

The Next Level of Conservation - No-Till and Stabilized NitrogenTM Technology

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Abstract

Throughout most of the Earth's history, soil formation exceeded soil erosion. Soil erosion in and of itself is not a problem unless the rate of soil erosion exceeds the rate of new soil formation through natural processes. Over the past 100 years, a combination of over plowing, overgrazing and deforestation has reversed that relationship. With soil erosion exceeding soil formation in many areas, parts of the Earth are slowly being drained of their inherent fertility (Brown, Flavin and French, 1998). Continued excessive erosion will affect the productivity of the land to where it is no longer economical to farm, forcing abandonment of the farm. Fewer farms could mean decreasing food, fiber and energy supplies for an ever-demanding and increasing world population.

The first agricultural crop production occurred in fertile river valleys, where new sediment were deposited annually during flooding conditions. Agricultural areas were close to water sources, which was a necessity for crop production and growth of civilization. As populations grew, more food was needed, so farming expanded farther and farther away from fertile river valleys. Lacking the knowledge of conservation and fertilization, early farmers abandoned lands that became unsuitable for crop production and moved their operations to new areas. Extreme pressure was exerted to farm more area, in order to feed more people. This was a continuous cycle – increased populations needed more food, which meant more land would be placed into crop production.

By the 1950s, the population of the world was approximately 2.5 billion. This level of population could easily be supported by today's technology, and food, energy and fiber production. However, today the world's population is at 6.2 billion and continuing to grow (US Census Bureau, International Data Base, September 2004). The world is faced with an unbridled population growth of 76 million people per year which is placing increased pressures on our agricultural croplands. Coupled with this population explosion, has been an increase in affluence and protein requirements, primarily in China and India.

With the increase in population there continues to be a decrease in the amount of arable cropland necessary to keep up with this ever increasing, consumptive population demanding safe food, fiber and energy. It has been estimated that within the last 50 years, the world has lost approximately 20 % of our topsoil resources. Satellite imagery documents these losses to delta areas of the Mississippi River, Amazon River and the Yangtze River. Recent dust storms over China, India and parts of Africa are reminiscent of the dust bowl days of the 1930's.

In developing countries, for every pound of food produced, 12 pounds of farmable soil are lost. Loss of topsoil and arable cropland has decreased the available cropland per capita. It has been determined that the available cropland acres per capita are currently at .64 acres, with this decreasing to .4 acre by the year 2050, when the worldwide population is expected to reach 9 billion (United Nations, Population Division, Department of Economic and Social Affairs).

Over the past 16 years, it has been documented that grain consumption is greater than grain production. In 1990, grain stores were at approximately 102 days, as compared to 54 days at the end of 2006 (USDA, Production, Supply and Distribution). The current grain stores are at their lowest in the last 30 years. With China and India having exhausted their grain stores, pressures will be put on other agricultural lands to be more efficient in food production. These challenges described above will continue to place more pressure on our cropland acres and will require an increased emphasis to be placed on conservation that protects the soils resources, while utilizing products that maximize the effectiveness of inputs such as fertilizers and crop chemicals.

This presentation will address enhancing the quality of our soil resources and the use of StabilizedNitrogen[™] technology. No-till conservation is recommended to improve soil quality, while StabilizedNitrogen[™] fertilizers provide nitrogen at the right place, at the right time, and in the most advantageous form when the crop needs it. StabilizedNitrogen[™] keeps nitrogen in the ammonium form longer, which provides many agronomic benefits. These two conservation practices, when adopted, will aid in meeting future growing needs for food, fiber and energy. Utilizing these two conservation practices will provide economic benefits to growers, while at the same time providing environmental benefits. No-till addresses the soil loss and amendments that may attach to the soil, while StabilizedNitrogen[™] will address nitrogen losses from volatilization, nitrification and denitrification. Research information and data will be presented during the course of this presentation.

AGROTAIN International is the world's largest producer of StabilizedNitrogen[™] fertilizers. Marketed under the brands AGROTAIN[®], AGROTAIN[®] PLUS, SuperU[®], HYDREXX[™], UMAXX[®] and UFLEXX[™], StabilizedNitrogen[™] fertilizers contain proprietary nitrogen stabilizer technology. This award winning technology has a proven track record, backed by worldwide research studies. AGROTAIN[®] International's StabilizedNitrogen[™] fertilizers reduce nitrogen losses, and extend plant-available nitrogen for healthier plants and higher yields.

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