



**EnviroMatrix™**  
**ECM**

**PROVEN TO REBUILD  
CARBON LEVELS FOR FAST,  
SUSTAINABLE REVEGETATION,  
TOPSOIL OPTIONAL.**



# ABOUT

Developed by pioneering Australian soil scientists over 12+ years, the EnviroStraw range of erosion control and revegetation products are proven to control erosion, revitalise soil and establish native vegetation anywhere.

Even the most depleted commercial sites can be revegetated in a self-sustaining way with increased levels of soil carbon. Our products contain built-in nutrients for sustainable growth and work faster (with less water) than standard hydromulch.

EnviroStraw products are Australian-owned and manufactured, and have been carefully developed to accommodate all land sloping variants.





# INTRODUCING ENVIROMATRIX ECM

## EROSION CONTROL MATRIX

### A new standard in hydromulch has arrived.

EnviroMatrix ECM is the fast acting, ultra-potent brainchild of Australia's leading soil scientists.

Our hero product is proven to restore carbon levels in severely depleted soil, even on the steepest slopes. It is best described as an innovative hydraulically applied Biotic Growth Medium.

Using bio-innovation and biological-technologies, EnviroMatrix ECM switches on the mechanism of the soil to bring it back to life.

The result is a new environmental management system that uses:



A full suite of 22 microbes



Up to 64 different minerals

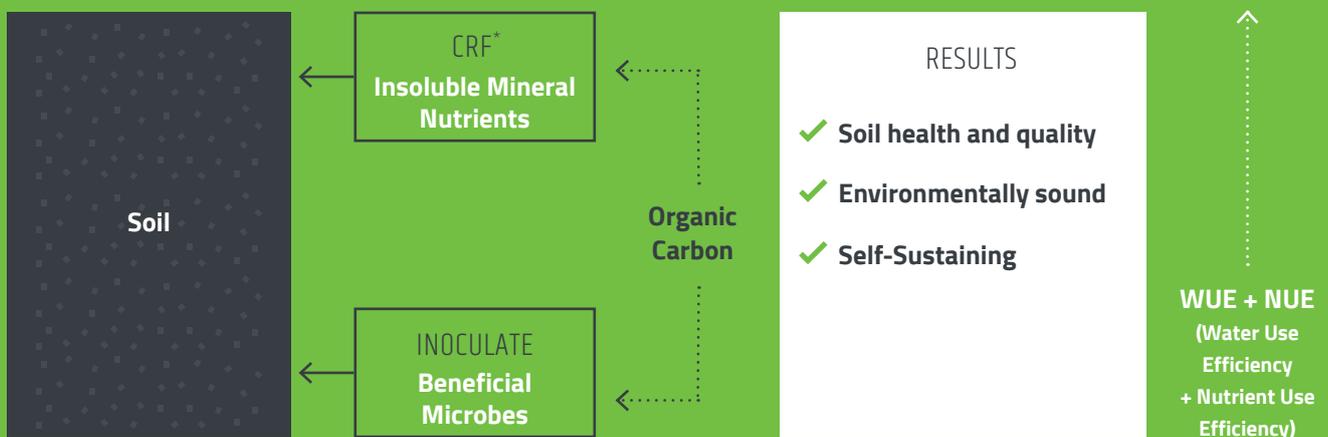
### Commercial applications

After a period of intense research, development and testing, EnviroMatrix ECM has emerged as the only Australian manufactured, hydraulically applied revegetation and erosion control solution that is proven to work on commercial sites where topsoil has been lost due to:

- Development & infrastructure
- Steep slope work
- Mining activity

## MICROBIAL CARBON SYSTEM

As it requires less water than other hydraulically applied hydromulch products and has a potent nutrient composition, EnviroMatrix ECM has a unique ability to revive soil in even the harshest conditions.



