



Solutions for your Environment™

CASE STUDY

Southeastern U.S.

Mine Closure



Large gullies formed due to erosion



ProGanics and Flexterra applied to soil in April



Sustainable vegetation one year later

Situation

For 13 years, an abandoned mine in the Southeastern U.S. sat partially barren. A large mining company worked to revegetate 5 acres (2 hectares) of the sprawling site several times over the years with traditional standard seeding. Every time the site saw significant rain, their seed and soil washed away. Profile® met with the project consultant for a Lunch & Learn and later stepped in to assist with the problematic site.

Following The 5 Fundamentals™ to Establishing Sustainable Vegetation, Profile first conducted a soil test that showed the substrate had a very low pH along with minimal organic matter. The problematic soil and insufficient erosion protection were the likely culprits for the previously unsuccessful revegetation attempts. Armed with this knowledge, Profile prescribed an amendment plan designed to drastically improve soil health, beginning with ProGanics™ Biotic Soil Media™. Once the amelioration plan finalized, regional seed and plant experts developed a blend of plant species that would thrive on this particular site. Finally, Profile recommended utilizing Flexterra® High Performance-Flexible Growth Medium™ to enhance vegetation establishment and prevent erosion.

Challenge

- Highly erodible site with acidic soils
- Less than 1 percent organic matter
- Very low nutrient content
- Tropical storms with heavy rain and wind
- Poor drainage

Solution & Application

- Soil tests to assess the site's agronomic value
- Slope redesign to include a terrace and cat tracking to reduce overland flow
- ProGanics™ BSM™ applied at 4,500 lb/ac (5,040 kg/ha)
- Flexterra® HP-FGM™ applied at 3,500 lb/ac (3,920 kg/ha)
- NeutraLime™ applied at 160 lb/ac (179 kg/ha) to raise soil pH
- JumpStart™ fast acting biostimulant applied at 5 gal/ac (47 L/ha)
- BioPrime™ slow release biostimulant applied at 160 lb/ac (179 kg/ha)

Results

After using the redesigned slope specifications developed in partnership with Profile and the resident engineer, a local contractor applied Profile's prescriptive solution on the site. In just a few weeks, the one-two punch of ProGanics and Flexterra succeeded in germinating the seed and establishing dense, sustainable vegetation that could stand up to adverse conditions. Not long after application, tropical storm Colin dumped 6 inches (150 mm) of rain onto the mine. The project consultant worried the slope had completely eroded. When he returned, he was amazed to find the Flexterra held the soil in place.

During follow up inspections a year later, Profile technical experts confirmed that soil health had dramatically improved:

- A five-fold increase in organic matter from 0.4 percent to 2.0 percent
- 271 percent increase in soil respiration
- 345 percent increase in bacterial counts
- 142 percent increase in fungal counts

In less than six months, the mine received a full bond release from the presiding regulatory agency and obtained permits for three additional mine sites.



A Holistic Approach to Erosion Control and Vegetative Strategies

These five fundamentals take the guesswork out of the crucial decisions that need to be made to ensure project success.



1. Creating Optimal Soil Conditions

Soil testing provides essential information to determine what adjustments, if any, need to be made to assure a more favorable growing environment.



2. Picking the Right Plant Species

It is essential to select plant species that are adapted to project locations, site conditions, intended use and maintenance requirements.



3. Selecting the Correct Erosion Control Material

The correct cover is necessary to protect both seed and soil, taking into account erosion control effectiveness, ability to facilitate growth and functional longevity.



4. Ensuring Proper Installation

Correctly installing these products in accordance with the manufacturer's mixing, application and installation guidelines will maximize their performance.



5. Follow-up Inspection & Maintenance Practices

Monitoring project progress will ensure compliance issues are being addressed. Maintenance may be required to mitigate unexpected challenges.



Increase Organic Matter & Boost Soil Fertility

- Accelerates the development of depleted soils/substrates with low organic matter, low nutrient levels and limited biological activity
- An ideal time and money-saving alternative to topsoil and compost
- Excellent for challenging sites with difficult or limited access, and on steep slopes where topsoil placement is impractical or for when soils are too wet or frozen to dig, transport and spread



Absolutely the Best Erosion Control Product Available...PERIOD

- Proven to surpass all hydraulically applied mulch products and turf establishment blankets
- Bonds to soil immediately and is 99% effective in minimizing soil loss
- 1700% water-holding capacity accelerates growth
- Functional longevity of up to 18 months makes it ideal for long-term protection in arid climates and dormant seeding



JumpStart™ Liquid

Accelerate Germination & Establishment

- Immediately effective liquid blend of soil-penetration agents, humic acid and more than 200 species of soil bacteria lasting up to 6 weeks
- Improves moisture infiltration and retention for faster, more complete germination
- Promotes faster nutrient uptake and conversion to get plants off to a stronger start
- Reduces soil compaction and salinity



BioPrime™ Dry

Slow Release/Rejuvenates Poor Soils

- Biostimulant with 18-0-0 slow-release nitrogen, humic acid, seaweed extract and endomycorrhizae lasting up to 6 months
- Continually feeds nitrogen to plants for an extended period, ensuring plant health in low maintenance installation
- Promotes the efficient delivery of micro- and macronutrients
- Decreases soil compaction
- Reduces plant stress