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Mulching

Description

Mulch is the application of shredded or processed material to the ground surface for the purpose of protecting vegetation. Mulch is used to temporarily or permanently stabilize cleared or freshly seeded areas. Common types of mulches include organic materials, straw, wood chips, and bark, compost or other wood fibers. Mulch is likely to create a significant reduction in sediment and a partial reduction in nutrients.

Selection Criteria

Mulching is recommended for the following applications:

- Temporary stabilization of freshly seeded and planted areas, or during periods unsuitable for growing permanent vegetation.
- Permanent stabilization around established plants, such as trees or shrubs, in order to prevent the growth of weeds and to maintain soil moisture conditions.
- On poor or marginal soils, to add organic matter and retain moisture and fertilizer, as a strategy to speed establishment of permanent vegetative cover.
- As a short-term ground cover on steepened slopes to reduce rainfall impact, decrease the velocity of sheet flow, and settle out sediment.

Design Considerations

The term “mulch” is commonly used to describe a variety of materials, such as:

- Compost
- Shredded tree bark and other woody materials, to protect trees and shrubs
- Straw or hay, scattered across a slope or disturbed area
- Peat mulch, used in planting trees and shrubs

Mulch is basically defined as a layer of material spread uniformly over a ground surface to prevent weeds and/or retain soil moisture. Mulch is usually an organic material such as compost, shredded tree bark, hay, straw, sawdust or leaves. Mulch prevents erosion by protecting the soil surface from rain and runoff impact and fostering growth of new seeds or seedlings. The choice of mulch should be based on the size of the area, site slopes, amount of sunlight or shade, proximity to drainage features and natural streams, soil hardness and moisture, weed potential, and availability of mulch materials. Organic materials may also decompose and aid the soil in providing nutrients for vegetation.

Inorganic materials such as inert black plastic or manufactured landscaping fabric can also be used to prevent weeds and retain moisture, but are not considered as mulch.

Grass Vegetation

Mulch helps to establish temporary or permanent grass vegetation for disturbed soils after a construction project or land-use reclamation project. Straw and hay mulch are often selected due to the ease of application and good results.

Alternatively, hydro-seeding (including hydraulic application of mulch) is often performed, especially on steep slopes and locations which require quick establishment of grass.

Applying straw or hay mulch to a slope or hillside will require either physical measures (crimping, erosion control mats) or chemical binders (special asphalt emulsions) to keep the mulch from washing away or blowing away. The binder is also called a tacking agent or tackifier. A typical application rate might be 100 pounds of straw or hay mulch per 1000 square feet.

Vegetative Fibers

Loose hay or straw is the most common mulch material used in conjunction with direct seeding of soil. Straw mulch is preferable over hay mulch, which may contain weeds and other objectionable material. Straw mulch is the short-term protection most commonly used with seeding. Wheat or oat straw is recommended from the current season's crop (less than 12 months old). Average fiber length should exceed 6 inches.

Straw mulch is applied immediately after seeding, either by machine or by hand distribution. Anchor the mulch in place using a tacking agent, plastic netting, or punching into the soil mechanically. Plastic netting (see ES-11, Erosion Control Matting) requires wire staples, wooden stakes, or plastic stakes. If the slopes are too steep for netting, then tacking agents should be selected on the basis of longevity and ability to hold the fibers in place.

Shredded Vegetation

"Green" mulch is produced by recycling of vegetation trimmings such as grass, shrubs, and trees. Methods of application are generally by hand, although pneumatic methods are currently being developed. It can be used as a temporary ground cover with or without seeding. The green material should be evenly distributed at a depth necessary to prevent erosion. Anchor green mulch in place with a tacking agent on steep slopes and in areas where overland sheet flow is anticipated. The quality of green mulch may vary, and there is a strong potential for establishing unwanted weeds and plants.

Wood and Bark Chips & Compost

Wood and bark chips are suitable for landscaped areas that will not be closely mowed. Wood and bark chips should not be used on steep slopes and therefore do not require tacking agents. Wood chips may require nitrogen treatment (12 pounds/ton typical rate) to prevent nutrient deficiency. Bark chips do not require additional nitrogen fertilizer.

If there is a wood source near the project site, wood and bark chips can be very inexpensive. Caution must be used in areas of steep slopes, since both wood and bark chips tend to wash down slopes exceeding 6 percent. Wood and bark chips are also used around trees and shrubs, or in ornamental or landscape gardens. A typical depth is 2 to 3 inches.

Hydraulic Mulch

Hydraulic mulch is mixed in a hydraulic application machine (such as a hydro-seeder or a mulch blower) and then applied as a liquid slurry. The hydro-seeder slurry contains recommended rates of seed and fertilizer for the site, usually specified with a tacking agent. Slurry must be constantly agitated to keep the proper application rate and achieve uniform effective coverage.

Hydraulic application of seeding and other materials (hydro-seeding) can be done quickly and efficiently with the correct equipment and ingredients. Also, hydraulic application must be done when no rainfall is expected, preferably within a 24-hour time period.

Maintenance

Avoid traveling on mulched and seeded areas. Maintain traffic barriers and fencing as necessary.

Inspect mulched areas weekly and after rainfall for damage or deterioration. Replace as necessary. Continue inspections until vegetation is firmly established.

Limitations

The tackifier may lose adhesiveness during very cool weather or due to extreme temperature variations.

Photo 1 – 2 Mulch Application Activities



References

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