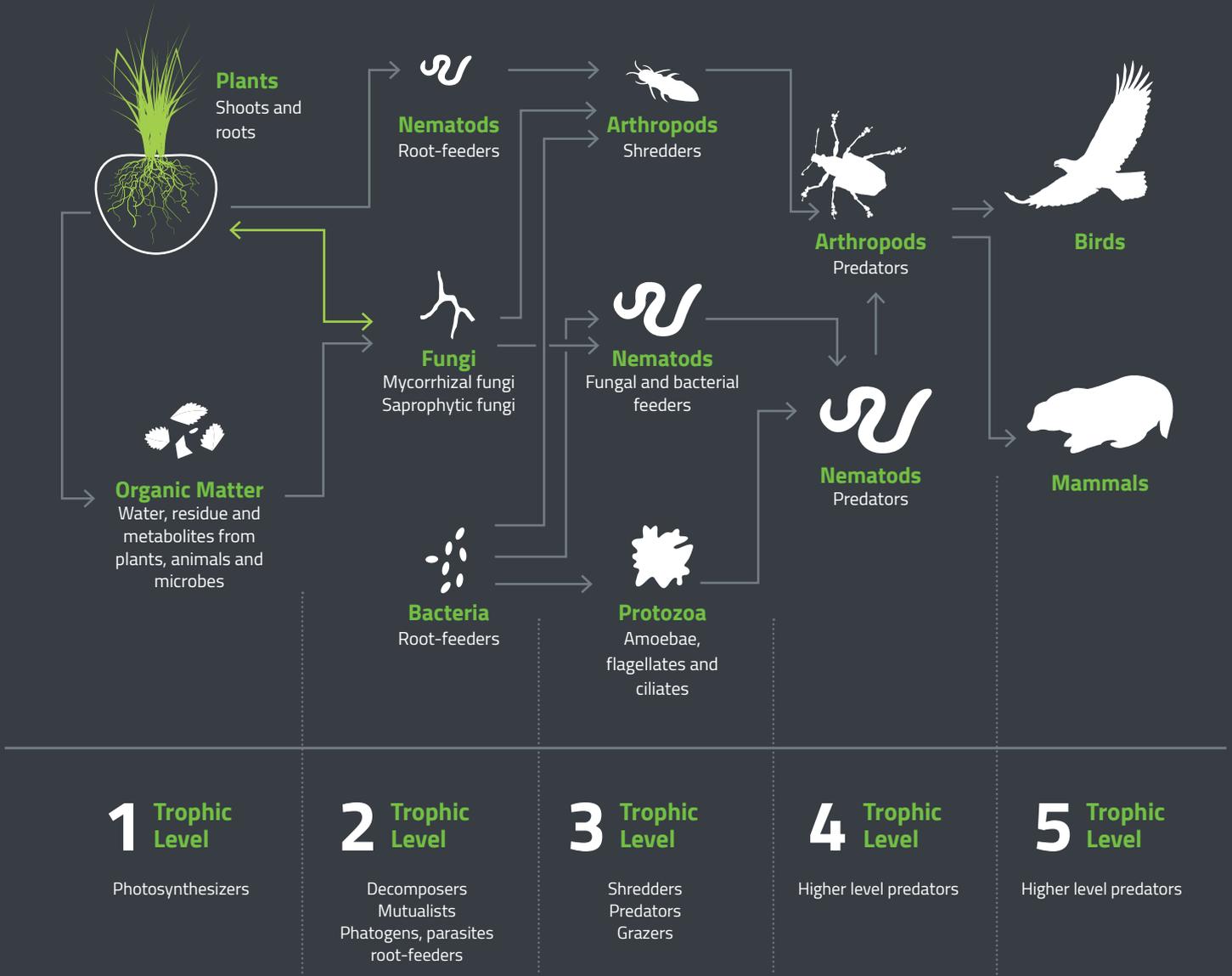
\* Controlled Release Fertiliser

# HOW IT WORKS

EnviroMatrix ECM is a unique combination of organic fibres and humus-building components that quickly restores carbon levels. Shortly after application, it begins revegetating large expanses of land ravaged by development and mining, and controls erosion.

As shown in the graphic below, EnviroMatrix ECM conditions the soil via a delicate blend of essential fungi, bacteria and natural minerals. This helps rebuild topsoil and soil health by mimicking the natural Soil Food Web.

## SOIL FOOD WEB



Soil scientists and microbiologists have discovered that a community of bacteria, fungi and other microbes exists in symbiosis with the root hairs of plants. EnviroMatrix ECM initiates the development of healthy soil through a combination of the essential elements that make up robust topsoil.

# WHAT DOES ENVIROMATRIX ECM CONTAIN?

Australia's leading soil scientists spent more than a decade perfecting the delicate blend of essential ingredients that would 'wake up' unresponsive soil.

## The formula includes



Organic fibres



A volcanic mineral + TE (trace elements) based fertiliser



A diverse range of beneficial bacteria and fungi



Soil conditioners for building humus/carbon



Bio-compatible glues that bind mulch and soil particles together

ENVIROMATRIX ECM  
BIO-INNOVATION AND  
BIOLOGICAL-TECHNOLOGIES

# WHY DOES IT WORK SO WELL?

So often we see the cover crop on sites yellow and die prematurely - this is due to a shortage of the essential element nitrogen.

