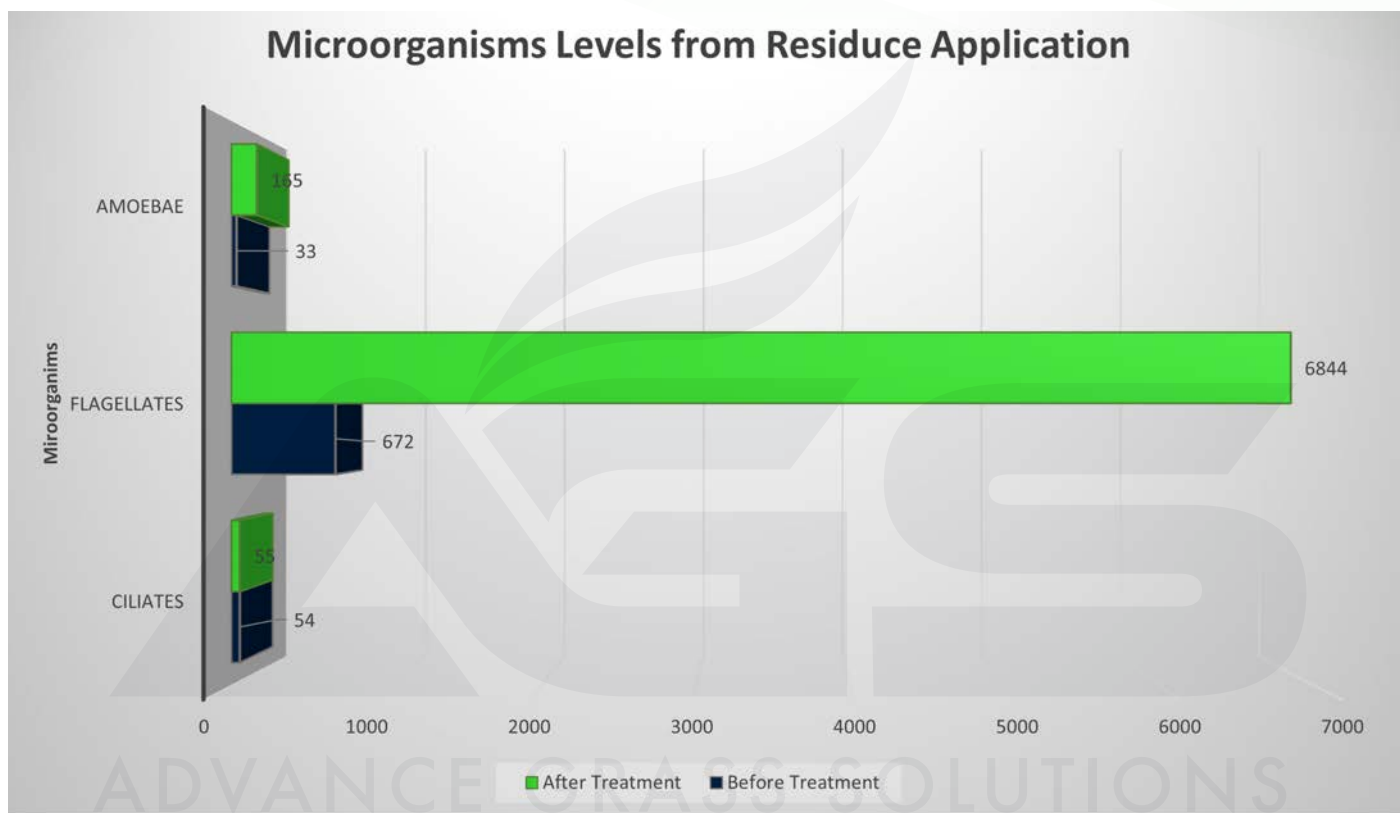


Residue Research

Residue is a diverse blend of naturally occurring, nutrient cycling and soil flocculation microorganisms that also includes a food source. These organisms work together to effectively break down tough plant residues, such as thatch and black layering. In 2022, a comprehensive study was conducted on a native sand golf green to examine the effects of microbial populations in the root zone, both before and after the application of Residue treatments. The data revealed a significant increase in microbial activity following the application of Residue, with populations of Flagellates escalating by 164%, Amoebae by 133%, and Ciliates by 3% (Table, 1).

