

THE WASTEWATER & AGRICULTURAL AUGMENTATION SOLUTION

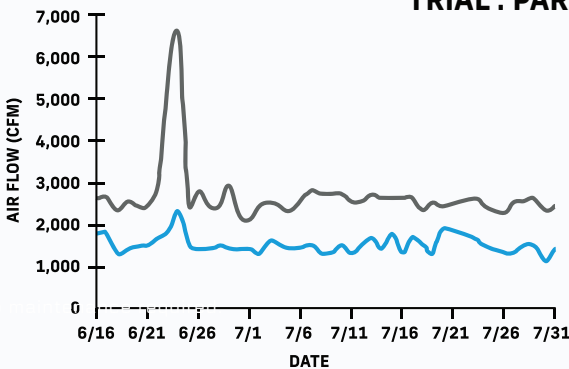
INTRODUCTION

Next-FGX3 is a liquid made of protein surfactant complexes (PSC's) obtained from heat-shocked yeast and a proprietary mixture of surface-active agents. FGX3 is environmentally and toxicologically benign. Generally, FGX3 is able to stimulate the indigenous bacteria of the applicable environment, which assist in the solubilization of hydrophobic contaminants. This has proven to be advantageous for a variety of different applications within both the wastewater and agricultural industries.

WASTEWATER APPLICATIONS

Fat, oils, and grease are major problems for wastewater treatment, sewerage catchments, food service establishments, and public municipalities. These factors lead to blockages and flooding, which can cost millions of dollars to rectify. To date, most treatments lack in efficiency or feasibility for FOG-burdened industries. FGX3, a metabolite-like solution, behaves as an uncoupler in bacteria's internal phosphorylation process, enabling a proton leak during ATP production. The indigenous bacteria must compensate for the ATP deficit with an increase in nutrient uptake, which increases FOG breakdown without stagnation as the indigenous bacterial population is utilized.

TRIAL : PARALLEL SEQUENCING BATCH REACTOR



SBRs were used in a trial where one was dosed with FGX3 (blue) and the other was kept at its original operating conditions. FGX3 resulted in 45% less air requirement than the control (gray).

Additional Trial Findings:

- BOD removal raised from 84.5% to 92.9%
- Residual BOD reduced by >50%
- 25% increase in influent loading as BOD
- VSS reduced by 33%
- MLSS reduced by 10%
- SAS reduction was significant - 11,000 to 7,500 mg/L

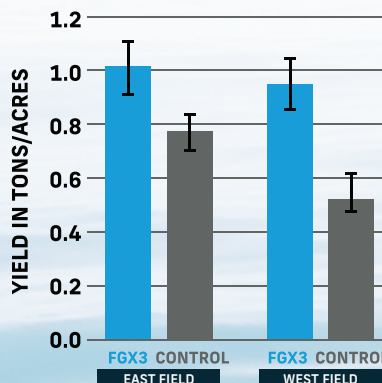
AGRICULTURAL APPLICATIONS

New developments in yeast-derived technology have led to a solution that has shown improvements in crop yield, soil wetting, and soil retention for a variety of crops.

EFFECTS OF FGX3 ON ROOTS & FOLIAGE



EFFECTS OF FGX3 ON ALFALFA YIELD



Research on FGX3 has shown tremendous benefits in :

- Greater wetting of soils and enhanced moisture retention with less use of surfactants, diminishing use of adjuvants
- Reduces interfacial & surface tension of surfactants for improved wetting, including foliar and soil applications
- Enhancing of young crop "plugs"; strengthening roots & delaying shoot growth

Water usage can be significantly reduced both directly through improved soil/growth media penetration and retention, and indirectly by improving productive yield due to the improved wetting of soil and penetration of aqueous solutions into soils.

PRODUCT SPECIFICATIONS

WHAT IT IS

- A complex of low molecular weight metabolites with surfactants
 - Affects only existing bacteria
- A liquid with pH of 7
 - Requires only eye protection and gloves
 - Has a two year shelf life (after exposure to the atmosphere)

PHYSICAL PROPERTIES

- Composition : Saccharomyces Cerevisiae
 - Yeast Derivative + Proprietary Mixture
- Appearance : Homogenous, Light Amber Liquid
- Odor : Weak, Acidic
- Density, lbs/U.S. gal : 8.50 – 8.75
- Packaging : 330 U.S. gal Tote, 5 U.S. gal Pail
- pH : 4.5 – 5.5
- Dilution pH : 4.0 – 5.0
- Specific Gravity @ 25 °C : 1.02 – 1.05
- Flash Point : >93.3 °C (>200 °F)
- Percent Volatile (15 min @ 105 °C) : 73 – 75
- Melting Point : <0 °C (<32 °F)
- Boiling Point : >100 °C (>212 °F)

CHEMICAL LIMITATIONS

- Incompatible Materials : Strong acids, bases, oxidative agents, and quaternary disinfectants can degrade or inactivate product
- Precautions : Test compatibility of product with rubber, plastic, or metal compounds and acids before full scale use

OPERATING CONDITIONS

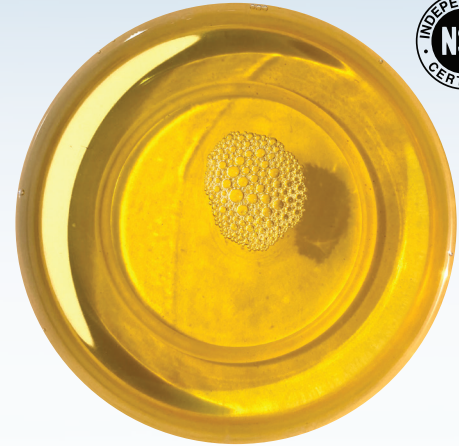
- WWT Dosing : 1 - 10 ppm based on influent and desired results. The dose often starts at 10 ppm then reduces after an optimization period (~6 weeks)
- Agriculture Dosing : For hydroponics, 2 ppm dose to irrigation influent. For foliar application of adjuncts (such as Zn as a micronutrient), the dose is 0.25% v/v
- Usable in formulations & effluents between pH 2-10, with hydrogen peroxide up to 10%, with transient temps up to 60 °C (140 °F), and with chlorine up to 5 ppm

ENVIRONMENTAL CERTIFICATIONS

US EPA Safer Choice, Organic Materials Institute (OMRI), International Maritime Organization (IMO), National Sanitation Foundation (NSF), Brazil Institute of Environment and Renewable Natural Resources (IBAMA), and California Fish and Wildlife (certified for discharge at sea). Deployed in wastewater catchments in the UK in full consultation with the local EPA. Permitted application in potable water treatment up to 12 ppm.

WHAT IT ISN'T

- An enzyme
- A bacteria
- A toxic chemical



ADDITIONAL FINDINGS FROM TRIALS

- 90% Reduction In FOG
- 70% Reduction In Phosphates
- 50% Reduction In BOD₅
- 75% Reduction In NH₃
- 95% Reduction In H₂S
- 50% Reduction In Nitrates/ites
- Delayed and slowed FOG buildup in food service establishments downstream sewers compared to non-dosed areas, allowing for more efficient maintenance
- Reduced hardening of FOG formation in sewage pumping station wet wells, leading to lower energy consumption and easier cleaning procedures
- All sites utilizing FGX3 were free of blockages and flooding events
- Various cost/benefit analyses suggest maintenance savings of >20%

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