

Weed and Brush Management in Pastures

Byron Sleugh



Forages for all!!

✓ Forages are the **foundation** upon which **livestock performance** and **farm/ranch profitability** are built. Without a healthy, well-managed forage resource **genetic potential** of livestock will not be realized.

"The livestock producer's primary goal in forage management is to maintain forage quality at a level that will support **desired levels of gain**.... (Patterson et al. 1994)."



To establish and maintain productive and profitable pastures, what do you think is important?

- Seeds (right genetics)
- Species selection
- Planting time/rate etc.
- Fertility management
- Weed management
- Grazing/Harvest management
- Getting the most out of your investment



Why manage weeds and brush?



Ten Keys To A Profitable Forage Program

1. **KNOW FORAGE OPTIONS AND ANIMAL NUTRITIONAL NEEDS.** Forages vary in their adaptation, growth distribution, quality, yield, persistence, and potential uses. Also, various types and classes of animals have different nutritional needs. Good planting decisions require knowing forage options for the land resources and nutritional needs of the animals.
2. **ESTABLISHMENT IS CRITICAL.** Good forage production requires an adequate stand of plants. Mistakes during establishment often have long-term consequences. Use of high quality seed of proven varieties, timely planting, and attention to detail lead to establishment success.
3. **SOIL TEST, THEN LIME AND FERTILIZE AS NEEDED.** This practice, more than any other, affects the level and economic efficiency of forage production. Fertilizing and liming as needed help assure good yields, improve forage quality, lengthen stand life, and reduce weed problems.
4. **USE LEGUMES WHENEVER FEASIBLE.** Legumes offer important advantages including improved forage quality and biological nitrogen fixation, whether grown alone or with grasses. Every producer should regularly consider on a field-by-field basis whether the introduction or enhancement of legumes would be beneficial and feasible. Once legumes have been established, proper management optimizes benefits.
5. **EMPHASIZE FORAGE QUALITY.** High animal gains, milk production, and reproductive efficiency require adequate nutrition. Producing high quality forage requires knowledge of the factors that affect forage quality and managing accordingly. Matching forage quality to animal nutritional needs greatly increases efficiency.
6. **PREVENT OR MINIMIZE PESTS AND PLANT RELATED DISORDERS.** Diseases, insects, nematodes, and weeds are threats that lower yields, reduce forage quality and stand persistence, and/or stall water, nutrients, light, and space from forage plants. Variety selection, cultural practices, scouting, use of pesticides, and other management techniques can minimize pest problems. Knowledge of potential animal disorders caused by plants can reduce or avoid losses.
7. **STRIVE TO IMPROVE PASTURE EFFICIENCY.** Pasture efficiency is the ratio of animal gain to pasture growth over time. Periodic adjustments in stocking rate or use of cross fencing to vary the type or amount of available forage can greatly affect animal performance and pasture species composition. Knowing the advantages and disadvantages of different grazing methods allows use of various approaches as needed to reach objectives. Matching stocking rates with forage production is also extremely important.
8. **MINIMIZE STORED FEED REQUIREMENTS.** Stored feed is one of the most expensive aspects of animal production, so lowering requirements reduces costs. Extending the grazing season with use of both cool season and warm season forages, stockpiling forage, and grazing crop residues are examples of ways stored feed needs can be reduced.
9. **REDUCE STORAGE AND FEEDING LOSSES.** Wasting hay, silage, or other stored feed is costly! On many farms the average storage loss for stored bales of hay stored outside exceeds 30%, and feeding losses can easily be as high or higher. Minimizing waste with good management, forage testing, and ration formulation enhances feeding efficiency, animal performance, and profits.
10. **RESULTS REQUIRE INVESTMENTS.** In human endeavors, results are usually highly correlated with investments in terms of thought, time, effort, and a certain amount of money. In particular, the best and most profitable forage programs have had the most thought put into them. Top producers strive to continue to improve their operations.

