



The use of Ecotain (*Plantago lanceolata*) to reduce water-borne pollutants in amenity areas

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Biography:

Glenn Judson – B. Ag Sci (Hons), Ph.D.

Glenn currently holds a leadership and research role within the Research and Development Group of PGG Wrightson Seeds and has 19 years of experience in the seed industry.

Glenn is currently leading an extensive research programme (Greener Pastures Project) aiming to develop a plant-based nitrogen leaching mitigation tool. This project brings together expertise from Lincoln and Massey universities and Plant and Food Research. Ecotain, an environmentally functional plantain, was released to the market in 2017.

Abstract:

Pollutants including nitrogen and heavy metals are inevitable in stormwater and in drainage from disturbed soils including mining. These pollutants are often difficult to contain but have significant impacts on the environment primarily through their effects on surface water quality. There is an increasing focus on minimising the effect of stormwater and major soil disturbance on surface water quality. Currently, many amenity blends for this application contain ryegrass and white clover and while they provide quick ground cover, their ability to reduce impacts on surface water quality are minimal.

Ecotain (*Plantago lanceolata*), a herb with wide ecological adaptation, provides some opportunities to reduce the impact of pollutants in stormwater. Through its well documented ability to accumulate heavy metals from soil and reduce the nitrification process in the soil, Ecotain is a valuable amenity species for reducing environmental impact.

Uptake of heavy metals (such as chromium for example) through the roots into the plant is an order of magnitude higher in this herb than traditional ryegrass and white clover swards and this provides the opportunity to capture and potentially remove at least some of the load on the environment. Further, Ecotain swards have been shown to reduce the leaching of nitrate through soils through the reduction in the soil populations of ammonium oxidising bacteria and archaea. Swards containing Ecotain tie up nitrogen and reduce the leakage of this to the environment. From spot loads, reductions of up to 89% have been reported.

From a practical viewpoint, the species is able to establish in poor soils, shingles, sands and other semi-hostile agronomic situations. The coarse, fibrous root system provides excellent stability in both soils and larger aggregate situations. It establishes rapidly and is capable of surviving extended dry periods and copes with high environmental temperatures making it extremely functional in a wide range of environments.

Ecotain is a simple but effective tool for addressing the environmental impact of stormwater.