

ProPlus® Prescriptive Agronomic Formulations Case Study: Growing Vegetation on Inhospitable Soil

NeutraLime™ Dry, JumpStart™ and BioPrime™ give poor soil the boost it needs to establish vegetation



Situation

Landfills aren't known as places that are particularly hospitable to the establishment of lush, green vegetation. True to character, the soil capping of a cell in the Sumter County, South Carolina landfill was an intriguing test for local officials. The only way it was going to sustain plant life was to have life pumped into it. That could have been a cost prohibitive prospect were it not for creative solutions from Pennington Seed and Profile Products.

The Sumter County Landfill is located in central South Carolina, about 30 miles east of Columbia. A 20-acre cell of the landfill was reaching its capacity, prompting officials to close it. Following fairly standard site procedures, a six-inch layer of fill dirt was trucked onto the site and compacted over the trash layer. Then, an additional six-inch layer of topsoil was brought in and leveled. On top of this, officials hoped, would eventually lie thick stands of native vegetation.

The engineering firm of Withers & Ravenel of Raleigh, North Carolina, worked with county officials to direct the efforts. Their goal was to not only establish vegetation as quickly as possible in order to stabilize the soil, they also wanted to ensure that the vegetation would be sustainable. According to Chad Tidd, Carolina Division sales manager for Pennington Seed and a consultant on the project, the second half of that order is traditionally the most difficult to fill.

Problem

"You see way too many sites where sustainability has not been considered," Tidd said. "Vegetation gets established, but six months later it's all gone, there's nothing left. We were pleased that Withers & Ravenel took a long-range view for this project."



Meeting that objective, however, took some education and innovation. Withers & Ravenel called for the soil's organic content to be at least 4 percent, and the soil pH between 6.0-6.5, which is the ideal range for seed germination. Soil tests from the landfill cap were conducted by the Clemson University Cooperative Extension, which provides soil testing for Sumter County. The test results determined that the soil pH was around 4.5 (too acidic for successful seed germination), and the organic content was only between 1-2% (too low for sustained plant health).

"Conventional thinking was to bring in massive amounts of peat or wood by-products to incorporate into the soil," said Tidd. "The cost of that was going to be very, very substantial, so we offered an alternative solution."

Solution

Pennington Seed representative Michael Gantt worked with Glen Ballinger, CPESC, of Profile Products to provide a proposal that included three innovative new products from Profile's line of ProPlus® Prescriptive Agronomic Formulations: NeutraLime™ Dry, JumpStart™ and BioPrime™. These products were suggested to be used in conjunction with Pennington's MYCO Advantage and Slopemaster Coastal Summer seed mixture. The engineers agreed that this package of products would be "equivalent to" the four percent organic content originally specified in the contract.

NeutraLime was recommended at an application rate of 160 pounds per acre to bring the soil pH closer to the preferred 6.0-6.5 range and improve nutrient availability.

Five gallons per acre of JumpStart was needed to improve soil moisture infiltration and retention, and to provide a hormonal plant response for maximum root development and stress tolerance.

BioPrime was recommended at 160 pounds per acre to provide a slow release source for nitrogen (for nine to 17 months), ensuring plant health and optimizing delivery of macro and micronutrients to plants.

A specially formulated Slopemaster warm-season mixture of 50 percent Sahara Bermuda grass with Browntop Millet, Weeping Love, annual ryegrass, Hairy Vetch and Durana Clover was specified at 100 pounds per acre.

"We worked with the engineer to create a proposal to supplement organics with Profile's JumpStart and BioPrime and introduce additional mycorrhizae on the seed through MYCO Advantage," Gantt said.

The mix also included 100 pounds per acre of Total Gro™ 15-30-15 water soluble fertilizer.

The soil treatments and seed were mixed with Profile's SoilCover® Wood with Tack hydraulic mulch, applied at 1,500 pounds per acre. SoilCover Wood with Tack holds 13 times its weight in water to keep seeds moist during germination, to nurture faster growth and erosion protection. Work on the project began the week of June 16, 2008, entering the hottest time of the year.

"This was an ideal mix of products for the site," said Gantt, who was on site the day of the application to make sure it was done to specifications. "Within three to four days after seeding, we were already getting germination from some of the temporary vegetative material."

The Result

The final Sumter County Landfill site inspection occurred in mid-July 2008. Four weeks after installation, permanent vegetation was growing throughout the 20-acre tract.

"We worked hard to change the project specifications from 'trucking in organics,' which would have been very expensive; to putting everything in a hydroseeder and applying it in one easy process," Tidd said. It took weeks of planning and effort to successfully grow the vegetation on the 20-acre tract.

"We were pleased with the results," said Gantt. "More importantly, the county, engineers and contractor were all extremely pleased with the results. They had no problem signing off on the project finalization."

The permanent revegetation of the Sumter County Landfill clearly illustrates that some of the most harsh growing conditions can be overcome economically and effectively. The keys were good, upfront analysis, experienced agronomic advice and reliable products from Profile and Pennington Seed.

Key Product Properties

Used in combination, **ProPlus® Prescriptive Agronomic Formulations** dramatically increase the odds of successful vegetation by improving soil structure, increasing nutrient uptake, achieving faster germination and vegetation establishment, and sustaining long-term plant viability.

NeutraLime™ Dry

- Soil pH is second only to moisture availability in its immediate impact on vegetative establishment.
- Raises soil pH within three to seven days after application.
- Its granulated particle sizing extends maximum effectiveness up to 18 weeks.

JumpStart™

- Improves moisture infiltration and retention for faster, more complete germination and uniform stands of vegetation.
- Promotes faster nutrient uptake and conversion to get plants off to a faster, stronger start.
- Provides a hormonal plant response to maximize root development and plant stress tolerance.

BioPrime™

- Continually feeds nitrogen to plants for an extended period, ensuring plant health in low maintenance installations.
- Optimizes the efficient and effective delivery of macro and micronutrients to plants.
- Reduces plant stress due to cold, heat, drought or high soil salinity.



PROFILE Products LLC
750 Lake Cook Road, Suite 440
Buffalo Grove, IL 60089
(800) 508-8681
www.profileproducts.com