

after the fire



Contour Wattles

For more info contact:
NRCS Oregon State Office
1201 NE Lloyd Blvd Suite 900
Portland, OR 97232
(503) 414-3200
www.or.nrcs.usda.gov

Contour Wattles, also known as straw wattles, fiber roles, bio-logs, or straw tubes are used to form a continuous barrier to intercept water running down a slope. When installed properly, they can increase water infiltration and reduce soil erosion.

What are contour wattles?

Contour Wattles, also known as straw wattles, also known as fiber rolls, bio-logs, 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 may also be filled with other types of weed free fibers. 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 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 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.



Contour Wattles

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, and stake hammer.
- Small machines for plowing trenches on 30% or flatter slopes.

How are contour 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 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 1 shows recommended wattle spacing.

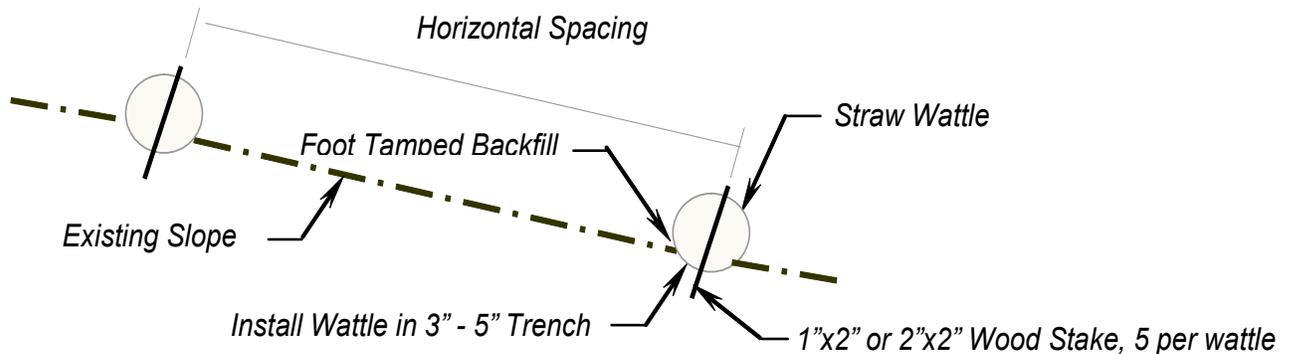


FIGURE 1 - Typical straw wattle installation

Burn severity land slope (percent)	Low Intensity		Moderate Intensity		Severe Intensity	
	Spacing (feet)	# Wattles (feet/acre)	Spacing (feet)	#Wattles (feet/acre)	Spacing (feet)	#Wattle (feet/acres)
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 1 - Recommended spacing for contour wattles