



A Guide to Straw Wattle Installation

Post-Fire

Straw Wattles 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 photodegradable 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.

Installation overview

Proper installation of the straw wattle is essential in order to insure the success of the product. Straw wattles are designed for low surface flows, not to exceed 1 cfs for small areas. While they work well on stream banks, *they should not be placed in the path of high water flow.* On slopes, wattles should be installed on contour with a slight downward angle at the end of the row in order to prevent ponding at the mid-section. No overall slope preparation is needed prior to installation; however, straw wattles should always be installed in shallow trenches according to the guidelines given below. Running lengths of wattles should be abutted firmly to ensure no leakage at the abutments. Guidelines regarding vertical spacing are given below. The wattles should be pinned securely to the ground according to instructions in order to insure their stability and the success of the installation.

Spacing—downslope

Vertical spacing for slope installations should be determined by site conditions - slope gradient and soil type are main factors.

A good rule-of-thumb is:

- 1:1 slopes = 10 feet apart
- 2:1 slopes = 20 feet apart
- 3:1 slopes = 30 feet apart
- 4:1 slopes = 40 feet apart, etc.

However, adjustments may have to be made for the following soil types:

- For soft, loamy soils - adjust the rows closer together
- For hard, rocky soils - adjust the rows further apart

Trenching

Use a hand tool such as a maddox or pick to score the ground. Then, using a shovel, dig the trench to the needed depth. Soil from excavating the trenches can be placed on the uphill or flow side of the trench to be used during installation.

- For soft, loamy soils: dig a 3-5 inch trench
- For hard, rocky soils: dig a 2-3 inch trench





Installation

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Lay the first straw wattle snugly in the trench. **No daylight should be seen under the wattle.** Pack soil from trenching against the wattle on the uphill side. When installing running lengths of straw wattles, you must butt the second wattle tightly against the first wattle. **DO NOT overlap the ends on top of each other.** Overlapping behind each other has been done with some success. Stake the straw wattles at each end and four foot on center.

Stakes should be driven through the middle of the wattle, leaving 2-3 inches of the stake protruding above the wattle. A heavy sediment load will tend to pick the wattle up and could pull it off the stakes if they are driven down too low. It may be necessary to make a hole in the wattle with the pick end of your maddox in order to get the stake through the straw. When straw wattles are used for flat ground applications, drive the stakes straight down; when installing wattles on slopes, drive the stakes perpendicular to the slope. Drive the first end stake of the second wattle at an angle toward the first wattle in order to help abut them tightly together. If you have difficulty driving the stake into extremely hard or rocky slopes, a pilot bar may be needed to begin the stake hole.

For example:

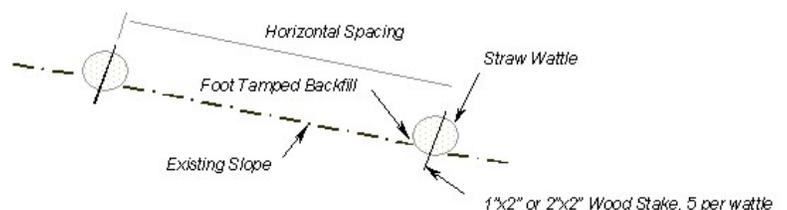
25 foot wattle uses 6 stakes
20 foot wattle uses 5 stakes
12 foot wattle uses 4 stakes

Flat ground applications

For installations along sidewalks or behind curbs, it may not be necessary to stake the wattles, however, trenches must still be dug. If you have not yet back-filled behind the sidewalk or curb, lay the wattle snugly against it first, then backfill behind the wattle. For installations around storm drains and inlets, trenches and staking will be needed. Fit wattle in the trench snugly up against the sidewalk or curb. Around storm drains or inlets, the wattle should be set back 1–1½ ft. and should direct water flow toward the angle of drainage. If all drainage angles into the inlet, snake the wattle all the way around the inlet, using more than one wattle if needed.

Staking

It's recommended that wood stakes or willow cuttings are used rather than metal pins to secure the straw wattles. Wood stakes will eventually biodegrade, and willow cuttings will grow and provide extra stabilization. Be sure to use a stake that is long enough to protrude several inches above the wattle: 18" is a good length for hard, rocky soil. For soft, loamy soil, use a 24" stake for greater security. The diameter of the stake should be approximately 1" for ease of driving through the wattle.



Information courtesy of County of Marin (www.marincounty.org) and the United States Department of Agriculture—Natural Resources Conservation Service (USDA-NRCS) (https://www.nrcs.usda.gov/wps/portal/nrcs/detail/wy/technical/?cid=nrcs142p2_027274).

Looking for more resources? Visit the Sonoma RCD website at <http://sonomarcd.org/resources/fire-recovery/>.