

A microscopic view of soil, showing large, spherical, textured structures (likely soil aggregates or microbial colonies) against a blue background filled with smaller, glowing particles. The overall color scheme is monochromatic blue.

ORO-RZ[®]

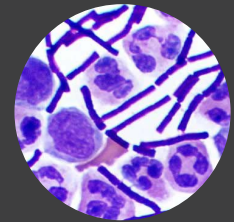
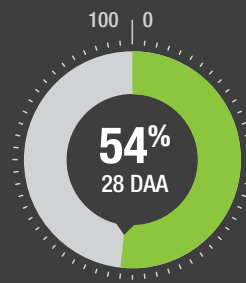
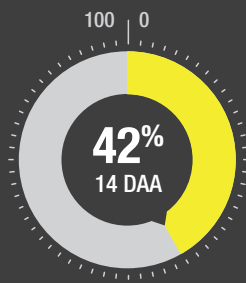
ROOT ZONE

SOIL HEALTH

ORO-RZ soil adjuvant can improve soil health. In addition to its primary benefit of improving the performance of soil-applied pesticides and nutrients research has shown that by opening pore spaces, increasing water penetration and facilitating oxygen exchange it helps to increase the populations of beneficial bacteria and fungi in the soil. These beneficial bacteria and fungi perform many different functions that contribute to the health and quality of soil and, subsequently, the health of crops.

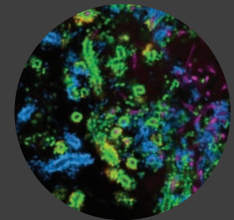
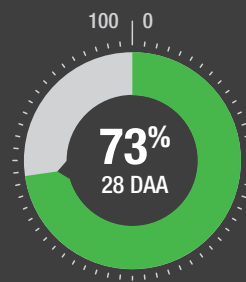
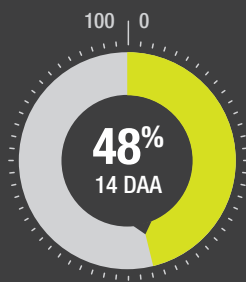
Drought Resistance

An increased number of desiccation-resistant, gram-positive bacteria improves drought resistance; more threadlike mycorrhizal fungal hyphae are able to access soil micropores during drought conditions; and increased microbial diversity benefits soil water holding capacity through better soil structure. **Gram-Positive Bacteria:** Bacteria that have the characteristic of having a thick peptidoglycan layer between the cell membrane and cell wall. These bacteria are better at resisting drought conditions.



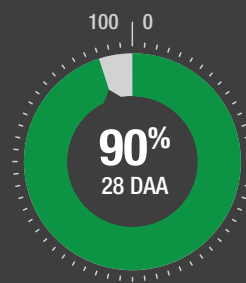
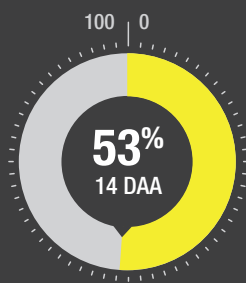
Nutrient Solubilization

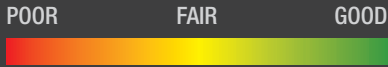
Pseudomonas bacteria and overall microbial diversity means more microbial activity and more soil nutrients being made into an available form. **Microbial Diversity:** This is the variation in microbes in a soil (in shape, structure, behavior, type of habitat, and ability to metabolize). Microbial diversity is important to soil health, quality and structure and is important in organic matter decomposition.



Disease Resistance

The presence of beneficial pathogen-fighting *Pseudomonas* bacteria, and disease resistance-associated mycorrhizal fungi and actinomycetes increase disease resistance. ***Pseudomonas* bacteria:** Is a group of gram-negative bacteria that includes at least 191 species. These bacteria are versatile in soil because they can break down both inorganic soil as well as organic matter. They also fight pathogenic microbes through several modes of action.

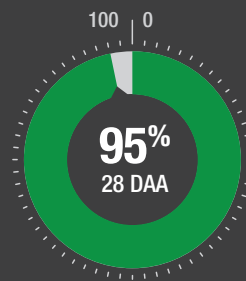
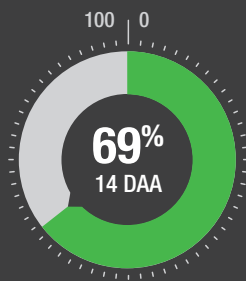




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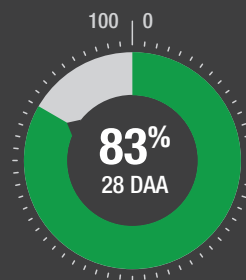
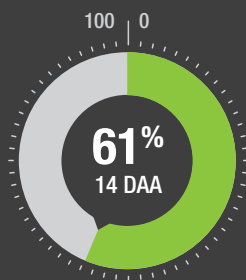
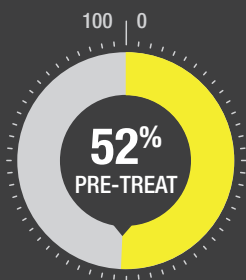
Nutrient Cycling Rate

The greater population of protozoa feeds on bacteria and releases more nitrogen into the soil. Mycorrhizal fungi forage for nutrients for plant uptake. **Protozoa:** A group of single-celled eukaryotes that are mobile and prefer moist environments. Some of the 30,000 species feed on bacteria, releasing nitrogen for plant uptake.



