



Ripping - A Range Renovation Tool

Tom and David Scott Ranch 2002

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Summary:

Livestock overgrazing and drought can lead to rangeland degradation that cannot be reversed through traditional grazing management, brush control or even exclusion from all grazing. Ripping is a tool that can be used to break the desertification process.

Using a 55 hp, front drive assist, rubber tired tractor, a single shank running 12 to 18 inches deep was used to rip desertified rangeland in Irion, Schleicher (two sites), Menard, Runnels and Lampasas counties. The Runnels county site was ripped in May of 2002. All other sites were ripped during 2001.

Response varied depending on the location. The Runnels and Lampasas county sites showed some vegetation improvement by the fall of 2002. The Irion, Schleicher, and Menard sites did not, most probably due to extreme drought conditions following establishment of the rip. Weed control during the spring and summer of 2002 at the Runnels and Lampasas sites did improve forage response to ripping.

Severely deteriorated rangelands, especially in arid and semiarid regions, often recover slowly or not at all after initiation of proper grazing management or the total removal of livestock because of lack of vegetative cover, poor soil aggregation, low infiltration rates, and the resultant harsh environment for plant establishment and growth. Mechanical treatments such as ripping can expedite natural recovery of these desertified rangelands.

Ripping (also referred to as sub-soiling or deep chiseling) involves pulling a heavy shank equipped with a broad lifting tip, 12 to 20 inches deep through the soil on the contour. Space between rips is usually 10 to 30 feet. Ripping increases soil porosity and rate of infiltration, causes uplifting of the soil (which resists surface runoff), leaves a furrow in the center of the uplift which helps retain water, and provides a seedbed for new plant establishment.

Research conducted near San Angelo, Texas showed ripping increased carrying capacity

from 104 acres/animal unit to 20 acres/animal unit, at a cost of \$2 to \$3/acre.

Objective:

The objective of these trials is to:

Document vegetation response following ripping of desertified rangeland.

Materials and Methods:

Table 1 shows location and date of treatment for the six treatment sites. Each site was ripped using a 55 hp front drive assist tractor and a single shanked ripping blade. The blade included a broad (2 inch) lifting tip. Rips were made on the contour, using a level to define the slope at each site. Spacings of 15 or 30 feet between rips were used (Table 1). Rips reached a depth of 12 to 18 inches depending on the site.

The Lampasas county site was sprayed with Ally[®] (0.3 oz/ac) on April 5, 2002. The north half of each rip was sprayed, while the south half was left unsprayed. The herbicide was applied with a 4-wheel ATV equipped with a Fieldjet[®] KLC9 nozzle, capable of producing a 15 ft swath. Total volume applied was 11.8 gpa.

The Runnels county site was seeded at time of ripping. A mixture of B. D. Dahl Bluestem, Haskell Sideoats and Lometa Indiangrass was used at a broadcast rate of 1 lb pls/ac, 3 lbs pls/ac and 3 lbs pls/ac, respectively. This grass mixture was applied to a 1 ft wide band, immediately adjacent to and up slope from each rip. The site was sprayed for weeds on June 11, 2002 with 1 qt/ac of Grazon P+D[®]. The same ATV, nozzle, swath width and total volume/acre were used as at the Lampasas site.

Table 1. County, ranch and application dates for the five treatment sites.

County	Ranch	Treatment Date	Spacing Used	Slope	Comments
Lampasas	Scott Ranch	May 1, 2001	15 feet 30 feet	3.8% 4.5%	Sprayed for weeds April 5, 2002
Menard	Kothmann Ranch	January 16, 2001	30 feet	a	
Schleicher	Ross Whitten Ranch	January 16, 2001	15 feet 30 feet	a a	
Schleicher	Helmerts Ranch	July 16, 2001	15 feet 30 feet	1.7% 1.7%	

Irion	Rocker B Ranch	April 18, 2001	30 feet	2.0%	
Runnels	Gottschalk Ranch	May 21, 2002	30 feet	a	Seeded when ripped and sprayed for weeds June 11, 2002

a- slope not measured

Results and Discussion:

From previous research we know the cost to rip varies from \$2 to \$3/ac when using a 56 to 80 hp tractor and 30 foot spacings. Response following ripping varied from site to site as described below.

Menard, Schleicher and Irion County Sites

These sites were not seeded or sprayed for weeds. There was no observable increase in perennial grass forage on these sites following ripping, although immediately adjacent to each rip, in a 3 to 4 ft band there was an increase in annual weeds. These sites received little rainfall until the late summer and fall of 2002.

Lampasas County Site

The site was characterized by extremely dry conditions during 2001 and average rainfall during 2002. By the fall of 2001, the first growing season following ripping, there was no observable increase in forage production on ripped areas. By the fall of 2002, the second growing season following ripping both ripping and weed spraying improved forage production. The following table summarizes the forage response to ripping and weed spraying on this site by the fall of 2002. The 30 ft spacing did not increase forage production by itself. Spraying weeds during the spring of the second growing season increased forage production approximately 20% immediately adjacent to the rips.

The most observable increase in forage production occurred with the 15 ft spacing. Ripping alone increased forage adjacent to each rip to 1200 lbs/ac. Weed spraying during the spring of 2002 almost quadrupled forage production.

Rip Spacing	Standing crop		
	Between Rips	Adjacent to Unsprayed Rips	Adjacent to Sprayed Rips

15 feet	400 lbs/ac	1200 lbs/ac	4000 lbs/ac
30 feet	2000 lbs/ac	2000 lbs/ac	2400 lbs/ac

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