Another aim of this study was to understand further the increased microbial populations and the levels of mineralisable nitrogen (N) within the rootzone profile. It is important to note that these microorganisms play a crucial role in carbon decomposition, thereby facilitating nutrient and carbon cycling within the turfgrass ecosystem.

The results indicated a notable 39% reduction in mineralisable nitrogen, equating to a decrease of 19 N units (Table, 2). This reduction can be attributed to the decomposition of organic matter and carbon-based particles within the rootzone profile, underscoring the pivotal role of microorganisms in maintaining the health and vitality of turfgrass on golf greens.



(Table, 1).

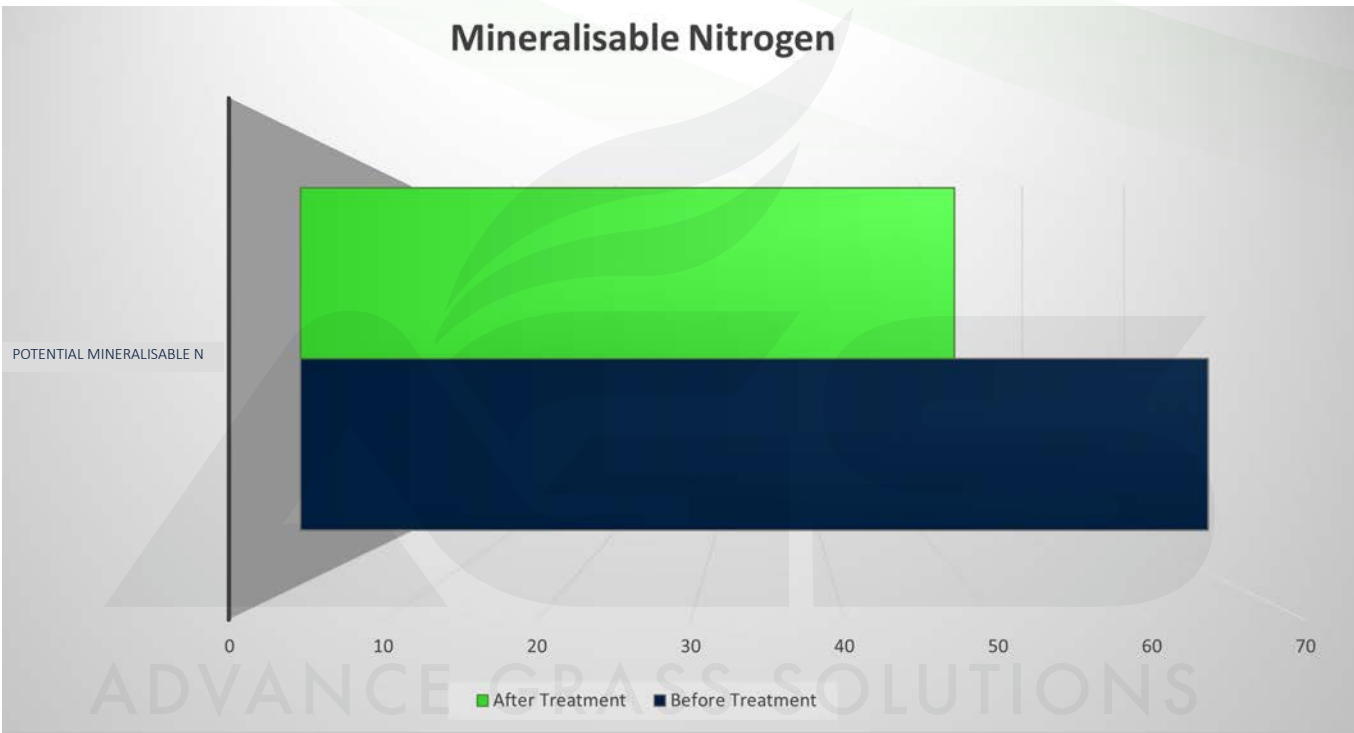
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Background of Microbial Populations

Amoebae are a diverse group of single-celled, eukaryotic organisms characterised by their amorphous shape and pseudopodia, temporary, foot-like extensions of the cell used for movement and feeding. Amoebae feed on bacteria, algae, and other small organisms in a process called carbon cycling.

Flagellates are important components of the soil ecosystem, where they contribute to nutrient cycling and the regulation of microbial populations. They can be found in diverse soil types and have adaptations that allow them to survive in varying environmental conditions.

Ciliates are microorganisms that move via cilia or hair-like structures that surround them. Ciliates move around in their environment and also assist in feeding.



(Table, 2).