

# Oxy-Rush<sup>TM</sup>

soil stimulant



## Oxygen for Life

- ✓ Improves Nutrient Availability
- ✓ Generates Oxygen for Beneficial Microbes
- ✓ Converts Anaerobic Soils to Aerobic
- ✓ Enhanced Rooting
- ✓ Removes Black Layer
- ✓ Thatch Reduction



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## What is Oxy-Rush?

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- ✓ Oxy-Rush is a form of liquid oxygen compounds which delivers sources of biologically available oxidants to the soil.
- ✓ The formula is designed to hyper-accelerate the activity of indigenous beneficial microbes.

- ✓ Oxy-Rush allows tied up nutrients to become available.
- ✓ Oxy-Rush provides a less favourable environment for anaerobic and pathogenic bacteria.
- ✓ Oxy-Rush aerates the soil when the growing medium most needs oxygen and can replace physical aeration.

## What are the benefits?

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- ✓ Apply Oxy-Rush before, during and after aeration.
- ✓ When soils have become water logged.
- ✓ To release soil based nutrients.
- ✓ Before and during disease pressure.
- ✓ When soils are compacted.
- ✓ Throughout the growing season.

## When should you use Oxy-Rush?

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## Applying Oxy-Rush to Improve Nutrient Availability

1 Oxy-Rush contains a high % of chemical Oxygen, Carbon, & electrolytes.

2 By applying Oxy-Rush you stimulate the production of aerobic and facultative bacteria, helping them become more prolific.

3 These soil and plant beneficial bacteria use the oxygen to breakdown and consume organic matter and cellulose. They produce more CO<sub>2</sub> for the plant roots to use.

4 The explosion of aerobic microbes help to release "locked up" nutrients, increasing their availability for root up-take & development.

## Applying Oxy-Rush to Reduce Black Layer

1 By applying Oxy-Rush directly to the anaerobic soil. You can reduce the production of hydrogen sulphide gas, which is toxic to the plant roots.

2 Oxy-Rush will increase the biomass of aerobic organisms by giving them much needed oxygen for aerobic respiration.

3 The soil porosity will improve as the microbial activity increases, resulting in better water infiltration and gas exchange.

4 As Oxy-Rush supports the production of beneficial microbes, there will be less antagonistic pathogens, resulting in less disease pressure.

## Applying Oxy-Rush to Reduce Thatch

1 Excessive Thatch can restrict the movement of air, water, fertilizer and other materials to the roots.

2 This can produce spongy water retentive surfaces. The roots often die back, leaving a weak susceptible plant.

3 By applying Oxy-Rush directly into the area, this will help the thatch-eating microbes break down the cellulose, giving firmer playing surfaces.

4 Continued use of Oxy-Rush will improve rooting, and nutrient up-take. Potentially requiring less physical aeration.

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## Application



For thatch reduction, apply 30lts/ha three times a year through the growing season, water directly into the thatch. For even faster results use in conjunction with Thatch Buster.



To reduce Black Layer and anaerobic conditions, aerate to the desired depth. Then apply Oxy-Rush at 20-30lts/ha every 3 to 4 weeks until conditions have diminished.



For general maintenance, to aerate the soil, to increase rooting and reduce disease pressure. First application of 30lts/ha in 600lts to 1,000lts of water, followed by 20lts/ha every 4 to 6 weeks throughout the growing season and immediately water into the root zone.



Oxy-Rush can be tank mixed with other soil based liquids, such as Osiryl Root Stimulator and Maxiplex Humic Acid. Always jar test to ensure compatibility.



Results from the Sports Turf Research Institute have confirmed that turf sprayed with Oxy-Rush has significantly less disease.

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# FINAL REPORT

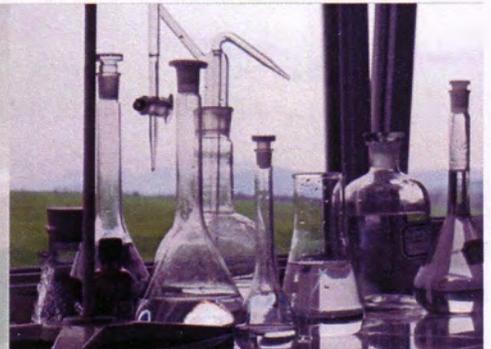
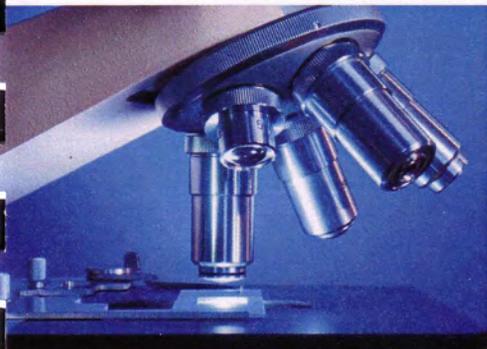
To determine the effect of Oxy-Rush on turf quality, turf colour, disease incidence and thatch levels of managed amenity turf

STRI

**For:** Agronomic Services Ltd  
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**Report date:** 12 December 2011

**Study director:** Dr Christian Spring, Senior Research Officer and Head of Soils Laboratory



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### Soil organic matter by loss on ignition

The level of thatch/organic matter was determined by loss on ignition. Cores were taken from the trial area and assessment made at 0-20 mm and 20-40 mm depths. A composite sample from across the trial area was taken prior to initial treatment application. Fully replicated samples were taken one month after each treatment application.

