

Kentucky Erosion Prevention and Sediment Control Guide

A guide to preventing erosion and controlling sediment from construction activities in Kentucky

Protecting Soils with Mulch and Erosion Control Materials

Seeding or covering bare soil with mulch, blankets, mats or other products as soon as possible is the cheapest and best way to prevent erosion. Grass seeding alone can reduce erosion by more than 90%. Sod, mulch, blankets, and other products can further increase protection.

Mulch types and application

Mulch by itself or applied over seed provides excellent erosion protection. To apply, bring site to final grade and clear rocks, wood, trash and other debris. Apply seed first. Straw or hay should be hand scattered or blown at a rate of 1 ½ to 2 ½ tons per acre. Wood chips, bark, and sawdust should be applied at 5 to 8 tons per acre. Emulsified asphalt or other tackifier should be used on slopes greater than 3:1. In general, apply mulch so that at least 80 to 90 percent of the ground is covered.

Mulch product	Application rate	Benefits	Limitations
Straw or hay	1 ½ to 2 ½ tons per acre	Readily available and inexpensive; very effective in controlling erosion; can be applied on large sites via blower	May carry unwanted seeds; may need tackifier or anchoring, especially on steep slopes; crimp mulch in with dozer or straight-set disk harrow to prevent blowoff
Wood chips, bark, sawdust	5 to 8 tons per acre	Very low cost in some locations; can use chips produced from removed vegetation; chips effective on slopes up to 35%	High nitrogen demand when decomposing; may float away or blow away during rainstorms
Rock	200 to 500 tons or more per acre	May be inexpensive and readily available in some locations; may be suitable for smaller sites	Inhibits plant growth; adds no nutrients to the soil; can be costly to apply on slopes and large sites; adds “hardened” look to slopes
Hydraulic mulches and soil binders	1 ½ to 2 tons per acre	Easily and rapidly applied with sprayer equipment; can include seed, fertilizer, and soil binders; many new products available	May be too expensive for small or very remote sites; must dry for at least 24 hours before rainfall. KYTC limitations
Compost	2 to 3 tons per acre	Adds nutrients to the soil, readily available and inexpensive in some locations	Limited erosion control effectiveness; not suitable for steep slopes; may be expensive in some areas

Erosion control blankets

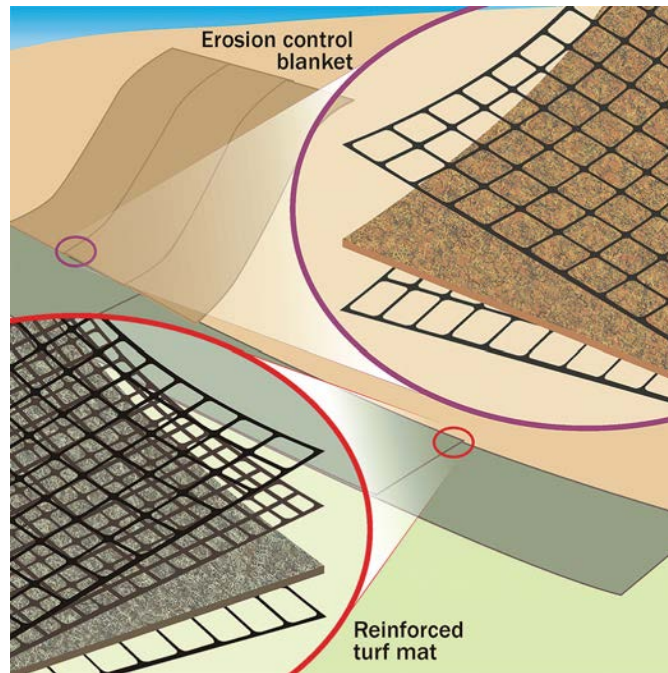
Erosion control blankets are used to protect steep slopes (up to 3:1; check product information sheets), drainage ditches with less than 20:1 slope, and other areas where erosion potential is high. Most are designed to provide temporary stabilization until vegetation is established. Blankets degrade within 6 to 24 months, depending on their makeup. They usually consist of a layer of straw, coconut fiber, wood fiber, or jute sandwiched between layers of plastic or fiber mesh.

