

# Bi-Agra Trial Report

## (Prepared on the 6/5/10)

### Introduction

This trial was commissioned by Globe Australia to assess the effectiveness of the wetting agent Bi-Agra.

### Methodology

The site for the trial was located at Ryrie Reserve West in Como, Western Australia which is a passive park which had a poor quality cover of common couch. Although the park was irrigated the site for the trial was very dry at the commencement of the trial.

The treatments were Bi-Agra at the rate of 50 litres per ha and an untreated control. The trial was limited to only one replicate due to the limited supply of the product. Therefore there were two plots each with a plot size of 4sqm (2 metres by 2 metres).

The treatments were applied on the 22<sup>nd</sup> February 2010. 20ml of Bi-Agra solution mixed with 9 litres of water applied to the plot with a watering can. In total both plots received 40 litres of water (equivalent to 10mm of irrigation).

The plots received the following irrigation and rainfall inputs during the months of February, March and April.

Date	Source	Amount (mm)
22/2/10	Irrigation	10
26/2/10	Irrigation	20
8/3/10	Irrigation	20
22/3/10	Rain	40
6/4/10	Irrigation	10
14/4/10	Rain	40

Soil moisture readings were taken in the surface 50mm of the plots on the following dates: 26/2/10, 16/3/10 and 23/3/10

## Results

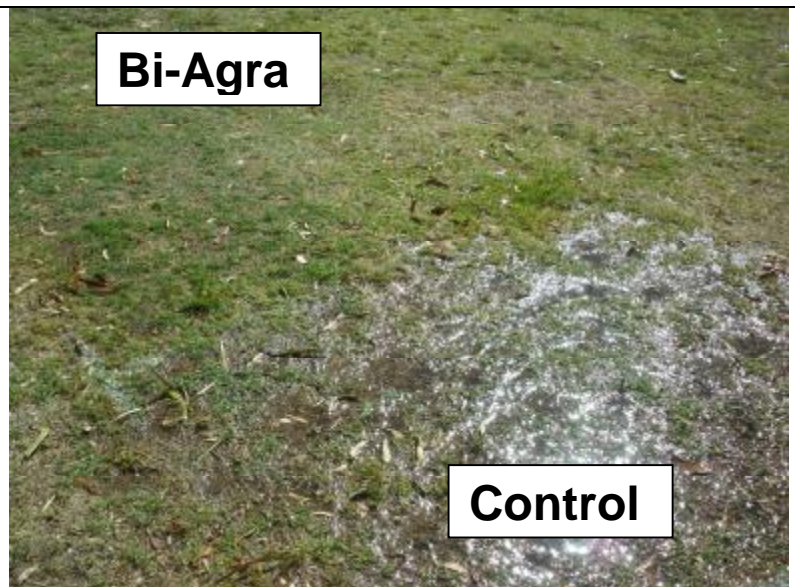
### Surface Soil Moisture Content

Date of readings	Average volumetric soil moisture content in the surface 50mm of the soil	
	Control Plot	Bi-Agra Plot
26/2/10	6.5%	12.2%
16/3/10	1.7%	9.0%
23/3/10	6.4%	12.4%

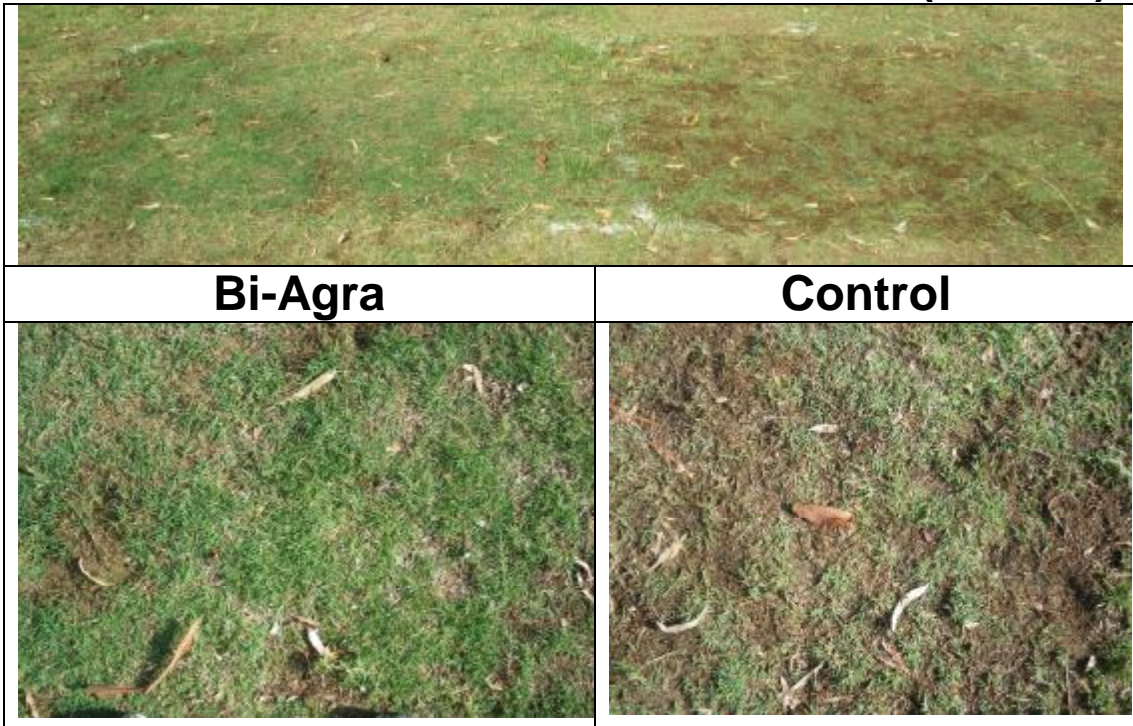
### Coefficient of Uniformity of Surface Soil Moisture

