



FERTILIZER SUPPLY AND DEMAND, AND YOUR BUSINESS



The Fertilizer Institute
Nourish, Replenish, Grow

In their efforts to maintain

a green turf & healthy plants,

lawn care professionals, golf courses and nurseries are affected by increased global demand for fertilizer nutrients.

Your lawn and plants need nutrients to grow. The main fertilizer nutrients are nitrogen, phosphorus and potash—all naturally occurring elements in the environment. As the world population grows, demand for these essential nutrients has increased sharply to help meet the challenge of improving diets. According to Global Insight's Global Consumer Markets, developing countries will account for 87 percent of the population growth with the size of their middle class expected to double by 2020. Those consumers will quickly adopt high-protein diets, which require feed and grain.

Fertilizers' use in global agriculture directly impacts the prices you pay to maintain healthy, green golf courses, lawns and plants. In order to minimize the impact prices will have on your business, you need to understand the dynamics of fertilizer supply and demand, as well as the necessary steps to determine the nutrient levels already in your soil.



NITROGEN (N)

is a primary building block for all organisms. It is essential in making proteins, helps keep plants green and is a critical component of soil structure.

COMES FROM THE AIR



PHOSPHORUS (P)

is found in every living cell. Phosphorus is a component of DNA and it also plays vital roles in capturing light during photosynthesis, helping with seed germination, and helping plants use water efficiently. Plants also use phosphorus to help fight external stress and prevent disease.

COMES FROM ANCIENT SEA LIFE



POTASSIUM (K)

is essential to the workings of every living cell. It plays an important role in plants' water utilization and also helps regulate the rate of photosynthesis. Other aspects of plant health influenced by potassium include the growth of strong stalks, protection from extreme temperatures, and the ability to fight stress and pests such as weeds and insects.

COMES FROM EVAPORATED OCEANS





GLOBAL DEMAND FOR FERTILIZER HAS PLACED UPWARD PRESSURE ON FERTILIZER PRICES.

HIGH NATURAL GAS PRICES CONTINUE TO LEAD TO HIGHER FERTILIZER PRODUCTION COSTS, ALSO LEADING TO INCREASED FERTILIZER PRICES.

INCREASED TRANSPORTATION COSTS TO MOVE FERTILIZER PRODUCTS IS FACTORING INTO INCREASED DELIVERED FERTILIZER PRICES.

THE VALUE OF THE U.S. DOLLAR HAS FALLEN SIGNIFICANTLY IN THE PAST FEW YEARS, INCREASING THE COST OF GOODS IMPORTED – INCLUDING FERTILIZER.

THE EXPANSION OF THE U.S. ETHANOL INDUSTRY IS ALSO CONTRIBUTING TO INCREASED DOMESTIC NUTRIENT USE, THEREFORE PLACING UPWARD PRESSURE ON FERTILIZER PRICES.

THE QUEST FOR HEALTHIER LIVES AND BETTER DIETS IN DEVELOPING COUNTRIES IS THE PRIMARY DRIVING FACTOR BEHIND THE INCREASED GLOBAL DEMAND FOR FERTILIZER.

The turf care industry is facing the same challenges as the global agriculture industry. Nowadays, when you purchase a bag or a load of fertilizer, you're competing with farmers from across the globe. **AVERAGE PRICES** that U.S. farmers paid for the major fertilizer nutrients reached the **HIGHEST LEVEL ON RECORD IN APRIL 2008, 228 PERCENT HIGHER THAN THE JANUARY 2000 LEVEL** according to the U.S. Department of Agriculture. World fertilizer demand has grown by 14 percent, 20.6 million nutrient tons, nearly equivalent to a new U.S. market. Overall, world nitrogen demand grew by 14 percent, phosphate demand grew by 13 percent and potash demand grew by 17 percent from fiscal year 2001 to 2006. China, India and Brazil are the three largest contributors to the growth in world nutrient demand.

WITH U.S. NATURAL GAS PRICES INCREASING SIGNIFICANTLY SINCE 2000, AVERAGE U.S. AMMONIA PRODUCTION COSTS ROSE BY 172 PERCENT FROM FISCAL YEAR 1999 TO 2005.

Natural gas is a feedstock in the production of ammonia, which is the building block for all nitrogen fertilizers. The **COST OF NATURAL GAS** accounts for **70 TO 90 PERCENT OF THE PRODUCTION COST OF AMMONIA**. While fertilizer prices have risen, many U.S. producers were faced with negative margins due to the severe escalation in production costs. High natural gas prices have caused 26 U.S. ammonia plants to close since fiscal year 1999 and several plants also remain idle. As a result of ammonia plant closures, U.S. ammonia production fell by more than 42 percent since fiscal year 1999. Consequently, the U.S. fertilizer industry, which typically supplied 85 percent of domestic nitrogen needs, now relies on net nitrogen imports for more than half of new nitrogen supplies.

RIISING ENERGY AND INPUT COSTS HAVE ALSO ADDED SIGNIFICANTLY TO THE COST OF PRODUCING PHOSPHATE AND POTASH.

Phosphate rock, sulfur and ammonia are major cost components in the production of ammonium phosphates and the prices of these materials are up dramatically. For example, **AMMONIA PRICES HAVE MORE THAN DOUBLED OVER THE PAST FIVE YEARS; THE PRICE OF IMPORTED PHOSPHATE ROCK AND SULFUR HAVE RISEN MORE THAN SIX-FOLD** over the same period, with most of the price rise for the latter two materials occurring within the past twelve months. In addition, higher energy prices have added to the overall production costs of all fertilizer materials. However, the driving force behind the price increases for fertilizer materials remains strong domestic and world demand.