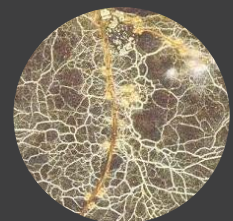
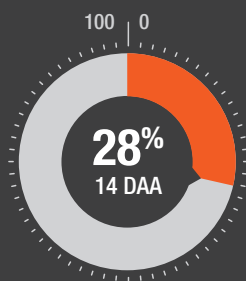
Residue Breakdown Rate

An increase in decomposer actinomycetes and overall microbial activity means more organic matter is broken down quicker. **Actinomycetes:** A group of bacteria that is similar to bacteria, but are also similar to fungi in their ability to “branch out”. Actinomycetes are good at breaking down the tougher parts of organic matter. They are also disease-resistant, antibiotic-producing organisms.



Nutrient Accessibility (VAM)

Mycorrhizal fungal hyphae are able to access nutrients that crop roots are not able to access. **Mycorrhizal Fungi:** A type of fungi that form a symbiotic relationship with plants, forming an intra- or extra-cellular attachment with plants whereby the plant shares carbohydrates with the mycorrhizae. In return, the mycorrhizal fungi use their mycelium and far-reaching hyphae to help absorb and find mineral nutrients and water for the plant. Mycorrhizal fungi are also associated with disease resistance.



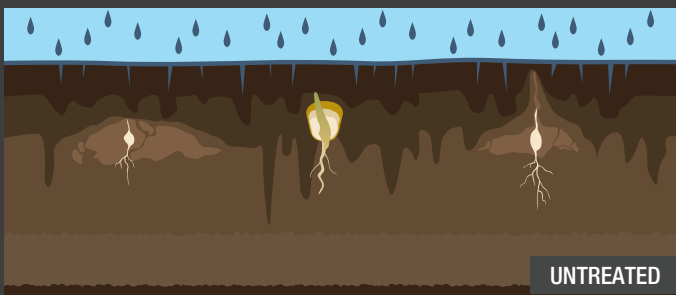
ORO[®]-RZ Boosts the Performance of Soil-Applied Pesticides

ORO-RZ adjuvant should be added to the spray tank with all your soil-applied herbicides, fungicides, insecticides and nutrients. It improves the penetration and uniform distribution of applications in the soil profile to deliver better pest control and plant nutrition.

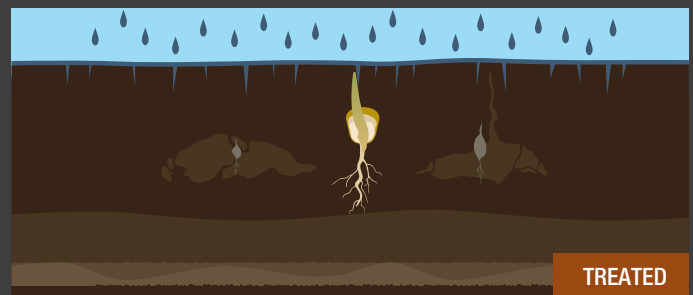
ORO-RZ can boost pesticide and fertilizer performance by:

Distributing Pre-Emergent Herbicides Evenly

The key to outstanding pre-emergent weed control is to create an uninterrupted blanket of herbicide, horizontally and vertically, within the soil profile where weed seeds germinate. Any breaks or areas left untreated allow weed germination and growth that will probably require an additional post-emergent application to control. ORO-RZ, with its excellent penetrating and spreading ability, will distribute a pre-emergent herbicide application uniformly within the soil to prevent gaps in protection.



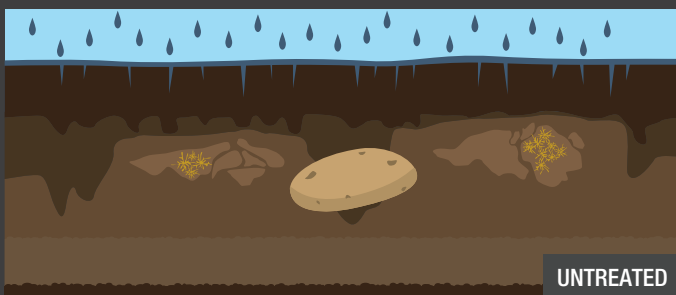
Soil-applied herbicides may not penetrate dense and hydrophobic pockets in soil allowing weed seeds to germinate and grow.



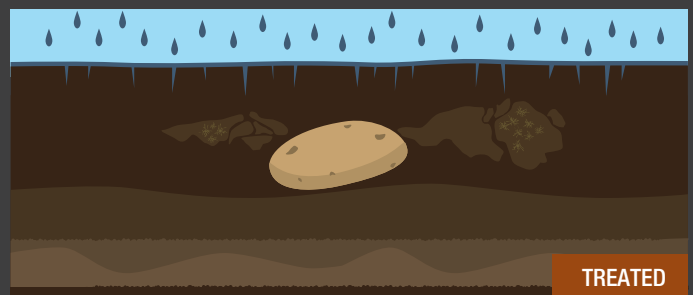
Mixed with ORO-RZ, herbicides infiltrate more thoroughly and penetrate pockets of denser soil delivering better control.

Surrounding the Vulnerable In-Soil Portion of a Crop

Most crops have an in-soil portion that is the target of a disease or insect attack. A fungicide or insecticide application needs to surround these plant parts in order to protect them against infestation. ORO-RZ, with its ability to distribute a spray application thoroughly throughout the soil profile, envelops these portions of the plants with the pesticide solution to protect them against attack.



Soil-applied pesticides may miss pathogens due to various soil densities.



ORO-RZ mixed with fungicides provides infiltration and penetration of denser soil pockets for better control of soil-borne diseases.

For more information visit www.oroagriusa.com
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