Ball, Lacefield, and Hoveland

Forage Management: Keys to profitability

So, Farmer Graiz A. Lott knows he has weeds, what is his main reason for hesitating to treat the pasture?



What about my legumes?



If weeds are not controlled legumes will not provide the benefits they normally do



Why are producers hesitant to treat pastures with herbicides?

- A combination of factors
 - Cost of herbicide
 - Effects on legumes
 - Not sure herbicide will work
 - Timing of application and implications for grazing/haying



Weed Management in Pastures

- **Productive** pastures and hayfields typically have **lower weed** pressure than unproductive, **poorly** managed fields.
- To control or minimize weed effect:
 - Have a dense stand of competitive forage
 - Have proper fertility
 - Use proper grazing management
 - Use weed free seeds
 - Control weeds as needed



Pasture Weed Management

- The best insurance against weed invasion is **a vigorous and high quality** pasture community.
- Weed and brush control are essential tools in pasture management programs designed to maximize forage production and optimize livestock performance.



Forage Management: Keys to profitability

Impact of Weeds on Forage Yield and Quality

- ❑ Reduce forage quantity, quality, and stand longevity.
- ❑ Reduce carrying capacity.
- ❑ Competitive with forages.
- ❑ May be poisonous.
- ❑ Reduce forage intake.
- ❑ Effect pasture aesthetics.



Musk and bull thistle left uncontrolled will reduce grazable area.



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Integrated Weed Control Approach

- ❑ Buy weed free seeds
 - Use certified seeds
- ❑ Weed control before planting
 - Control existing weeds
 - A rotation that includes a tilled crop stimulates weed seed germination
 - Some weed seeds have extended dormancy
 - Remove perennial weeds ASAP



Forage Management: Keys to profitability

Weed Management Options

- Mechanical – eg. Mowing
- Biological – including grazing and insects
- Chemical

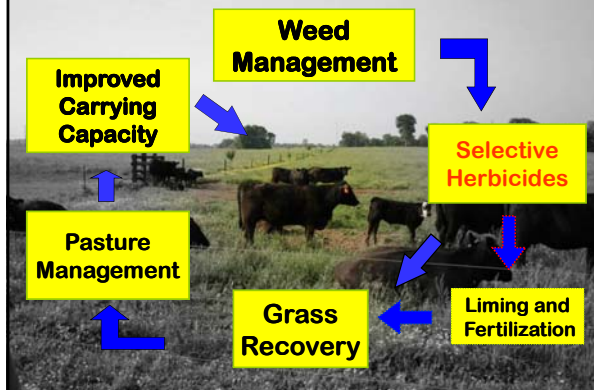


Benefits of using herbicides

- Selective control of undesirable plants
- Efficacious
- Less labor required
- Favorable cost/benefit ratio
- Increased production of desirable forage grasses



Integrated Approach to Pasture Management



Estimated cost of weed control in pastures

Table 2. Herbicides labeled for use on permanent grass pastures and approximate cost.

Herbicide	Rate	Estimated Cost/Acre*	Type of Weeds Controlled
Cimaron	0.1 to 0.4 qt/A	\$2.30 - \$9.20	Selected broadleaf weeds and certain woody plants. Temporary growth suppression of tall fescue or other pasture grasses may occur.
Cimaron MAX	Co-Pak	\$7.50 - \$15.00	Herbaceous broadleaf weeds. Temporary growth suppression of tall fescue or other pasture grasses may occur.
Crossbow	1 to 2 qt/A	\$15.00 - \$30.00	Woody brush and broadleaf weeds.
2,4-D Ester/Amine (3.8 lb aei/gal formulations)	1 to 2 qt/A	\$3.75 - \$7.50	Herbaceous broadleaf weeds.
Dicamba (Banvel, Clarity, etc.)	0.5 to 2 pt/A	\$5.50 - \$22.00	Broadleaf weeds and woody brush.
ForeFront R&P	1.5 to 2.6 pt/A	\$10.50 - \$18.20	Herbaceous broadleaf weeds.
Milestone	3 to 7 fl. oz/A	\$8.25 - \$19.25	Herbaceous broadleaf weeds.
Overdrive	4 to 8 qt/A	\$12.50 - \$25.00	Herbaceous broadleaf weeds.
PastureGard	1.5 to 4 pt/A	\$10.50 - \$28.00	Woody brush and broadleaf weeds.
Redeem R&P	1.5 to 4 pt/A	\$20.60 - \$55.00	Herbaceous broadleaf weeds.
Weedmaster/Banvel + 2,4-D	2 to 4 pt/A	\$7.00 - \$14.00	Broadleaf weeds and woody brush.
MOHNG		\$12.00 - \$18.00	Broadleaf weeds, weedy grasses, and small brush. ←