Date of readings	Coefficient of Uniformity of the volumetric soil moisture content in the surface 50mm of the soil	
	Control Plot	Bi-Agra Plot
26/2/10	67%	74%
16/3/10	17%	74%
23/3/10	52%	83%

For all irrigation applications the water tended to pond and took some time to penetrate into the control plot, whereas the water moved directly into the Bi-Agra treated plot without ponding on the surface.



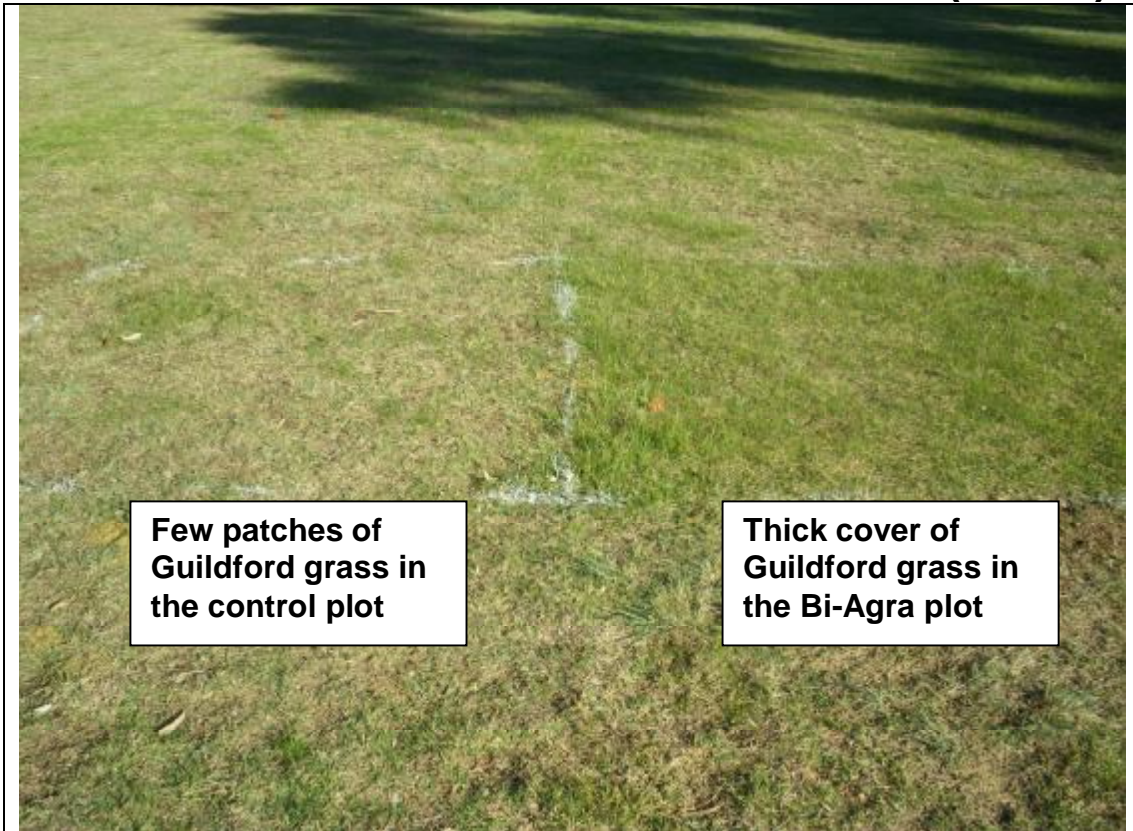
**Turf condition 3 weeks after treatment (15/3/10)**