By using the Troforte program to apply Enviromatrix ECM, this challenge is minimised. The Troforte program includes SulSync®, which is critical to establish grasses and revitalise degraded soils. SulSync® releases nitrogen gradually to satisfy the nutrient demand of establishing vegetation in different growing stages. While other slow-release nitrogen fertilisers dissolve in the hydromulcher (negating their slow-release attributes), SulSync® does not.

EnviroMatrix ECM combines a suite of 22 microbes. The microbial soil inoculum contains a scientifically balanced blend of beneficial bacterial and fungal organisms. These microbes assist in creating a healthy 'rhizosphere' around the plant root, and in sourcing various mineral nutrients from the Troforte program revegetation fertiliser.

## KEY INGREDIENTS

Biotic amendments for disturbed soils.

<b>Azotobacter</b>	Free-living nitrogen fixers to convert atmospheric nitrogen in the soil.
<b>Azospirillum</b>	Produce plant growth hormones and biologically active substances.
<b>Bacilli</b>	Produce beneficial metabolites that are useful in plant protection, including lactic acid bacteria to help with soil condition structure.
<b>Cellulolytic Fungi</b>	Useful in the biodegradation, decomposition and recycling of cellulosic waste (i.e. stubble) into organic carbon.
<b>Mycorrhiza (VAM)</b>	Important biological components of soil life and soil chemistry. These convert nutrients and actively source phosphorus and other key minerals and harvest water.
<b>Phosphorus Solubilizing Bacteria</b>	Converts insoluble phosphorus (eg Rock P) into plant available "P".
<b>Pseudomonas</b>	Able to degrade a broad spectrum of compounds, acting as bio-remediators.
<b>Streptomyces</b>	Includes Actinobacteria. Helps control pathogenic microorganisms.
<b>Saccharomyces</b>	Important yeasts that convert carbon dioxide into organic carbon and sugars within the soil.
<b>Trichoderma</b>	Beneficial fungi that help to minimise wilting and damping of seedlings. Now being successfully utilised on a commercial scale for potential biological control of other pathogenic fungi.

# ENVIROMATRIX ECM

## PHYSICAL COMPOSITION

Thermally processed organic fibres, including straw, lucerne, wood fibre.	<b>70% +/-3%</b>
Organic soil conditioner providing rich humus-building substances, proteins, amino acids, carbohydrates, trace elements, polysaccharides, lipids, and macro and micro plant nutrients. Meets AS4454-2012 standard.	<b>20% +/-3%</b>
Improved water-holding capacity: cellulose, polysaccharides and starches.	<b>✓</b>
Minerals: up to 64 different minerals	<b>+3%/-3%</b>
Slow release N: Unique polymer coated Nitrogen source	<b>&gt;3 months</b>
Non-toxic	<b>✓</b>
Colour	<b>natural straw</b>
Carbon to nitrogen ratio	<b>&lt;30:1</b>
Moisture level	<b>&lt;15%</b>
Organic carbon level	<b>48%</b>
Included hyrocolloid crosslinked tackifier	<b>8% +/-2%</b>
Manufactured degradable interlocking fibres	<b>5% +/-2%</b>

## RECOMMENDATION APPLICATION RATES

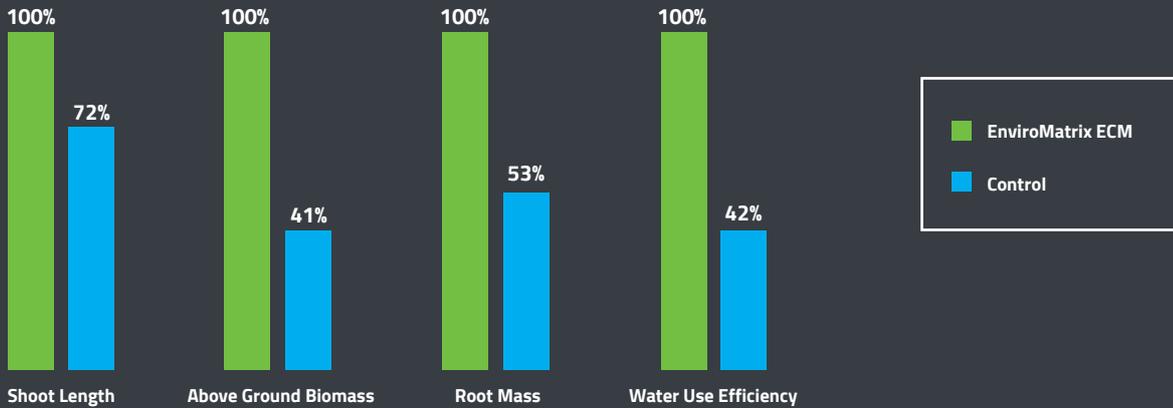
Soil Organic Carbon Levels	EnviroMatrix ECM rate p/ha
<b>&gt; 4%</b>	3000kg
<b>&gt; 3% - &lt;4%</b>	4000kg
<b>&gt; 2% - &lt;3%</b>	5000kg
<b>&lt;2%</b>	6000kg
<b>&lt;1%</b>	Contact manufacturer

### Slopes >3-1 minimum application 4000kgs

**Note:** Application rates are a guide only. Always target 100% ground cover. Always consider local weather patterns and the surrounding environment when calculating application rates. Contact the manufacturer for assistance.



