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Energized ROI Water

It's hard to believe that water which is H₂O or two atoms of hydrogen combined with one atom of oxygen can have so many different properties. Water is a universal solvent since many crop nutrients easily dissolve in it. Water is polar, meaning one side has positive charges (hydrogen) and the other side has negative charges (oxygen), increasing solubility. New science is starting to find that not all water is the same and this has important impacts for agricultural production.

Everyday humans are exposed to over 100,000 chemical compounds, many of which reside in our water. Many pollutants tie up and have a negative effect on crop growth. When farmers spray their crops with herbicides, hard water decreases its effectiveness. Hard water contains calcium carbonates, iron, aluminum, and many other minerals and pollutants. Water softeners use salts like sodium chloride and/or potassium chloride to displace the high mineral content of hard water. However, these salts can also be hard on the environment.

Another way to reduce the minerals content of hard water is to use reverse osmosis. In reverse osmosis, water is purified with a partially permeable membrane to separate out ions and pollutants, so that the water is "softer" or cleaner. Often the membrane gets clogged as mineral ions build up. Some of the natural minerals like calcium and magnesium are removed but these are good for plant and human health. So reverse osmosis water by itself has its advantages and disadvantages.

Recently, scientist discovered that moving water has energy. When water moves quickly, some of the water atoms split apart, allowing hydrogen ions (H⁺) and hydroxyl (OH⁻) groups to form. Molecules with hydrogen (H) have more energy. Rocket fuel (H₂) and methane (CH₄) have high energy and are used for fuel. Highly energized water reduces the surface tension and allow water to flow and be absorbed more easily; by plants, animals, and humans. This energized water has one oxygen atom surrounded by four hydrogen atoms and lowers water pH. The benefit is that many nutrients stay in solution longer when water is energized. Farmers often keep the liquid sprays agitated or moving to keep the chemical or fertilizer from precipitating to the bottom of the tank.

Water that has been purified by reverse osmosis and then energized has many benefits. Due to extra H ions in energized ROI water, products dissolves more easily and completely. Chemicals or fertilizers that stay suspended are easily absorbed by plant, due to reduced surface tension. An average of 37% less product is needed to get the same yield result with the added benefit of less fertilizer runoff. The return on investment for fertilizer increases because less fertilizer is needed while yields generally increase. Since the minerals stay in solution, there is less scale and mineral build up on pipes. Stagnant water (non-moving) has less energy and allows pathogens and algae to

grow, creating odors and disease. Generally, energized water can stay energized for six months but if the water is circulated it can last a year.

Energized ROI water may reduce irrigation and plant watering needs. Today, rainwater is not pure and contains many industrial pollutants which reduces its effectiveness as a universal solvent. After a drought, when the rains first start to come, the first rain water often runs off the soil because the surface tension does not allow water to infiltrate. Energized ROI water decreases plant water needs by reducing surface water tension and increasing water absorption. Water infiltration and water use efficiency increases when water is energized.

Many greenhouses are now using energized ROI water due to a decrease in disease and insect activity. The energized ROI water has a different or lower harmonic frequency which insects can detect. Insects attack sick plants which have a higher harmonic frequency. As insects attack a sick plant, the incidence of disease also increases. Farmers using energized ROI water in their spray water decreased soybean cyst nematodes by 32% and had less anthracnose, gray leaf spot, and northern corn leaf blight. One word of caution, herbicide and pesticide rates may need to be reduced (especially on Roundup) because the absorption rate increases so much that even tolerant plants can be hurt.

Energized ROI water increases plant mineral absorption, so average crop yields were 8-12 bushel higher on corn and 3-5 bushels higher on soybeans. Higher nutrient density in irrigated energized ROI water crops fed to livestock increased the animals rate of gain, reducing feed costs. Animals who drink energized ROI water also had less disease and sickness. Energized ROI water may be something farmers will want to investigate to improve their agricultural efficiency.