### Black layer

Whilst taking the last batch of soil cores for soil organic matter determination the presence or absence of black layer in any of the plots was noted.

## Results

### Disease

There were statistically significant differences in the abundance of microdochium patch disease between the treatments on three out of seven assessment dates (Table 1). On each of these dates the plots treated with Oxy-Rush had significantly less area of the plot affected by microdochium patch disease.

During the first two months of the trial there was some red thread present in the plots (Table 2). There were no significant differences between any of the treatments on any of the assessment dates.

### Visual merit

For visual merit there were statistically significant differences between the individual treatments on three of the seven assessment dates (Table 3). On each of these three dates, the Oxy-Rush treated plots had greater turf merit scores than the untreated plots. Even on those dates when statistically significant differences were not recorded, the trend was for the Oxy-Rush treated plots to have slightly higher average visual merit scores. Throughout the whole trial the quality of the turf was at all times acceptable for putting green turf.

### Visual turf colour

During the trial turf colour scores were acceptable and highly representative of golf green turf (Table 4). On three out of the seven assessment dates the plots treated with Oxy-Rush had better colouration compared to the untreated plots. Only on 21 October were any significant differences noted between the two Oxy-Rush treatments, with the treatment receiving irrigation post application having slightly better colour scores compared to the non-irrigated treatment.

### Chlorophyll index

The statistical analysis was not able to identify any significant differences between the three treatments (Table 5). However, there was a consistent trend for the plots treated with Oxy-Rush, both with and without irrigation, to have higher chlorophyll indices than the untreated plots.

### Phytotoxicity

Throughout the trial no phytotoxic effects were observed from the application of Oxy-Rush, (Table 6).

### Soil organic matter by loss on ignition

A number of soil cores were taken from each plot one month after each Oxy-Rush application and the quantity of soil organic matter determined at 0-20 mm and 20-40 mm depths (Tables 7 and 8). The results indicate that on each of the three testing dates there were statistically significant differences.

### Black layer

During the collection of the final set of organic matter cores the presence of any black layer in the soil profile was monitored (data not shown). No black layer was identified in any of the trial plots during this assessment.

## Discussion

After initial application with Oxy-Rush there was a period of six weeks before any statistically significant differences were observed between any of the treatments. From this point onwards, there was a consistent trend for plots treated with Oxy-Rush, both with and without irrigation, to have less microdochium patch disease, greater visual merit and turf colour scores in comparison to the untreated plots. Whilst not statistically significant, there was a tendency for Oxy-Rush treated plots to have greater chlorophyll indices. It was reported that Oxy-Rush does not contain any significant sources of nitrogen, therefore the improvements in turf colour and visual merit could be the result of nutrients being released from the large accumulations of soil organic matter present in the trial plots. Any breakdown in organic matter did not manifest itself in measurable reductions through loss on ignition analysis. The Oxy-Rush may have started to facilitate the breakdown of organic matter but due to its heterogeneous distribution in the soil differences could not be detected in these data as a result of the relatively high levels of background noise.

It was interesting to note the lower concentrations of microdochium patch disease in plots treated with Oxy-Rush compared to the untreated, especially when disease pressure was relatively high on the 23 September. The most likely explanation for the reduced disease presence is the improved turf health of the Oxy-Rush treated plots leading to great resistance to the fungal pathogen.

The evidence from this trial would suggest that the application of Oxy-Rush does affect turf health and might have an effect on facilitating the decomposition of soil organic matter. However, without direct evidence in the form of measurable reductions in soil organic matter it is difficult to say with any certainty if there is a definitive relationship. We believe that there would be significant benefit to either continuing with the trial for a longer period of time to further allow the Oxy-Rush more time to act upon the high levels of organic matter present in the plots, or perhaps design a trial with an aeration treatment as a split plot design. The latter approach would still allow the effect of Oxy-Rush by itself to be assessed against untreated turf, but would also allow the combined effect of Oxy-Rush with a basic aeration programme to be evaluated. By including a aeration treatment it should also facilitate the percolation of the Oxy-Rush deeper into the thatch dominant layer of the profile, allowing more organic matter to come into contact with Oxy-Rush.