# INDEPENDENT TESTING



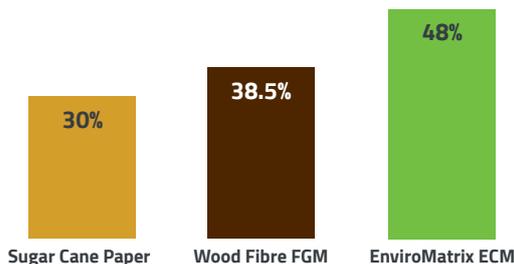
## EnviroMatrix ECM exceeds industry requirements.

### During trials, it was found that:

- Plant growth in soil treated with EnviroMatrix ECM consistently exceeded plant growth in control treatments.
- Biomass of plants was greater in EnviroMatrix ECM treatments, and roots were thicker and more developed.
- EnviroMatrix ECM significantly reduces evaporation from soil. This is hugely valuable - watering demands are always a challenge and are expensive during vegetation establishment.
- EnviroMatrix ECM does not restrict or effect water penetration into the soil.

### Organic carbon levels:

ECM's organic carbon levels exceed competitor products, providing a much needed boost for vegetative growth.



# CASE STUDY #1

## Toowoomba Range, QLD

Revegetating roadside batters

### The challenge

EnviroStraw was engaged to revegetate two severely eroded sites in Toowoomba, at Redwood National Park and the nearby steep batters. Weed infestation had stripped the national park site of any topsoil. Analysis of the remaining substrate showed low fertility and nutrition, and an excessively high pH (8.4). Organic carbon levels were also very low. The steep batters lacked topsoil completely, and needed immediate erosion control.

### The solution

#### Redwood National Park

- Enviromatrix ECM and native seed blend at 10t/ha
- Ameliorates: liquid micronized gypsum/humates
- EnviroBond (mulch binder and soil stabiliser)

#### Steep batters

- Enviromatrix ECM at 10t/ha
- EnviroBond 0.400 kg/ha

### The results

#### Redwood National Park

With careful management, the pH was restored within 3 days, ready for ECM and EnviroBond to be applied. Vegetation established in a matter of days.

#### Steep batters

Treatment resulted in excellent long-term results – vegetation was established and soil fertility was restored. With the correct preparation, EnviroStraw ensured that the soil substrates recovered not only quickly but sustainably. Organic carbon levels and nutrients were restored so that the soil could facilitate effective root establishment and vegetation growth. Months and years on, solid vegetation cover remains.



1 week after application



40 days after application

# CASE STUDY #2

## Bowen Basin

South Walker Creek Mine  
Rehabilitation

### The challenge

In late 2015, EnviroStraw's task was to cost-effectively revegetate 30 hectares of land to prevent future erosion and to assimilate the site into the natural environment. This involved mitigating the extremely poor nutrition, high salinity and dispersive nature of the soil.

### The solution

EnviroMatrix was chosen to combat the challenges at this site. The surface was deep-ripped and ameliorates were applied.

- Compost 10t
- Lime 2t
- Gypsum 2t
- ECM applied (6t/ha) in two passes
- EnviroBond (mulch binder and soil stabiliser)

### The results

After the first rain event, germination was achieved. No additional irrigation was applied. The site received over 50 ml of rain by the end of the year. By January 2016, vegetation covered almost 100 per cent of the site and was well established with healthy plants and roots.

Mine staff commented on the success of this project compared to others on the site. Although varied disturbed soil types and harsh weather conditions presented challenges, the application of ECM and EnviroBond delivered results. Temperatures of the treated substrate were over 5 degrees cooler than the untreated soil, indicating adequate soil moisture and the presence of valuable organic matter. By June 2016, livestock were introduced back onto the pasture. Years later, second-generation plant species have established, signifying that overall soil fertility has improved to a sustainable level.



Amet Pharetra Vulputate



Dapibus Pellentesque Quam



EnviroMatrix ECM is now available worldwide

For more information, please contact our sales team:

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Developed in the lab, validated in the field