**Turf condition 2 months after treatment (21/4/10)**

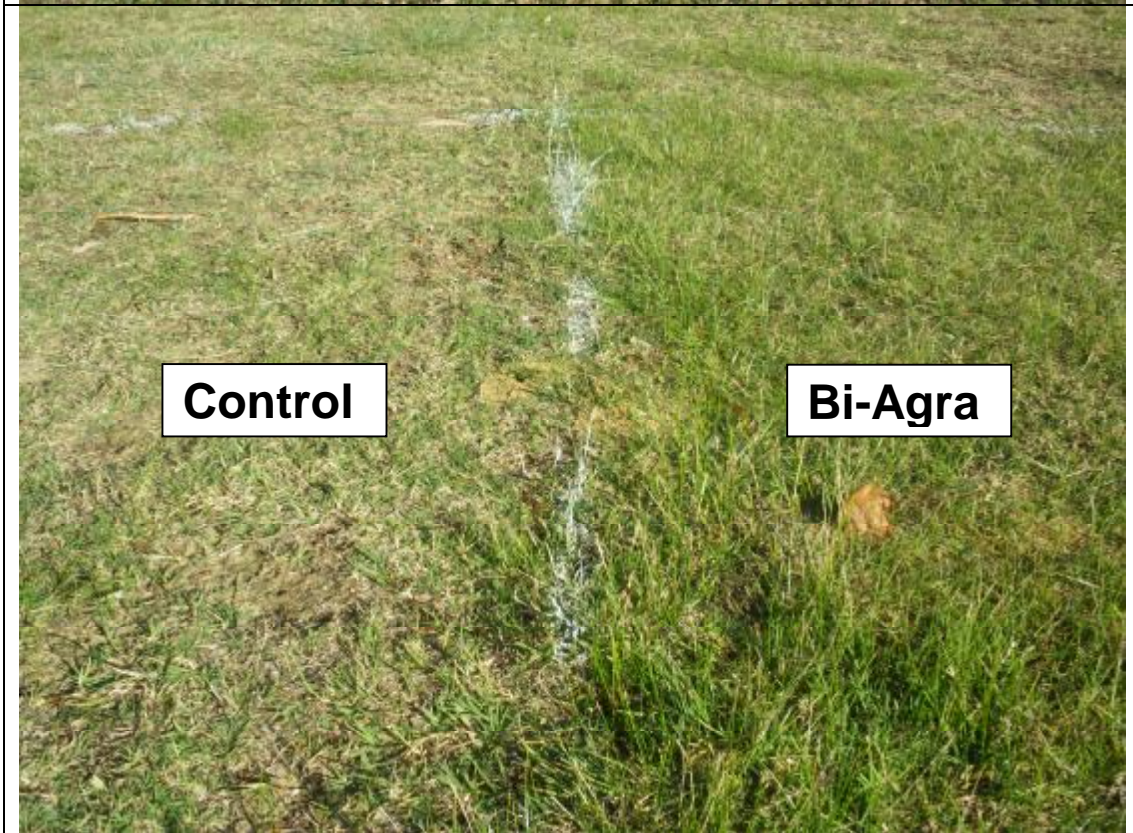


**Turf condition 10 weeks after treatment (5/5/10)**



**Few patches of Guildford grass in the control plot**

**Thick cover of Guildford grass in the Bi-Agra plot**



**Control**

**Bi-Agra**



**Control**



**Bi-Agra**

## **Discussion**

A single application of Bi-Agra wetting agent at the rate of 50 litres per ha in late February has increased both the amount and the uniformity of water retention in the surface 50mm of the root zone. For example, the day following the big storm on the 22<sup>nd</sup> March (40mm of drenching rain), the average soil moisture content of the surface 50mm of the Bi-Agra plot was almost double that of the control (12.4% compared to 6.4%). The coefficient of uniformity of the soil moisture in the Bi-Agra plot was a high 83% as compared to a low value of 52% in the control plot.

This increased water retention across the surface of the root zone has led to some dramatic changes in both the soil and the plant coverage. Within a couple of weeks there appeared to be a release of nutrients from the soil which resulted in a significant greening and increase in growth rate of the couch. However over the same time period there was no significant improvement in the colour or growth rate of the couch in the untreated control (which was receiving the same amounts of water). Over a 10 week period the couch in the Bi-Agra plot has achieved a full coverage whereas in the control plot there are still many bare areas.

It was also observed in early April that there was a massive uniform germination of Guildford grass in Bi-Agra plot, whereas only a few small patches of Guildford grass emerged in the control plot. This increased germination of the Guildford grass is most probably related to the uniformity and amount of the water being retained in the surface of the root zone.

## **Recommendations**

Based on the findings of this trial, there is significant potential for the use of Bi-Agra on broad area irrigated turf in the Perth region, especially turf areas with infrequent and marginal rates of watering. Bi-Agra should be used as a curative treatment on severely water repellent soils to assist with the re-wetting of dry root zones. To ensure that Bi-Agra is practical to use on a large scale, further trial work should be undertaken to assess turf safety and ease of application using typical industry application methods and water carrier volumes. For example, applying a rate of 50L/Ha in 500L water through boom spray equipment.