*The estimated cost (\$/A) does not represent the use of spray additives or the cost for application.

Green, et al. University of Kentucky Ext. Pub. AGR.172

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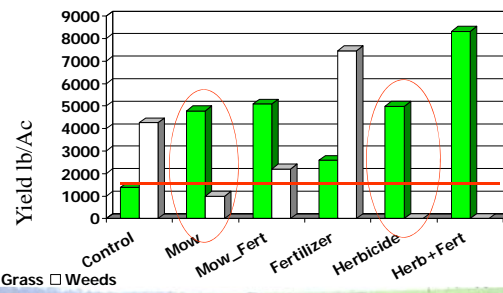
CONTRASTS BETWEEN MOWING AND HERBICIDE FOR CONTROLLING PASTURE WEEDS¹

Item	40-hp tractor w/6' rotary mower	40-hp tractor w/30' boom sprayer
Labor cost/hour	\$10.00	\$10.00
Acres/hour	2.73	14.18
Costs		
Fixed cost/acre	\$5.58	\$1.43
Operating cost/acre	\$6.00	\$1.33
Labor cost/acre	\$3.66	\$0.71
Herbicide cost/acre (1 qt. GrazonNext™/acre)	\$0.00	\$8.10
TOTAL COST/ACRE	\$15.24	\$11.57 ←
Difference = \$3.67		

Clary and Redmon, 2008. TX AgriLife Extension Service

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Forage Response to Weed Control and Fertilizer



Bade & Baumann, 1991

Forage Management: Keys to profitability

Summary

- ❑ Severely degraded pastures were rejuvenated within 2 years with fertilizer + herbicide
- ❑ Where soil test P was low, good response to P fertilizer. At medium or above, no P response.
- ❑ When weed pressure was heavy, killing 1 lb of weeds resulted in 1 lb of additional grass

Slides courtesy of Eddie Funderburg, Soil and Crops Specialist, Noble Foundation
Developed using data from Chris Rice and Bob Woods, Oklahoma State Univ.

The good....



Not so good....



The bad....



The ugly!!!!

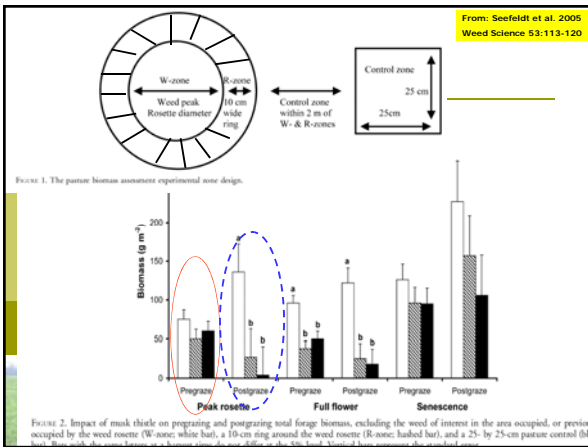
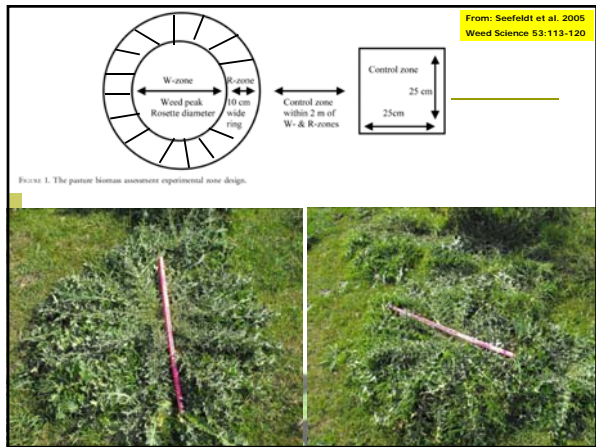