For short slopes (8 feet or less) above channels, install blankets across the slope (horizontal). Install up and down the hill (vertical) for long slopes.

Walk blankets down to ensure good contact with the soil. Use plenty of staples to keep blankets flat. Overlap blankets 6 to 8 inches on sides, top and bottom. Do not stretch blankets and do not exceed manufacturer's directions on maximum slope angle for the product.

Blanket installation notes

<p>Ditches and channels - from high flow line to ditch bottom</p> <ul style="list-style-type: none">● Grade, disk, and prepare seedbed● Seed, lime, and fertilize● Install horizontally (across slope)● Start at ditch bottom● Staple down blanket center line first● Staple and bury top in 8" trench● Top staples should be 12" apart● Uphill layers overlap bottom layers● Side overlap should be 6"-8"● Side and middle staples should be 24" apart● Staple below the flow level every 12"● Staple through both blankets at overlaps	<p>Long slopes, including areas above ditch flow areas</p> <ul style="list-style-type: none">● Grade, disk, and prepare seedbed● Seed, lime and fertilize● Install vertically (up and down hill)● Unroll from top of hill if possible● Staple down center line of blanket first● Staple and bury top in 8" trench● Top staples should be 12" apart● Side and middle staples should be 24" apart● Uphill layers overlap downhill layers● Overlaps should be 6"-8"● Staple through both blankets at overlap
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Erosion control blankets are thinner and usually degrade quicker than turf reinforcement mats. Check manufacturer's product information for degradation rate (life span), slope limitations, and installation. Remember to apply seed, fertilizer, and lime before covering with blankets or mats!

Turf reinforcement mats

Turf reinforcement mats are like erosion control blankets but are thicker and sturdier because they have more layers and sturdier fill material. Mats provide greater protection than blankets because of their heavier construction and last longer in the field.

Mats are used for steep slopes (3:1 or steeper) and ditches or channels with 15:1 to 10:1 slopes. Mats are installed just like blankets. Additional staking or stapling is needed for applications in channels that carry flowing water, and on steep slopes.

Other engineered products are available that are like blankets and mats. For example, bonded fiber matrices and other hydraulically applied products contain a mix of soil binders, mulch fibers, and even seed and fertilizer that can provide a stable crust that cements soil particles and prevents erosion. Apply seed prior to hydraulic mats or mulches, if seed is not included in the mix. Consult the manufacturer's installation instructions for product applicability and installation instructions.



Excellent application of hand-scattered straw mulch in new residential subdivision. Work sites must be seeded and mulched as soon as final grade is established. Crimp mulch into soil with dozer tracking or disk harrows set straight to prevent straw from blowing.



Very good treatment of roadside areas with blown straw after seeding. In areas near lakes, streams, and rivers, straw in roadway must be cleaned up after application.



Excellent soil coverage at stream bank stabilization project using hand scattered straw, jute matting, and erosion blanket.



Good slope protection with permanent rock cover. This slope could have been protected with erosion control blankets or mats and seeded for a “softer” look.



Install blankets and mats vertically on long slopes. Unroll from top of hill, staple as you unroll it. Do not stretch blankets.



Very good installation of erosion control blanket in seeded ditch below well-mulched slope on highway project.



Good application of erosion control blanket to stabilize shoulder and protect storm drain, but too few staples used along the top edge. Trench in top edge of blanket on steep slopes.

Resources

[Minnesota Stormwater Manual - Natural and Synthetic Mulches](#)

[NC State Extension - Mulch Options for Erosion Control on Construction Sites](#)

[Minnesota Small Sites BMP Manual - Mulches, Blankets and Mats](#)

[EnviroX Contracting - YouTube How to Install Erosion Control Blanket](#)

[EPA Mulching](#)

[EPA Compost Blankets](#)

[EPA Geotextiles, Matting and Netting](#)