

2.3 MULCHING



Figure 2.7. Mulching (Source: www.usda.gov/stream_restoration/newgra.html)

Overview

Description: Application of plant residue or other suitable material to the soil surface.

Problem identification: The existing soil surface is devoid of vegetation and moisture, causing soil to become airborne and be transported off the construction site due to wind or vehicle movement.

Design purpose: To reduce runoff, conserve moisture, and reduce erosion and sedimentation.

Associated practices: Used on bare soil with either temporary or permanent seeding; may be used without seeding to protect critical areas; used after grading, in drainage areas, etc.

Installation: Many materials can be used for mulching. The most readily available include grain straw, hay, wood chips or bark, wood cellulose fiber, wood excelsior, and gravel or crushed rock. For mulch to blend with the soil, the soil should be loosened. Since seedbed preparation requires that the soil be tilled to a depth of three inches, this preparation provides ideal soil surface treatment for the application of mulching. Proper application rates are important. Application rates are as follows:

1. Dry straw: Apply 1.5–2 tons per acre, 70 lbs per 1,000 sq ft. Straw mulching can be applied either by machine or by hand. The straw needs to be anchored to the soil. One method of anchoring is pressing the straw into the soil with a mulching tiller (a machine designed for this purpose), or applying a cutback asphalt tack at 1,200 per acre. Mulching applied at the correct rate will allow approximately 50% of the soil to be visible.
2. Hay: Apply 2 tons per acre, 90 lbs per 1000 sq ft. The remainder of application is the same as straw.
3. Wood chips or bark: Apply 10 to 12 tons per acre. This can be applied by machine or by hand. The material decomposes slowly, and it is good, long-lasting mulch.

4. Wood cellulose fiber: Requires 1,000 to 1,200 lbs per acre. The fiber must be applied with a hydroseeder. Mulching must be applied after the seed and fertilizer have been incorporated into the soil.
5. Wood excelsior: Apply at rate of 2 tons per acre. This material lasts longer than straw and is free of weeds. It can be applied by machine or by hand. Like straw, it should be incorporated into the soil.
6. Crushed rock or gravel: Apply at rate of 40 cu yds per acre or 1.5 cu yds per 1000 sq ft. The recommended size is three-fourths to one in. These specifications will result in rock mulching being placed one rock thick, and 50% of the soil should be visible. This is excellent mulching for short slopes or areas that will be subject to light traffic. It may also be placed over black plastic to control weeds.

Maintenance/inspection: Inspect after heavy storm runoff. Look for small areas of erosion or where the mulch has washed away. All areas of failure should be repaired at once.

Design life: Varies, three months to one year.

Estimated costs: Unit cost is dependent on local material costs.