



CONTOUR STRAW WATTLES

What are Contour Straw Wattles?

Straw Wattles, also known as straw worms, bio-logs, straw noodles, or straw tubes are man made cylinders of compressed, weed free straw (wheat or rice), 8 to 12 inches in diameter and 20 to 25 feet long. They are encased in jute, nylon, or other photo degradable materials, and have an average weight of 35 pounds. They are installed in a shallow trench forming a continuous barrier along the contour (across the slope) to intercept water running down a slope.

When are Contour Straw Wattles Used?

Straw Wattles are used on burned slopes that have less than 30% of the original ground cover remaining and are at risk for increased erosion. They can be installed on slopes up to 70 percent, however their effect diminishes greatly on slopes steeper than 50 percent. Soils can be shallow, but not less than about 8 inches. Straw Wattles increase infiltration, add roughness, reduce erosion, and help retain eroded soil on the slope. Straw Wattles should be effective for a period of one to two years, providing short term protection on slopes where permanent vegetation will be established to provide long term erosion control. Contour Straw Wattles accomplish the same treatment as Log Terraces, but require less skilled labor to install and can be placed on the slope more effectively. Straw wattles should not be placed across drainage swales and channels with more than 2 acres of contributing drainage area because they are not sturdy enough to resist the forces of concentrated flows.

What Materials are Needed?

- 9 -12 inch diameter tubes, 10-30 feet long
- 5 - 1x2 or 2x2 wooden stakes, 18 - 24 inches long per wattle
- Hand tools -shovels, polaskis, & stake hammer
- Small machines for plowing trenches on 30% or flatter slopes

How are Contour Straw Wattles Installed?

- Layout a contour line on the slope with a hand level and wire flags.
- Dig a shallow depression (about 3 to 5 inches deep) and lay the wattle into it.
- Drive a 1x2 or 2x2 wooden stake through the center of the wattle at least 6 inches into the ground, stopping about two inches above the wattle.
- Put 5 stakes in each wattle, installing them end to end in the trench.
- Seat the wattle with foot tamped backfill on the upstream side such that water flowing down the slope will not run under it.

How Many Straw Wattles Are Required?

The horizontal spacing of wattles on the slope is based on normal rainfall intensity, slope steepness, soil characteristics, and the extent of surface cover remaining after the fire. Figure 1 depicts the placement straw wattles on the slope. Table 1A and 1B show recommended wattle spacing for the front range of Colorado.

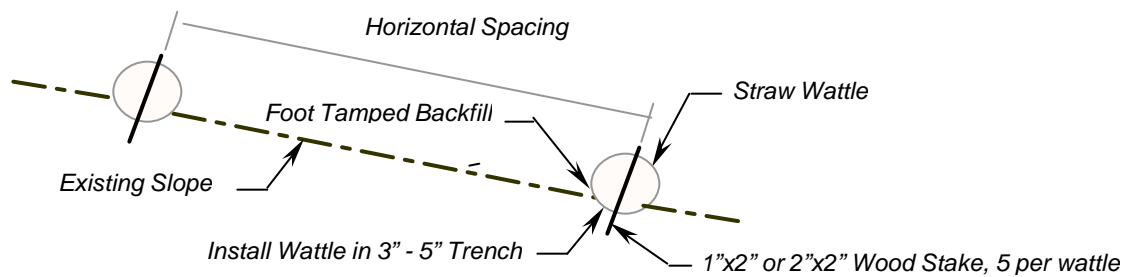


FIGURE 1 - Typical Straw Wattle Installation

Table 1A - Recommended Spacing for Contour Straw Wattles - South of I-70

Burn Severity Land Slope (percent)	Low Intensity		Moderate Intensity		Severe Intensity	
	Spacing (feet)	# Wattles (feet/acre)	Spacing (feet)	# Wattles (feet/acre)	Spacing (feet)	# Wattles (feet/acre)
< 5 %	250	180	160	272	130	335
5 - 10 %	200	218	120	363	90	484
10 - 20 %	120	363	60	726	40	1089
20 - 50 %	60	726	30	1452	20	2178
> 50 %	40	1089	20	2178	20	2178

Table 1B - Recommended Spacing for Contour Straw Wattles - North of I-70

Burn Severity Land Slope (percent)	Low Intensity		Moderate Intensity		Severe Intensity	
	Spacing (feet)	# Wattles per acre	Spacing (feet)	# Wattles per acre	Spacing (feet)	# Wattles per acre
< 5 %	350	125	200	218	150	290
5 - 10 %	300	145	160	272	100	436
10 - 20 %	200	218	100	436	50	872
20 - 50 %	100	436	50	872	20	2178
> 50 %	50	872	20	2178	20	2178

NOTE: After a fire many trees are weakened from burning around the base of the trunk. The trees can fall over or blow down without warning. Shallow rooted trees can also fall. Therefore be extremely alert when around burned trees.

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