



## **Ecotain<sup>®</sup>** **Environmental Plantain**

The pollutant load and erosion potential of stormwater runoff are challenges in both urban and rural settings especially where soil has been disturbed for construction or mining activities. A number of stormwater control measures are recognised including dry and wet ponds, swales and wetlands. These provide different ecosystem services depending on the pollutant, volume and regularity of water. Many of these systems employ vegetation to slow and filtrate stormwater and assimilate (uptake) pollutants to reduce nutrient load. These plants require specific characteristics to be functional in such settings which can be categorised as environmental functionality and agronomic suitability to the environment.

Recently, narrow-leaf plantain, (*Plantago lanceolata*) has demonstrated characteristics which provide important ecosystems services to stormwater and erosion prone settings. Ecotain<sup>®</sup> is a formally-bred herb available for inclusion in blends being engineered for such settings.

### **Key features:**

- Root structure for soil stabilisation
- Produces powerful biological nitrification inhibitors
- Establishes in plant-hostile environments and has wide ecological adaption
- Increased retention of heavy metals

## **Proven systems that reclaim and restore environments.**

*Experts from earth to turf.*

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## **Key features**

### **Root structure for soil stabilisation**

Remediation of disturbed soils is important to reduce nutrient and sediment movement and to meet the expectation of regulators and the public. Ecotain<sup>®</sup> has a talon-like root structure which effectively stabilises soils and locks down aggregates even from a relatively young age.

### **Produces powerful biological nitrification inhibitors**

A large proportion of nitrogen pollutants in stormwater are either ammonium – N or organic nitrogen sources (which can undergo ammonification). These are generally stable in soil and are non-leachable due to their bonds to soil colloids. However, ammonium oxidising bacteria and archaea, ubiquitous in soils, rapidly convert ammonium to nitrate which is readily leached. Biological nitrification inhibitors in Ecotain slows this process allowing more time for it and companion plants to take up nitrogen, reducing the load to groundwater.

### **Establishes in plant-hostile environments and has wide ecological adaption**

*Plantago* is a colonising species well adapted to establishing in waste areas, freshly disturbed soils and gravelly mediums. Establishment vigour, cool season growth, regenerative seed drop, coarse fibrous roots and a hairy, dormant drought survival mode make this plant exceptional for applications in plant-hostile environments.

### **Increased retention of heavy metals**

Root rhizospheres specific to *Plantago* support the accumulation of heavy metals such as Cadmium and Copper for example, and are many times higher than traditional ryegrass and clovers. Accumulation in the plant slows the progress to groundwater.



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