



A thimble of soil can contain miles of mycorrhizal threads.

NITROGEN PROCESSES & PROBLEMS

The Below-Ground Connection

by Dr. Mike Amaranthus



Nursery trial with 30 percent less fertilizer. Inoculated with MycoApply (left) and without.

A few colorless drops of liquid appearing at the end of a tube one afternoon in Germany, July 1909, represents perhaps one of the most important technological breakthroughs in human history. This discovery 100 years ago continues to have unintended effects on our modern world. The liquid was ammonia and the scientist, Fritz Haber, demonstrated that nitrogen (N) could be taken directly out of the air. This revelation on a German tabletop had vast implications for the future of humanity. It provided the world with a mechanism for a new source of fertilizer. The discovery opened the floodgate, making it possible to dramatically expand the world's food supply and, as a consequence, the human population.

Ammonia is a combination of nitrogen and hydrogen (NH₃), and nitrogen is most often the nutrient limiting plant growth. Nitrogen is a critical building block of plant and animal tissue and rests at the core of all 10 amino acids upon which humans depend. Nitrogen is key for the vegetative growth, protein content and yield of cereal grains such

