



ecoSolv Technologies LLC Product Review

Soil Remediation - Why Use ecoAgra™ For Soil Remediation?

The Sodium in fertilizers typically remains in the top one foot of soil and can inhibit water from passing through - much as excess sodium in the human body will trap water. This action inhibits root growth depth and hence, soil fitness and pH balance, making the soil "weak" and more susceptible to molds, fungi and other similar issues as well as creating an environment in the soil suitable for habitation by many of the more nuisance and harmful pests - as the soil becomes more acidic.



Soil compaction can also result, creating greater and greater runoff of water even during the most moderate of seasons. This compaction alone can pass many fertilizers and harmful environmental concerns off with the water and into watershed areas, aquifers and other areas maintained for human benefit, while less seeps into the fields where it is needed most. The runoff of harmful chemicals into rivers, streams and groundwater, resulting from agricultural farming activity is one of the biggest polluters of groundwater in the US and Canada. By using **ecoAgra™**, the use of fertilizers may be reduced, much as a healthy body needs less food for nutrition due to its balanced pH and better functioning. Soil conditioning is much the same.

In a water environment, it is the water phase preference of aqueous surfactants that have virtually no attraction to lipids. The colloidal micelle (section dimension of 0.085 microns) forms a very powerful water attraction and displaces oils, fats, greases, lipids and petroleum hydrocarbon fractions, which float out of solution by their relative density. This includes gases, solvents, fuels, and their fractions such as ethylene, formalin, acrylates, halides, silicones but not salts or their solutions. **ecoAgra™**, in parts per billion equal to the contaminant gas (and solvents), will displace the gas to the surface (even if it is water miscible). Unless salts in solution are attached to an organic or hydrocarbon fraction they will not react with **ecoAgra™**. Therefore, unless salts are drawn to flocculants, then our organic surfactant will have no effect on salt contaminants other than serving to buffer pH to alkaline. **ecoAgra™** is not reactive by itself. As it biodegrades, it resolves into potassium, magnesium and hydrogen and trace amounts of organic silica, calcium and nitrogen and some lesser elements.

In the case of soil remediation, the water solution of **ecoAgra™** will serve to hydrate and liberate micro-soils into a water solution with irrigation water and force the displacement of hydrocarbon soils out of the water column toward the ambient surface or lower density environment and also serve to promote anaerobic digestion in soils. Solutions of as little as 1 gallon of **ecoAgra™** to 1 acre inch of irrigation water is able to displace hydrocarbon contaminants very effectively, while the surfactant itself readily biodegrades in an oxygen and water environment exposed to ambient bacteria. The actual clean-up is accomplished with various absorbant materials or by flooding and recovery or by the use of screens which serve to skim off the hydrocarbon contaminants.





Soil balance is the key to success

When soils are out of balance they are unable to utilize fertility inputs to their full potential, and the continued application of the wrong products may cause a greater negative effect and continue to drive the soil even further out of balance.

Common problems:

- ❖ Soil hardness and compaction
- ❖ Poor water penetration with high evaporation
- ❖ Low organic matter
- ❖ Weak plants with high stress
- ❖ Increased plant disease and insect pressure

In addition, there are other negative aspects that may be noticed from time to time, like “cutting out early.” We eventually come to the question “What is it going to take to correct the problems and stay in business?” Sustainability is a result of maintaining soil balance.

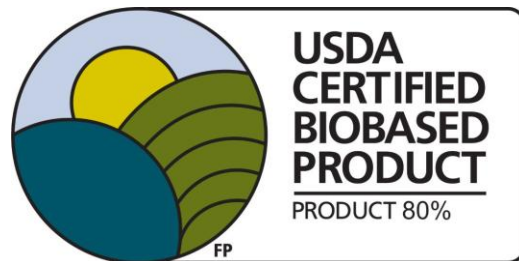
This approach to soil management involves four major areas:

- ❖ Nutrient Balance
- ❖ Organic Matter
- ❖ Biological Activity
- ❖ Mineralization

The net result of a sustainable approach to soil management is an improved bottom line, attained through higher productivity and improved soil quality.

Physical changes to look for:

- ❖ Reduction in soil compaction
- ❖ Better water utilization, including root zone retention
- ❖ Reduced evaporation
- ❖ Healthier, more vigorous plants
- ❖ Leaching and complexion salts
- ❖ Better disease resistance with less insect pressure
- ❖ Better nutrient utilization
- ❖ Improved soil oxygenation and sustained microbial life in soils



For more information about ecoSolv products, please visit our website at www.ecosolv.com