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Cute little weeds turn into bigger weeds.....



Significantly reduced grazable area in pasture



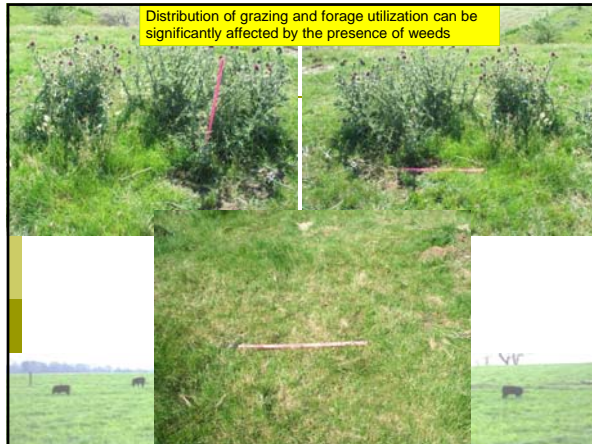
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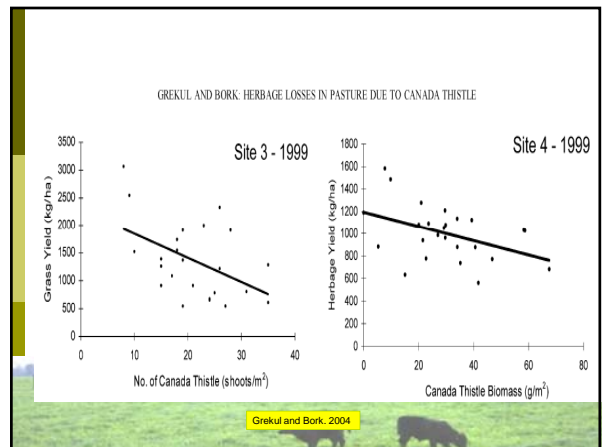
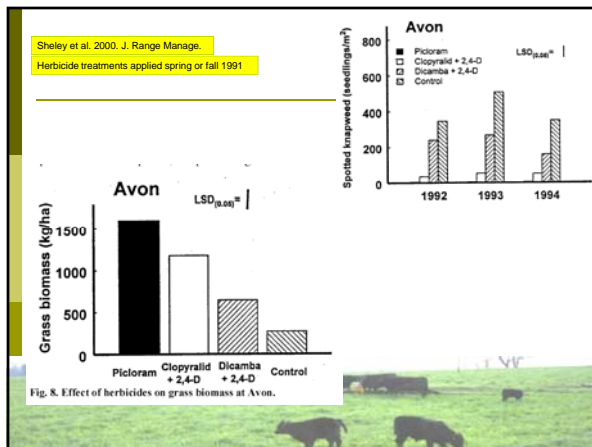


