



MACARTNEY ROSE CONTROL SYSTEMS

T.G. Welch and C.J. Scifres*

Macartney rose (*Rosa bracteata*), also known as "Cherokee," "hedge" and "rose hedge," is a severe management problem on more than 500,000 acres in Southeast Texas, especially on the Coastal Prairie. The thorny vine can establish covers so dense it virtually eliminates forage production and greatly hinders livestock management. Macartney rose is useful as browse and for wildlife cover but, if allowed to establish excessive cover, the disadvantages greatly outweigh its merits. Herbicides, mechanical methods and prescribed burning have been evaluated for controlling Macartney rose, but no single method has been totally effective.

Each available method has unique advantages and weaknesses. Control may be achieved more efficiently when methods are used in a systems approach. Brush control systems capitalize on the strengths of two or more methods by applying them in a specific treatment sequence. Since management objectives vary among range livestock producers, there is no single "best" system. The best Integrated Brush Management System (IBMS) is that which most effectively achieves the producer's specific objectives.

Control Alternatives

Selecting an initial treatment for a control program depends on size and cover of the brush stand. In general, Macartney rose problems occur in one of four situations ranging from dense stands of large plants to scattered plants and/or isolated clumps. Use figure 1 to select the alternative which best fits your specific situation based on characteristics of the Macartney rose problem. Application procedures for specific alternatives are described in table 1. Also, note that expected results from each alternative are described and follow-up management needs are identified. Use the management needs in table 1 to select the next logical alternative from figure 1. Proper application of the selected follow-up alternative is then described in table 1, and the process is repeated until the Macartney rose control program is in a "maintenance" state. When this process is used to meet specific land management objectives in conjunction with effective

grazing management, the basis for an Integrated Brush Management System (IBMS) has been formed.

Role of Grazing Management

Effective management of grazing animals should be an integral part of all brush control programs. Sophisticated grazing systems are not required. However, if long term benefits of the brush management program are to be realized, follow regular, planned grazing deferments to allow native forage stands to respond to reductions in the Macartney rose cover (restore vigor, set seed, establish seedlings, etc.). Such a grazing management program allows scheduling the application of treatments to coincide with a normal deferment period thus preventing a potentially expensive unplanned deferment. If the ranch has a planned grazing system, a systematic approach to range improvements is more easily implemented. A progressive inclusion of pastures in the brush management program allows improvement over a period of years. A rancher can gradually increase his livestock numbers to effectively utilize improved forage production as well as spread his investment over several years.

COMMON, CHEMICAL AND PRODUCT NAMES OF HERBICIDES

In table 2, the recommended herbicides have been identified by the accepted Weed Science Society of America's common name or other common designation, the correct chemical names as required on the label and where practical, one or more product names. For herbicides marketed under three or more labels, the designation "several manufacturers" have been used rather than attempting to list all the trade formulations.

Product names included in this publication are not intended as an endorsement of the product of a specific manufacturer, nor is there any implication that any other formulation containing the same active chemical is not equally as effective. Product names are included solely to aid persons in locating and identifying the recommended herbicides.

Suggestions on use of herbicides made by the Texas Agricultural Extension Service are based upon effectiveness under Texas conditions.

Suggested herbicides must be registered and labeled for use by the Environmental Protection Agency. *Because the status of herbicide label*

*Extension range brush and weed control specialist and Thomas M. O'Connor Professor of Range Science, Texas Agricultural Experiment Station, The Texas A&M University System.

Table 1. Application particulars, anticipated results and subsequent management needs for alternatives selected in developing an Integrated Brush Management System (IBMS) for Macartney rose-infested rangeland.

Situation	Method	Alternatives	Application particulars	Anticipated results	Follow-up management needs
Heavy cover of Macartney rose (especially over large areas and most plants \geq 6 ft tall)	Aerial application of herbicides	1. 2,4-D low-volatile ester (3 qt/acre ¹ in fall) or 2. 2,4-D amine salt (4 qt/acre in spring) or 3. Grazon P+D (4qt/acre ²) in fall or spring or 4. Tank mix 2 qt/acre 2,4-D low-volatile ester or amine salt with 1 qt/acre Grazon PC ³ (in fall use 2,4-D low-volatile ester; in spring use 2,4-D amine)	Apply herbicide in enough carrier solution (4 to 15 gal/acre of water + 0.5% v/v surfactant) to insure uniform coverage of brush foliage; apply when soil water content and air temperature are adequate for active brush growth and under conditions which minimize spray drift	Best results will be obtained with herbicide containing picloram (Grazon P+D or Grazon PC). Reduce brush cover by more than 80% for 90 to 120 days; at the end of the second growing season brush canopy reduction by 50 to 60% but new sprouts 6-36 in tall (depending on post-treatment rainfall) on 75% or more of the plants; grass released but forb populations reduced; dry canes hindering grazing distribution	Continued improvement of range condition and forage production; reinstate forbs; remove dead canes; suppress new brush sprouts (see "B," figure 1 for next step)
	Mechanical methods causing minimal soil disturbance	Raking/stacking	Using front-end rake, push top growth into windrows or piles; allow debris to dry; burn piles	Remove aerial brush growth; up roots few plants; releases herbaceous vegetation; brush sprouts rapidly develop from crowns and roots	Reduce number of live brush plants; improve range condition and forage production (see "B," figure 1 for next step)
Heavy cover of Macartney rose but 3-6 ft tall	Broadcast application of herbicides with ground or aerial equipment	1. 2,4-D low-volatile ester in the fall (2 qt/acre) or 2. 2,4-D amine salt in the spring (2 qt/acre) or 3. Grazon P+D (4 qt/acre) in fall or spring or 4. Tank mix 2 qt/acre 2,4-D low volatile ester (for fall application) or 2,4-D amine salt (for spring application) with 1 qt/acre Grazon PC	Same as described for plants \geq 6 ft tall except apply in at least 20 to 30 gal/acre for ground broadcast to insure coverage of brush foliage	Same as following application to plants \geq 6 ft tall (see above)	Same as for aerial application of herbicides to plants \geq 6 ft tall (see above and see "C," figure 1 for next step)

