

# EROSION CONTROL

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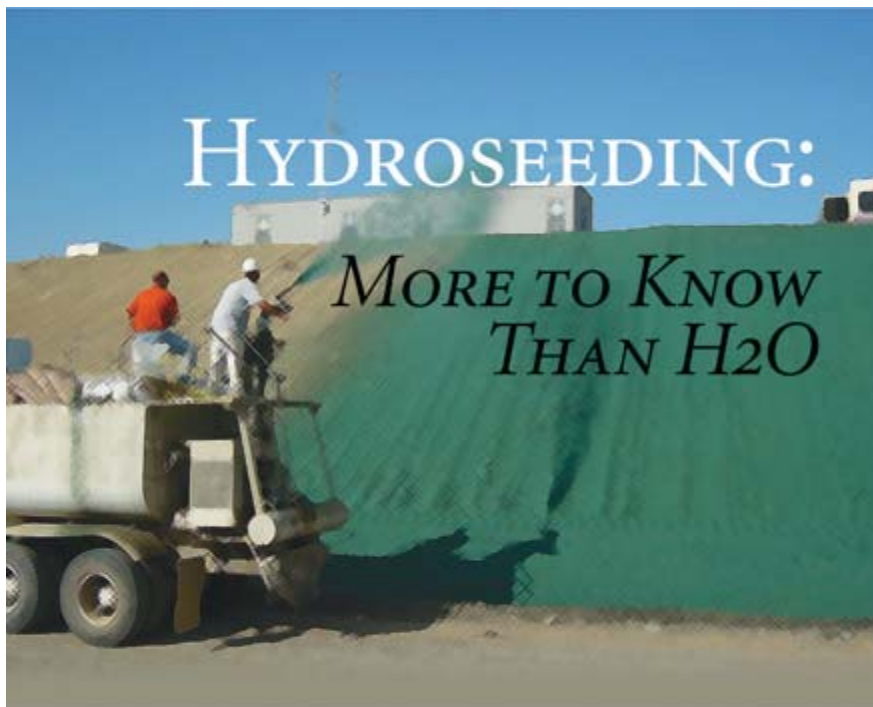


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*For different sites and applications, there's more than one "hydroseed recipe."*

By Janis Keating

Ask any seed: Would it prefer being plopped down on dry soil, or would it be surrounded in moisture, mulch, and fertilizers? Without hesitation, most seeds would vote for the latter, since those conditions allow for better germination and growth. To give more seeds a chance for success, more erosion control professionals use a variety of hydroseeding to revegetate sites, especially on commercial plots and large areas, where there are usually no onsite property owners who'll give the seeds a periodic sprinkle with a garden hose, as is the case on residential sites.

Although hydroseeding's main purpose is erosion control, different applications in different areas of the country require variations in hydroseeding products and procedures.

### Different Sites, Different Mixes

Which seed mixes will be used is usually determined by the project's immediate needs and use. For quick revegetation, during or after construction, annual grasses are

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used, as they will not be the permanent installation. For roadsides and rec areas, seed choices are made by clients' specifications and the amount of the area will receive after planting.

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Hydrosprout Inc. of Escondido, CA, often recommends a seed mix, but "the time, a public agency or architect has already written out specs for the the company's Mike Ritenour. "We see some overlap of seeds in different for quick post-construction revegetation, you want something to grow quick watering, aside from rainwater. This type of job gets a very basic seed mix establish quickly but not become invasive—an annual grass that'll grow and reseed itself."

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Wetsel Inc. of Kittanning, PA, used to be called Wetsel Seed Co., so seed manager Mike Steiner knows what he's talking about. "We use what's job-specific, what the architect calls for, and we do custom blending," he says. "We will get what they need in there for their specs. We do a lot of PennDOT [Pennsylvania Department of Transportation] blends. When we make the blends, the Pennsylvania Department of Agriculture has to watch us mix them and test the mixes. They have a certain blend they want—usually tall or short grasses and native wildflower blends."



Photo: Ter

Hydroseeding the slope after the a watertank.

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Sylmar, CA-based Dietz Hydroseeding, which purchases much of its seed Seeds in Carpinteria, CA, uses "all kinds of different seed mixes," says the company's president. "Some are used for vegetation re-establishment after we often use native seeds for specific sites. We'll use ornamental seeds for or business ground covers. Of course, it depends on how far along the site grading they might want permanent vegetation, but if they're not going to be a while, we'll use a temporary seed, an inexpensive annual grass, or some site-specific."