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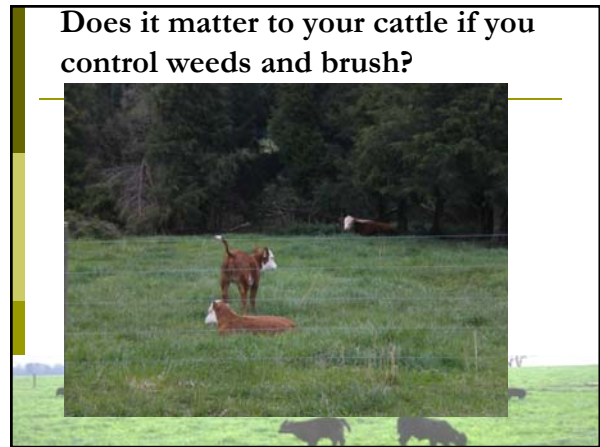
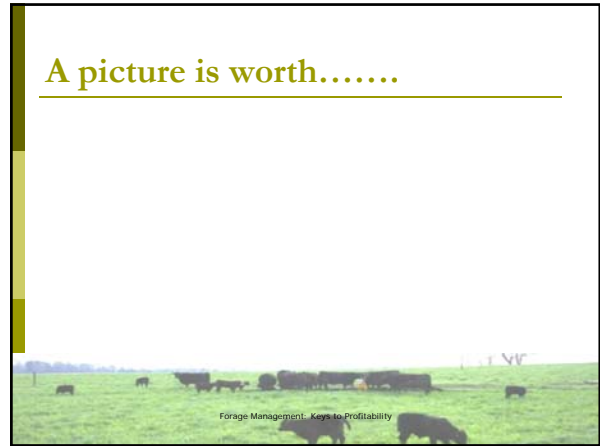
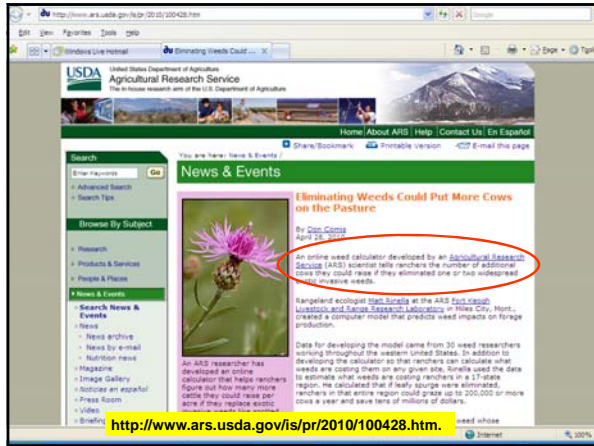


Let's do the math...