Scattered plants or clumps	Individual plant treatment with herbicide sprays	<p>1. 1 gal 2,4-D low-volatile ester</p> <p>or</p> <p>2. 1 gal 2,4-D amine salt</p> <p>or</p> <p>3. 1 gal Grazon P+D</p> <p>or</p> <p>4. 2 qt 2,4-D low-volatile ester or amine salt plus 1 qt Grazon PC</p> <p>Mix herbicide and 8 to 32 oz surfactant in sufficient water to make 100 gal of mixture</p>	Apply in spring or fall with good growth condition; apply with adequate pressure to thoroughly cover all foliage and stems	Best results will be obtained with herbicide containing picloram (Grazon P+D or Grazon PC). Reduce brush canopy by at least 90% for 90-120 days; canopy reduction greater than 80% at end of first growing season; kill more than 60% of plants	Improve range condition and forage production; remove dead canes; suppress invading brush plants (see "D," figure 1 for next step)
	Prescribed burning	Cool season (Dec-Feb) burn as initial practice or as follow-up (within 18 to 24 months) to chemical or mechanical practice	Accumulate at least 2,000 lb/acre (preferably 3,000 lb/acre or more) of uniformly distributed fine fuel; use headfire on clear day when relative humidity \geq 70%, air temperature \geq 60°F. and wind 6 to 10 mph	Removal of brush top growth and coarse forage; removal of dead canes from chemical practice; improve grazing distribution; rapid regrowth from brush crown/roots	Improve range condition and forage production; suppress sprouts on surviving brush plants (see "E," figure 1 for next step)
	Individual plant treatment with pelleted herbicides	Grazon 10K (Tordon 10K) ⁴	Apply 0.5 to 1 tsp of 10% pellets per foot of canopy diameter ahead of spring rains (use higher dosage on heavy clay soils); spread evenly throughout canopy area	Kill 60% or more of the brush plants	Improve range condition and forage production; suppress invading plants and surviving sprouts; remove dead woody debris (see "F," figure 1 for next step)
Localized area of heavy regrowth on burned areas	Broadcast application of herbicide pellets	Grazon 10K (Tordon 10K) pellets at 10 lb/acre	Apply with PTO-driven fertilizer/seed spreader to deliver pellets in 20-40 ft wide swaths to heavily infested areas only. Apply directly into the ash immediately following late winter burn	Reduce canopy cover of Macartney rose by at least 85% for two growing seasons after treatment; release grasses; reduce forb populations for at least the first growing season	Improve range condition and forage production; reinstate forbs; suppress sprouts on surviving plants (see "F," figure 1 for next step)
Scattered plants or clumps on burned areas	Individual plant treatment with pelleted herbicide	Grazon 10K (Tordon 10K) pellets	Apply 1 tbsp of pellets per 100 sq ft (10 ft x 10 ft); apply directly into ash of plant or clump immediately following late winter burn	Same as for broadcast application of plants	Same as for broadcast application of pellets (see "F," figure 1 for next step)

¹Based on 4 lb/gal (active ingredient) herbicide; ²Based on 2.5 lb/gal (active ingredient) herbicide (2 lb/gal 2,4-D + 0.5 lb/gal picloram); ³Based on 2 lb/gal of picloram as active ingredient; ⁴Pellets contain 10% picloram as active ingredient.

Table 2. Recommended herbicides.