Gary Weems, president Hydroplant in San Marcos, CA, notes, "Each job is tailored for each job. For temporary mixes, or for erosion control, we will use Seeds' annual grasses. A permanent installation could include native chap buckwheat."

### Seasons for Changing the Mix

During California's "erosion control season," October 1 through May 1, export forbidden. What happens on a site that's still under construction? "You have something down after grading to save the soil," Hydrosprout's Ritenour says accomplish this without seed—perhaps just an EC blanket, which has been on 1:1 slopes. We can also cover the soil with a mix of liquid glue and hydro wood-fiber mulch; there are minimum mixture rates for the amount of slope amount of rainfall. The liquid glue looks like non-fat milk, and it's the texture cooking oil. When it hits the water it activates and it's awesome how it holds



As California lacks what much of the country would call "seasonal change," Weems doesn't see much seed variation during different seasons. "Maybe a little bit of changes wouldn't apply so much to seed but to the type of slurry, fiber, or control you're using. If I were planting in September, I'd have more flexibility in choices. In January, if you have a storm coming in three days, you might need a duty product."



Photo: TerraNovo/EarthGuard

Treating slopes with a fiber matrix can preserve soil during winter rains.

to use, if there's no seed there. And, although the shrubs are native, recent rains have slowed down the use of chaparral and sagebrush, because they're flammable.

"Certain plants will germinate only at certain times of year," Weems points out. "You can put a certain seed variety down at a certain time, but it might not germinate. Native chaparral germinates in fall in southern California. After a few fall rains, the chaparral starts to green up during winter, making root systems. The trend now is to go to native grasses and plants, most of which turn brown in winter. Some landscape architects are trying to restore the environment by choosing native plants. The choices available for this — native plants — varies region by region. Some times you will specify site-specific seed — what to use, if there's no seed there."

Despite Pennsylvania's weather changes, Steiner doesn't note much seasonal variation. "Seasonally, it depends on what they're using for a nurse or cover crop. Mature oaks, or annual rye for cover in the spring, they'll put in rye in the fall."

### Steep Slopes, Deep Mixtures?

For steep slopes, hydroseeding professionals often use different types of fiber mixtures. On some jobs, Hydrosprout uses bonded fiber matrix (BFM). "The wood fiber is dyed green, so we can see where we sprayed. The color lasts about a week in the sun. BFM forms something similar to a plastic cast, a protective covering over the dirt; we often use this rather than blankets because it's maybe a tenth the cost of blankets," Ritenour says. "However, in the past five years, Terra Nova has switched to EarthGuard Fiber Matrix, and that product is a fourth of the price of a

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Designed to work directly with soil to maintain its stability by both preserving soil structure and flocculating fine sediment dislodged by stormwater or wind. EarthGuard doesn't harden and prevent water from entering the soil.

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"EarthGuard Fiber Matrix is good for steep slopes unless we seed it with a temporary seed which adds another year to its life span," Ritenour says. "When we make bids for state contracts, Caltrans [California Department of Transportation] can't call for a product name, so it asks for —bonded fiber matrix—stabilized fiber matrix,' so it can

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Photo: S&S Seeds

When wildfires charred this area, S&S Seeds created a mix to revegetate quickly with native plants.

lowest bid. Ninety percent of the t Caltrans wants BFM, I'll include a EarthGuard Fiber Matrix too, because just as well and costs less."

Dietz's use of tackifiers is site-specific time of year factors in, too. After the season, you can use a lighter tackifier. If you have an irrigated site, you can use a heavier tackifier. Non-irrigated site in mid-season? We'll use yet another type. Clients may say, —Give me a basic mix. You really can't do that. What you can do is on the time of year, the soil type, the tackifier material type, and whether the site is irrigated or not."

"We'll use a wide range of tackifiers, such as guar—similar to the guar gum used in food—or bonded fiber matrix, which can put tackifiers, seed, and soil in one package," Weems says. "Even on non-slopes, if there's wind and water, we will use tackifiers."

Wetsel Inc. often uses Second Nature Paper Fiber Mulch or Wood Fiber Blend from Central Fiber of Canton, OH, when hydroseeding. "Asphalt tackifiers were once big—now they're gone," Steiner says. "Now everything's guar-based. As long as the applicators use it at the manufacturers' recommended rate, guar works well."



