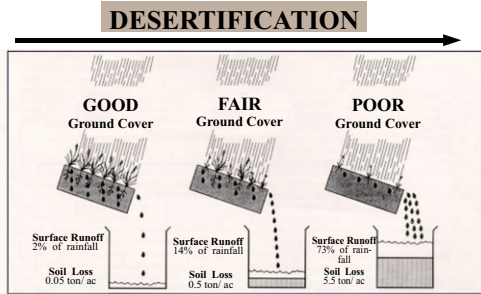


# Water Conservation Treatments for Restoration of Degraded Rangeland

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Leaflet 02-1



Good ground cover means less runoff and erosion and better water use efficiency.

- \* Inadequate infiltration perpetuates the desertification process.
- \* Contour rips or furrows resist runoff, retain water, enhance infiltration.
- \* Bunchgrasses establish in bands, then efficiently conserve water and soil.

## METHODS

Two experiments: April 1995 and May 1996  
San Angelo State School land near Carlsbad  
Tulia loam soil (3-4% slope)  
55-hp farm tractor with single-shank ripper  
Ripped on contour, 15 inches deep, on 30-ft spacings  
Data collected in mid August 2000



Single-shank ripper mounted on a 40-hp tractor.



Ripping reduces runoff and enhances rainfall infiltration.

	Productivity of untreated rangeland and rangeland ripped in 1995-96 near Carlsbad, Texas*	
	Untreated	Ripped
Total herbage (lb/acre)	490	1700
Grazeable herbage (lb/acre)	122	425
A.U. days / acre	4.7	16.4
Carrying capacity:		
Acres / A.U.	78	22.3
A.U. / section	8.2	28.7

\* From data collected August 15, 2000.

BEFORE → AFTER



1995 Rip  
3 Months After Ripping



1995 Rip  
5 Years After Ripping

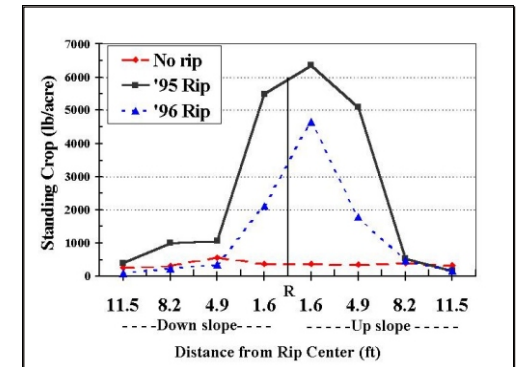


1996 Rip  
1 Day After Ripping



1996 Rip  
4 Years After Ripping

Total herbage production (lb/acre) on Aug. 15, 2000 on untreated rangeland and rangeland that was ripped in 1995 or 1996 near Carlsbad, Texas.



Costs for ripping or ripping + seeding with a 55-80 hp farm tractor in 2nd gear.

Furrow spacing (ft)	Efficiency (acre/hr)	Cost (\$/acre) <sup>1</sup>	
		Ripping only	Ripping + seeding
15 <sup>2</sup>	4	5.50	7.90
20 <sup>3</sup>	5.3	4.20	5.90
30 <sup>3</sup>	8	2.80	3.90

<sup>1</sup> labor @ \$10/hr; tractor @ \$11.67/hr; seed cost @ \$2.38/acre for 15-ft spacing.

<sup>2</sup> Estimated from three field trials.

<sup>3</sup> Calculated.

## Ripper Modifications



Furrow opener for contour furrowing or wing ripping.



Seeder for planting grass, forb, or legume seed.