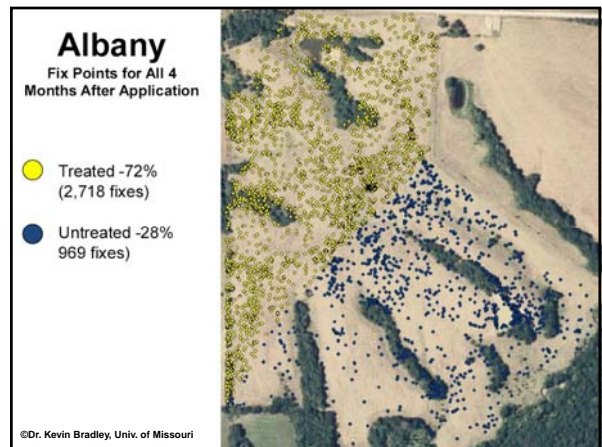
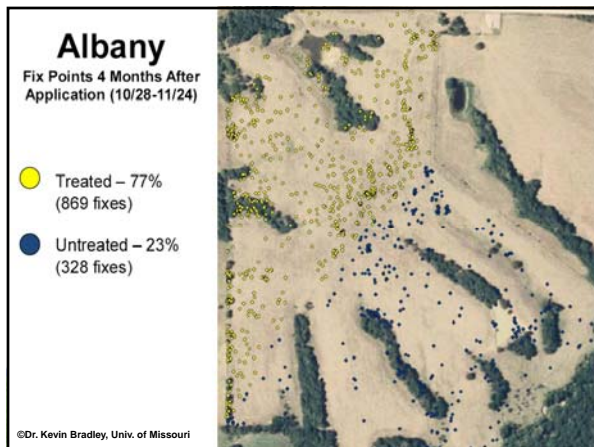
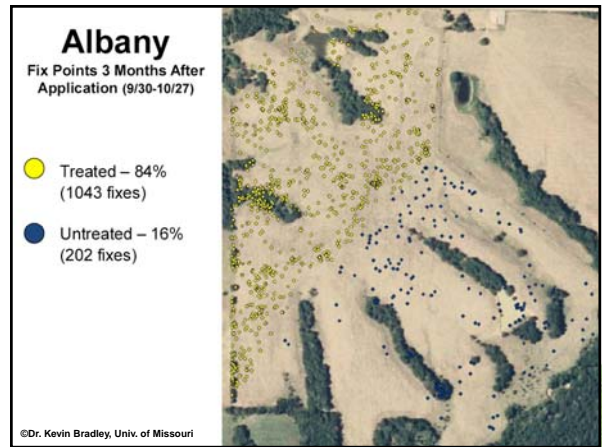
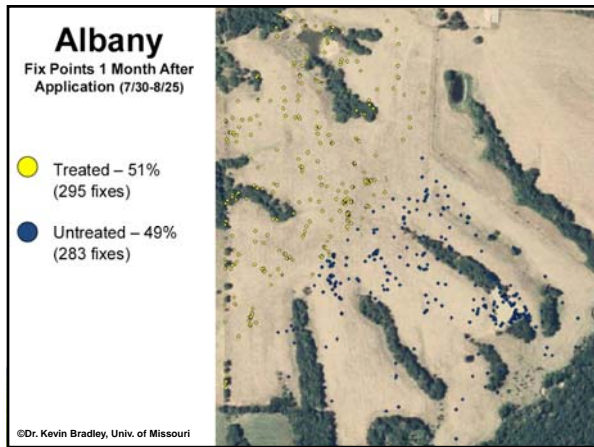
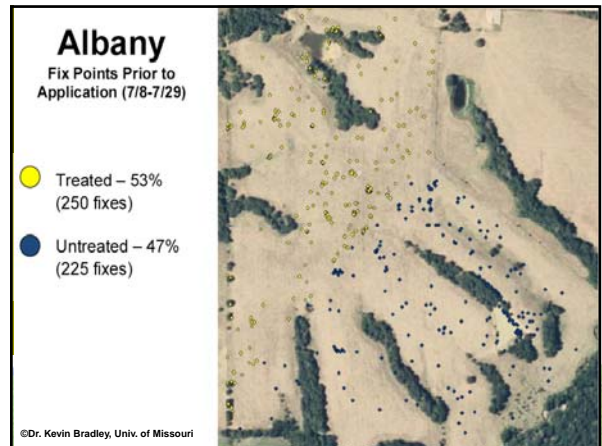
- Ungrazed clumps
 - 6x6 = 36 ft²
 - Assume 100 clumps/acre = 36x100=3600 ft²
 - Total 3600 ft² = 0.08 acre
- Assume yield potential of 3 t/a
- 0.08x3= ¼ ton of lost forage/acre
- If you had 50 acres you just lost 12 tons of forage
 - At \$100/ton hay, that is \$1200 of lost forage
- If hay is \$100/ton, ¼ ton of hay (amount of forage lost/acre) is \$25
 - Cost of herbicide application could cost much less



