treated December, 2012

Herbicide	Rate	Cut-stump % Mortality (7 MAT)
Remedy Ultra	25%	90
PastureGard HL	25%	100
Arsenal	10%	100
Pathfinder II	RTU	100
Milestone	10%	100

Cut-stump Treatments

Species	Herbicides
Ash	1,3,6,7,8
Common honeylocust	2,3,4,5,6,7
Cottonwood	1,2,3,6
Oaks	2,3,4,6,7,8
Osage orange	2,4,6
Persimmon	2,3,4,6,7,8
Russian olive	1,3,6,8
Siberian elm	1,2,3,4,6,8

1. Crossbow
2. Remedy Ultra
3. Pathfinder II
4. PastureGard HL
5. Milestone
6. Banvel
7. Roundup
8. Arsenal

Foliar-Applied Herbicides

- **2,4-D**
- **Banvel/Clarity**
- **Overdrive**
- **Escort XP**
- **Weedmaster/Range Star**
- **Amber**
- **Rave**
- **Tordon 22K**
- **Grazon P+D**
- **Curtail**
- **Stinger**
- **Plateau**
- **Journey**
- **Cimarron Max**
- **Cimarron Plus**
- **Cimarron X-tra**
- **Milestone**
- **ForeFront R&P**
- **Remedy Ultra**
- **Crossbow**
- **PastureGard**
- **Surmount**
- **Roundup, etc.**
- **Arsenal**
- **Redeem R&P**
- **Chaparral**

Buckbrush

- Burning: 2-3 consecutive years in late spring
- Mechanical: repeated mowing in early to mid May
- Chemical: 2-4 pt/A 2,4-D, 2-4 pt/A Grazon P+D; Chaparral + 2,4-D (3 oz + 2 pt/A)

Smooth sumac

- Burning: late spring burning will increase number of stems
- Mechanical: repeated mowing in early to mid June
- Chemical: 2-4 pt/A 2,4-D recommended

Common Honeylocust – 1 YAT

Milestone
7 fl oz
1 YAT

Herbicide	Rate	7-22-2011	7-18-12
Grazon P+D	1%	82	53
Grazon P+D + Remedy	1+ 0.25%	92	75
Surmount	0.5%	97	83
Surmount	1%	97	91
PastureGard	1%	82	66
Milestone	7 fl oz	94	100
Streamline	7.5 oz	100	94
Remedy Ultra	0.5%	83	88

Redcedar (*Juniperus virginiana*)

- Burning: small trees killed by fire
- Mechanical: cut below all green branches
- Chemical: picloram, 3 to 4 ml per 3 feet of plant height (soil); hexazinone, 2-4 ml per inch of stem diameter (soil); metsulfuron, 1-2 oz/100 gal water (high volume); 1-2% Surmount in water.

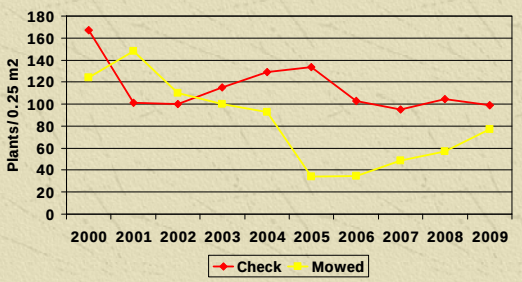
Foliar Treatments

Species	Herbicides
Buckbrush	7
Common honeylocust	4,6,7,8
Cottonwood	1,2,3,8
Eastern redcedar	3,8
Osage orange	2,3,4,8
Russian olive	1,6
Siberian elm	1,2,3,4,6,8
Smooth sumac	1,2,4,5,6,8

1. Crossbow
2. Remedy Ultra
3. Escort XP
4. PastureGard HL
5. Roundup
6. Arsenal
7. Chaparral
8. Surmount

Sericea lespedeza

Mowing effects on sericea lespedeza



Sericea Lespedeza Control Pottawatomie County (1 YAT)