This charred hillside above the Golf Course outside San Diego with a fiber matrix.

Another consideration, in addition to seed germination and price, is how a product works with existing equipment. A common complaint about hydraulic mulches relates to the level of contamination. According to Sammy Johnson of Fletcher Feed and Seed in Fletcher, NC, product cleanliness and ease of mixing is key.

"Green Choice Premium Paper Hydraulic Mulch is the best I've used," he says. Made of post-consumer paper fibers by Phoenix Paper Products, the mulch contains no grass seed, allowing users to tailor a seed mix for the project or climate.

### Mix Well Over Open Flame

Much erosion control work is performed in areas that have been affected by wildfires. Such cases call for special requirements.

"This fall, we did quite a lot of work along Highway 14, near Santa Clara," says Dietz.



our EarthGuard sites worked just fine," he adds.

### Other Techniques —'In the Mix'

"We'll often hydroseed under EC blankets so plants grow up through them," Dietz explains. "When we do various housing developments, the builder will sod part of it and we will match the sod. However, we don't see a lot of large lawns in California anymore because of the droughts."

Does he use any secret ingredients? "There's really no secret out there; there are many excellent items and seeds on the market," Dietz says. "After 25 years of experience, I've found that planning the project, taking soil tests, and making mixes that are site-specific leads to better success. A —shotgun' approach just won't work. During those 25 years I've also worked with S&S Seeds. They're a great vendor, with a great product line. They make some blends just for us but they also have set-up blends like wildflower blends. We frequently contact them for their input expertise on a specific site." he concludes.

Hydroplant doesn't use EC blankets, "but we put straw over our seed," We "We also drill-seed and do land imprinting, which uses a seed box atop a machine like a giant waffle machine—which makes an impression in the soil. The seeds fill those impressions. In dry years, germination takes place in the bottom of the impressions; in wet years seeds germinate in the top part.



Photo: TerraNovo/EarthGuard

Barona Creek Golf Course outside San Diego was treated with a bonded fiber matrix after the wildfires of 2003. Vegetation sprang up quickly.

Areas along a California highway with native plant seeds.



Photo: TerraNovo/EarthGuard

Fiber matrix helped stabilize an area around a golf course.

"We also own a machine that makes sod out of sod," he continues. "We cut sod from the sod on the site, and when being cut they're in the water in this process, the stolons rarely go to the leaf material on the stolons are wilted. With the 30-year-old process we were usually out of the ground for hours—you were lucky to get a 30% take rate.' This new hydroseeding especially where it's hot, works much better. We can cover a lot more cubic feet and more cheaply. If watering is done you should get a great take rate with no loss at all. We've been using this on golf courses and school grounds.'

Housing projects call for other tactics. "The big thing right now is bonded fiber blankets," Weems explains. "Stormwater people will not let a developer leave disturbed soil within eight to ten days; soil must be covered, or else you can earn a \$50,000 fine. We're using a lot of BFM to cover this, which will give the sites cover for months. You can put the seed right into the BFM; if the rains are right they're growing in no time flat."

"Central Fiber's Second Nature Paper Fiber is the cover for our seed; basically, it's like a blanket we can blend in with the seed," Wetsel's Steiner says. "The tackifier holds it through rain or wind, and keeps the seed there. Second Nature Paper Fiber, which is dyed green, also holds in moisture, for better germination. The product is approved by PennDOT, and we've also use it in West Virginia and Virginia. We picked Central Fiber as our supplier because they're close by, in Ohio—and, mainly, because Second Nature works."



Photo: Ter

**Burned areas treated with fiber blankets out around the Barona Creek Golf Course outside San Diego.**

"We use blankets and fiber logs, wattles, coconut fiber, and straw. There's not a lot of call for seeded blankets because we can still do it cheaper through hydroseeding; it's not as easy to specify a seed in a blanket; that would have to be pre-approved," Ritenour says. "Straw blowing? There's an older technique, but less popular because of the suspended dust particles. Of course, we try to use rice straw because it's weed-free. We would install these things if ever asked to do so. Most of the time we use BFM and EarthGuard Fiber Matrix; they're less expensive, labor-wise; they require a one-step application, where straw is a three-step operation."

*Janis Keating is a frequent contributor to Forester Communications publications.*

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