For increased uptake, decreased loss and the best return on your fertilizer dollar.

For Farmers concerned over the high cost of Nitrogen fertilizer or those that are considering reducing the amount of Nitrogen they apply, Liquid Soil Supreme is a fertilizer additive and soil amendment that dramatically reduces nitrogen losses, while increasing plant uptake for improved crop productivity and reduced environmental contamination.

Nitrogen fertilization has built-in inefficiencies (See fig. 1). These are volatilization, misplacement, run-off and leaching. Liquid Soil Supreme increases the efficiency of your nitrogen application by converting a higher ratio of Nitrogen to the non-leachable, nonvolatile, organic and ammoniacal forms for reduced losses. As an added benefit, most plant would prefer to pick up these forms, if encountered, for even further efficiency.

The utility of Liquid Soil Supreme in nitrate reduction is best realized when Liquid Soil Supreme is applied in conjunction with Nitrogen fertilizers from any source. The benefit of Liquid Soil Supreme assisted nitrate reduction can be immediately realized in preventing losses. Further, this benefit will continue as the native soil ecology begins the nitrification process. The results for the grower is to maintain nitrogen levels in the root zone, to convert nitrate nitrogen to a form more easily utilized by plants and reduce losses to ground water contamination.

Moreover 15 years of data for the capability of Liquid Soil Supreme, the further ability of Liquid Soil Supremes to enhance efficiencies also stands up to an economic analysis. The nationally accepted standard is that 40% of all the Nitrogen applied in the United States is lost and never taken up by the crop. In the example, below, the hypothetical fertilizer budget is ten units. We find that there is a high return on investment for the first few units, indeed these units are keeping the plant alive so that it may have the potential to make yield. The middle units give a moderate return, as they are maximizing yield and productivity. The last few units provide little to no return as they are being put into the program to be lost to the inefficiencies of fertilization. By taking non-performing units from the end of the budget and replacing them with Liquid Soil Supreme, which leverages the return on all previously applied units, the net result is an increased productivity with less fertilizer applied:

Liquid Soil Supreme does not salt-out or clabber with any fertilizer you will mix with. However, do not mix it with Aqua Ammonia or acid based fertilizers. Liquid Soil Supreme is particularly suited for mixing with:
- UN-32
- AN20
- CAN-17, CN-9
- 10-34-0

Labeled rates for Liquid Soil Supreme are up to 20-40 gallons per acre per season and generally come in a minimum of two applications. However, mixing ratios with fertilizers vary by timing and placement method in these combinations of treatments:

Pre plant:
- Broadcast = 15-20 gallons per acre
- In bed = 5-10 gallons per acre
- Drip irrigation = 5-10 gallons per acre
- Micro sprinklers = 10-15 gallons per acre

In season:
- Broadcast = 10-15 gallons per acre
- Siddress = 5-10 gallons per acre
- Drip irrigation = 5-10 gallons per acre
- Micro sprinklers = 5-10 gallons

Many growers, for most crops are having success by using the following formula to meet seasonal label rates:

1-5 gallons of Liquid Soil Supreme : 25 units of nitrogen
Or,
Minimum of 5 gallons per acre.

By no means is Liquid Soil Supreme the only thing you can do to increase Nitrogen efficiency. On the reverse is a listing of many other options.

“One of the things that Liquid Soil Supreme does a good job of, is to prevent Nitrogen losses while improving nitrogen uptake. If a grower wants to limit the amount of Nitrogen, because of it’s increased cost, he better have some Guano Plus in the mix to ensure the best result.”

Dr. R.S. Gordon
Outline of techniques for improved nitrogen utilization and mitigation of nitrate contamination of ground water

Below is an outline of Best Management Practices (BMP’s) and Best Use Guidelines (BUG’s) for the reduction of Nitrates being lost to ground water and the increase utilization of Nitrates as a fertility component. This outline is broken into seven categories with illustrations in each, and is by no means the only options available to you.

I. Limit Nitrogen
   A. Limit Nitrogen to crop demand.
      1. Determine crop requirements
      2. Soil sample for nitrogen residuals
      3. Tissue sample to determine needs
      4. Use ammoniacal nitrogen.
      5. Properly calibrate or improve application equipment
   B. Apply slow release Nitrogen
   C. Use Liquid Soil Supreme to maximize efficiency of limited nitrogen and reduce nitrate conversion.

II. Time Nitrogen
   A. Apply nitrogen to coincide with maximum crop uptake and at critical timings.
      1. Lowest need is seedling and pre-harvest periods. Peak demand is generally mid-season, vegetative and fruiting periods.
   B. Split applications vs. Large single doses.
   C. Time Dairy lagoon treatments to crop use.

III. Place Nitrogen
   A. Place nitrogen to the zone of maximum crop uptake.
      1. Allows for lower rates and greater utilization and less loss.
      2. Ensure nitrogen does not backflow into wells or sumps.

IV. Limit Irrigation water
   A. Irrigation water should be limited to crop need and to minimize nitrogen leaching. This can be accomplished by better managing your present system or switching to a more efficient one.
      1. Minimize or recycle run-off.
      2. Use sprinklers or micro-irrigation.
      3. Angle rows across a heavy slope.
      4. Minimize leaching below root zone
      5. Use surge-flow on flooded sand or heavy slope.

V. Time Irrigations
   A. Time irrigations to prevent leaching and run-off.
   B. Time irrigations by soil moisture content, crop stress measurements, or scientific weather data such as Evapotranspiration rate.

VI. Tillage/Soil Structure
   A. Use tillage techniques to maximize water and nitrogen uptake.
      1. Minimize compaction.
      2. Cultivate before irrigation.
      3. Level or reestablish slope.
      4. Invert top 2’ of to redistribute nutrients.
   B. Improve soil structure
      1. Chemically
         a. If one has high concentrations of absorbed sodium amend soil with gypsum, sulfuric acid, sulfur, poly sulfides or lime sulfur to flocculate soil.
      2. Biologically
         a. Apply organic and or biological amendments for macro and micro soil particulate aggregation, such as Liquid Soil Supreme.

VII. Other Techniques
   A. Use any technique that will limit nitrogen loss from leaching, runoff or backflow into irrigation wells.
      1. Backflow device installation
      2. Line irrigation ditches
      a. Repair upper-casing on old wells
      3. Install pipelines
      4. Install anti-siphon valves.
      5. Clean-up spilled fertilizer.
      6. Rotate shallow rooted crops with deep rooted crops.

Note: The USDA-NRCS has a grant program called EQIP that will cost share any of these techniques if they are new to you.