Herbicide	Rate/A	6-4-10	9-17-10	10-6-10
Escort	1 oz	12	96	93
MAT 28 + Escort	3.75 + 1 oz	82	98	100
MAT 28 + Telar	3.75 + 1 oz	91	98	98
PastureGard	2 pt	91	98	81
Remedy	1 pt	88	97	58

Cow grazing sericea lespedeza

September 23, 2011 – Ft. Riley

Musk Thistle

Musk Thistle Control – Pottawatomie County Treated June 10, 2011

Herbicide	Rate	1 MAT
Ally	0.25 oz	92
Ally + 2,4-D LVE	0.2 oz + 0.5 lb	92
Grazon P+D	2 pt	96
Milestone	4 oz	98
ForeFront R&P	2 pt	100
Chaparral	2.5 oz	98
Weedmaster	2 pt	96
2,4-D LVE	1.5 lb	97

% Musk Thistle Control
Treated: December 6, 2012

Herbicide	Rate	7-5-13
Milestone	3 fl oz	99
Milestone	4 fl oz	100
Milestone	5 fl oz	100
Tordon 22K	10 fl oz	100
2,4-D LVE	64 fl oz	43
Chaparral	1.5 oz	100
Untreated	---	0

Caucasian Bluestem

Yellow Old World Bluestem

Photos by Mike Haddock

Chase County – September 15, 2014
(1 or 2 applications of 0.25 lb/A imazapyr)

Cutleaf teasel

Common teasel

Cut-leaf teasel control (%) in Missouri – 8 WAT

Herbicide	Rate	Fall	Spring
2,4-D	2.25 lb/A	66-96	76-100
2,4-D + triclopyr	1.5 + 0.75 lb/A		86-100
2,4-D + picloram	1.5 + 0.4 lb/A		100
Metsulfuron	0.1 oz		100
Dicamba + Diflufenzopyr	0.25 lb/A	96-100	95-100
Imazapyr	0.75 lb/A		99-100

Smeda and Bentivegna

Herbicide precautions on cool-season grasses

1. Milestone: brome may be suppressed when stressed
2. Chaparral: use on established brome and fescue; brome suppressed if stressed; may stunt fescue; seedhead suppression of fescue
3. Escort XP: 6 mo. wait on brome and 24 mo. on fescue; may cause stunting, yellowing or seedhead suppression
4. Cimarron Plus: 6 mo. wait on brome and 18 mo. on fescue

Herbicide precautions on cool-season grasses

1. Tordon 22K: rates over 2 pt/acre may suppress brome
2. Grazon P+D: use 60 days after planting; may suppress brome
3. Banvel: brome may be injured at rates > 1 pt/A
4. Plateau: use 4-6 oz on brome in spring after 100% greenup (may reduce height and suppress seedheads); use 8-12 oz in fall for perennial weeds (suppress brome); 2-4 oz causes seedhead suppression in fescue; tall fescue controlled at 12 oz/A

Grazing Restrictions for Range and Pasture Herbicides (days)

Herbicide	Before grazing	Before hay harvest	Removal before slaughter
Escort XP	0	0	0
Banvel	0	7	30
Grazon P+D	0	30	3
Milestone	0	0	0
PastureGard HL	0	14	3
Remedy Ultra	0	14	3
Tordon 22K	0	0-14	3
Weedmaster	0	37	30
2,4-D	0	7-30	3

Benefits of weed and brush control

- Increased forage production/availability
- Easier livestock handling
- Reduction of toxic plants
- Wildlife habitat manipulation
- Increased water yield from watersheds
- Clear area for other practices, e.g. seeding
- Reduce insect and disease problems
- Reduction in fuel associated with damage from wildfires

Summary

- Broadcast application of herbicides for control of broadleaf weed control rarely recommended unless grazing distribution affected.
- Proper grazing management along with integrated control and spot treatment will prevent extensive brush and weed problems.
- Treat noxious weeds and problems species when they first show up.
- Proper fertility and harvest management critical to maintaining good stand of forages used for hay production

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