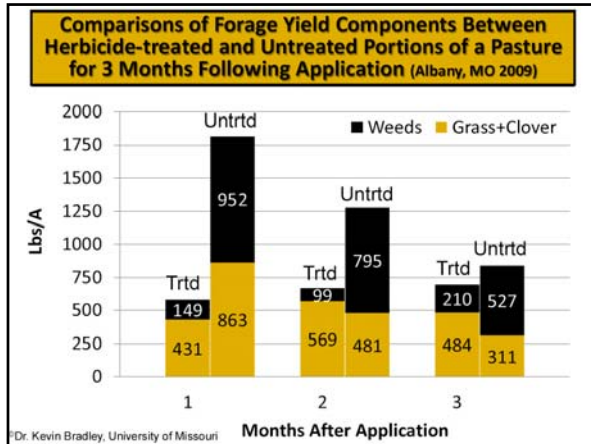
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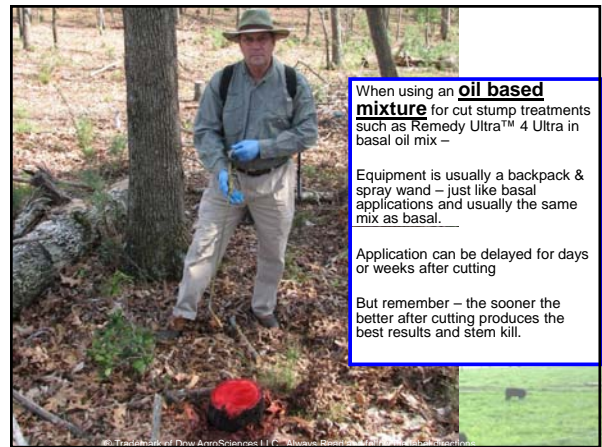
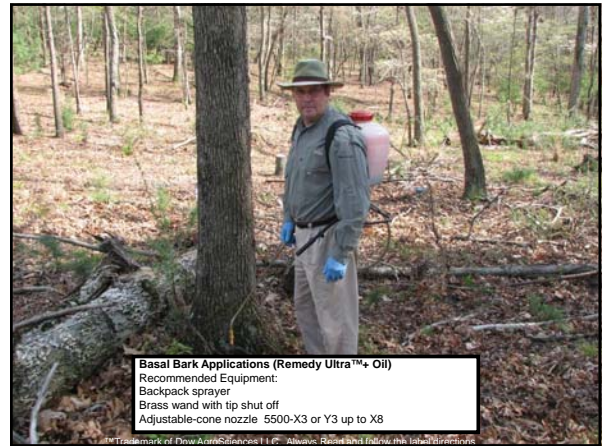
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- ## 6 Tips for Successful Weed Control
- ❑ Identify the weed problem
 - ❑ Use a calibrated sprayer
 - ❑ Spray at the right time with the right rate and the right herbicide
 - Use residual herbicide when possible
 - ❑ Drought stressed or mature weeds will be more difficult to control
 - ❑ Follow label directions for mixing and applying
- Forage Management: Keys to Profitability
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- ## Brush Management
- ❑ Brush control can sometimes be costly and time consuming. But it pays huge dividends.
 - ❑ For foliar applications, spray only after plants are fully leafed out
 - ❑ Basal bark application any time of year
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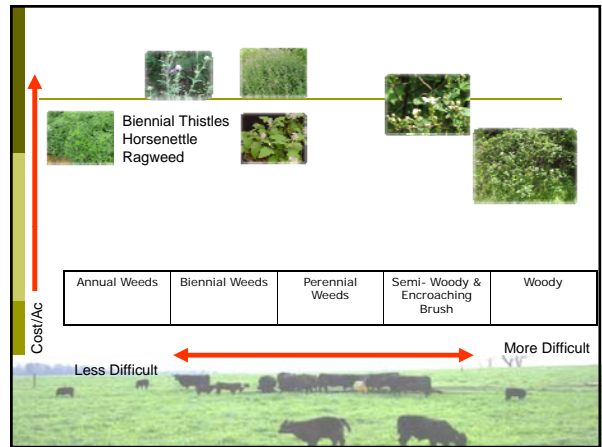


Forage Management: Keys to profitability



The cost of procrastination

- Severe pasture weed and brush problems did not develop overnight and will likely not be fixed overnight

What you need...





Conclusion

- Management of weeds and brush in pastures should be a part of a good forage management strategy
- Be sure to do your homework before embarking on a weed or brush management program
- Weed management in pastures is a long term commitment so weigh costs/benefits.

Forage Management: Keys to Profitability

Forage Management: Keys to profitability