Herbicide common name	Chemical name	Product name	Active ingredient or acid equivalent
2,4-D	(2,4-dichlorophenoxy) acetic acid	Several manufacturers	Amine salts and esters
Picloram	4-amino-3,5,6-trichloropicolinic acid	Grazon PC Grazon 10K Tordon 10K	2 lb/gal 10% 10%
Picloram:2,4-D (1:4)	See picloram and 2,4-D	Grazon P + D	2.5 lb/gal

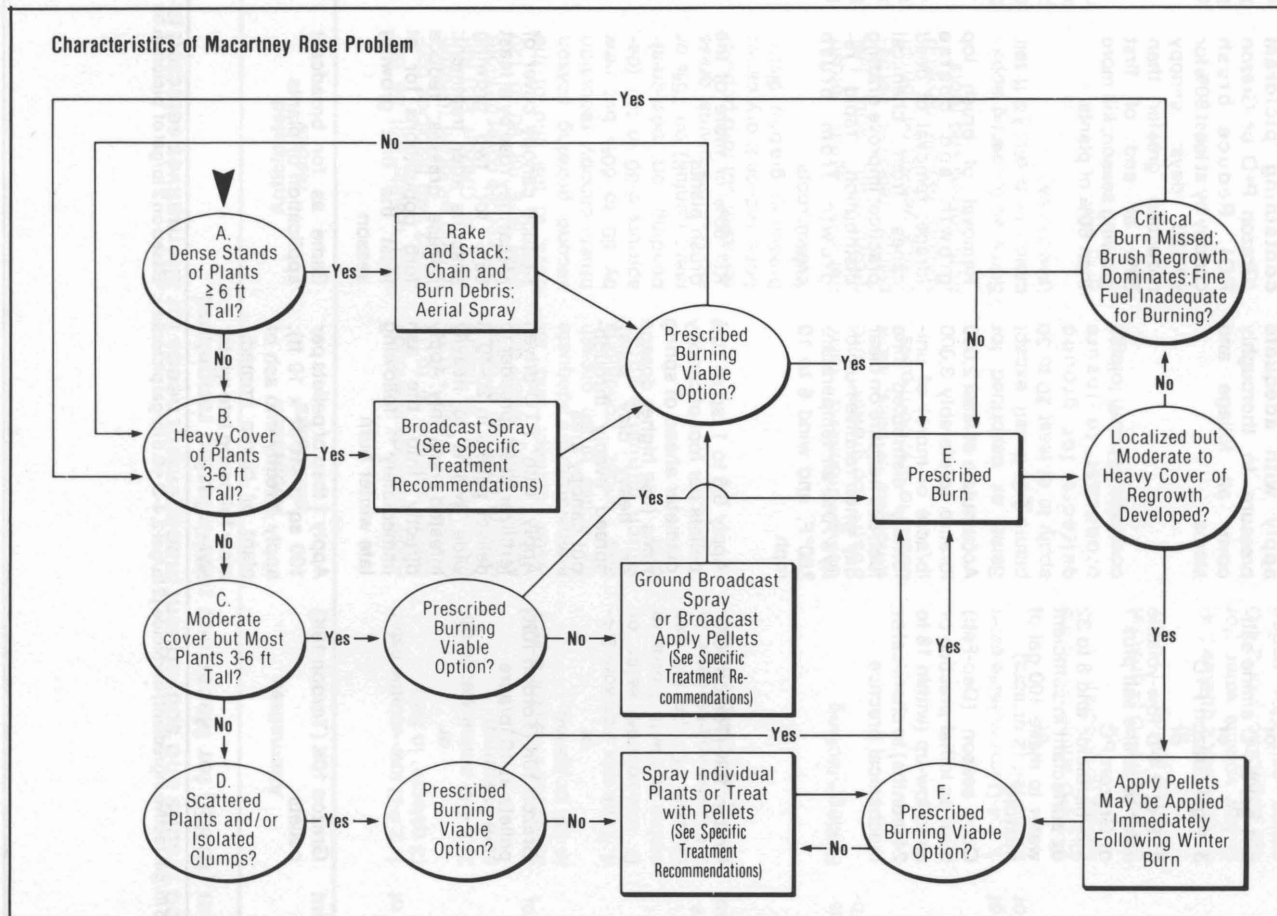


Figure 1. Flow chart for selecting methods for managing Macartney rose infestations.

clearance is subject to change, be certain that the herbicide is currently labeled for the intended use.

The user is always responsible for the effects of herbicide residue on his livestock and crops, as well as for problems that could arise from drift or movement of the herbicide from his property to that of others. Always read and follow carefully the instructions on the container label.

Acknowledgments

Information herein was developed from the collective experiences of researchers, Extension personnel and ranchers who have evaluated control measures on Macartney rose for many years. Work of R. A. Gordon, J. L. Mutz, C.W. Hanselka and G.O. Hoffman (deceased) was of particular value.

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied.

Educational programs conducted by the Texas Agricultural Extension Service serve people of all ages regardless of socioeconomic level, race, color, sex, religion, handicap or national origin.

Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Zerle L. Carpenter, Director, Texas Agricultural Extension Service, The Texas A&M University System.