HIGHER ENERGY PRICES, A SIGNIFICANT DEMAND FOR TRANSPORTATION AND EVEN WEATHER RELATED EVENTS, HAVE CAUSED SHIPPING AND DISTRIBUTION COSTS TO RISE.

Shipping rate increases include all methods of fertilizer transportation—ocean freight, rail, barge and truck. With much of the fertilizer applied in the United States having its origin beyond U.S. borders, it is possible that your fertilizer has taken each of these transportation modes. Moreover, the value of the U.S. dollar has decreased significantly, increasing the cost of imported goods—including fertilizer. With most fertilizer materials priced in U.S. dollars, foreign producers have to raise the price of fertilizer in U.S. dollars to offset the fall in the value of the dollar to maintain the revenue they receive in local currency.

FERTILIZER IS NECESSARY FOR THE MAINTENANCE OF

safe & stable surfaces for family use, recreation & exercise.

PROVIDING NUTRIENTS TO KEEP LAWNS GREEN AND PLANTS HEALTHY IS EARTH FRIENDLY AND OFFERS A NUMBER OF BENEFITS.

NUTRIENT ABSORPTION - A balanced green lawn or golf course loses very few nutrients. Healthy turf helps lock nitrogen and phosphorus in the root zone and prevents possible leaching down into groundwater.

EROSION CONTROL - A healthy lawn or golf course holds the soil in place and prevents it from being washed away into waterways.

OXYGEN GENERATION - Through enhanced photosynthesis, healthy plants give off more oxygen, helping to balance the earth's atmosphere. A healthy acre of grass produces more oxygen per year than one acre of rainforest and absorbs hundreds of pounds of pollutants each year.

WATER QUALITY AND QUANTITY - A healthy lawn, golf course and plants are a significant and important filtration system. These help recharge groundwater supplies and reduces the strain on municipal water treatment systems.

A regular fertilization program is necessary to maintain good quality turf and plants. The most important part of creating a dependable nutrient delivery system is to respect site specific best management practices and follow application guidelines on the product label. These involve applying the right product, at the right time, right rate and right place.

Every soil is different and needs to replenish its nutrient sources accordingly. Good agronomics are the result of a combination of factors – fertilization, watering, type of grass,

soil condition and climate. The more you learn about these factors, the better care you can give your lawn and plants in an environmentally friendly way. A soil test is the first step to determining how much fertilizer is needed to provide the nutrients for healthy turf and plants.

Soil testing helps you pinpoint the specific levels of key nutrients in your ground. Knowing your nutrient needs will enable you to make the most effective, environmentally friendly and economical decision about what products to apply.

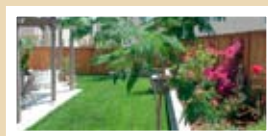
BEST MANAGEMENT PRACTICES (BMPs)



RIGHT PRODUCT

MATCH FERTILIZER TYPE TO PLANT NEEDS

- Soil Testing
- Macro, secondary and micronutrients
- Nutrient Management Planning
- Enhanced Efficiency Fertilizers



RIGHT TIME

MAKE NUTRIENTS AVAILABLE WHEN PLANTS NEED THEM

- Application Timing
- Controlled Release Technologies
- Inhibitors
- Fertilizer Product Choice



RIGHT PLACE

KEEP NUTRIENTS WHERE PLANTS CAN USE THEM

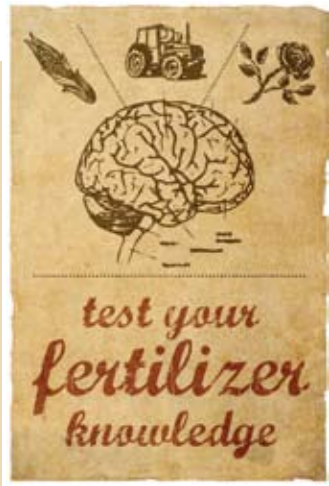
- Application Method
- Blow or Sweep Hardscapes
- Topdress into Container Only
- Sweep nutrients off of the driveway and back into the yard



RIGHT RATE

MATCH AMOUNT OF FERTILIZER TO PLANT NEEDS

- Soil Testing
- Spreader Calibration
- Record Keeping
- Site Specific Management



1 WHAT ARE THE TOP THREE FERTILIZER-CONSUMING COUNTRIES IN THE WORLD?

China, India and the United States, respectively.

2 HOW MUCH OF ITS FERTILIZER DOES THE UNITED STATES NOW IMPORT?

The United States now imports over half of its nitrogen and over 90 percent of its potash. The United States is the world's largest phosphate producer due to its large phosphate rock reserves and exports about 55-60 percent of its phosphate production annually.

3 WHY HAS THE U.S. DEMAND FOR FERTILIZER INCREASED?

U.S. nutrient use increased an estimated 7-8 percent during fiscal year 2007. The majority of this rise in demand can be attributed to the increase in corn acres planted as corn typically accounts for 43 percent of U.S. nutrient use. In 2006, 78.3 million acres of corn were planted in the United States. In 2007, corn acres planted rose to 93.6 million acres. The U.S. Department of Agriculture (USDA) reported that domestic ethanol production accounted for 25 percent of total corn demand in 2007. For the first time, corn used in ethanol exceeded the amount of corn the United States exported. At the same time, the U.S. livestock industry is concerned about rising feed prices and reduced profitability, which are resulting from high corn demand. In order to meet the demand of the renewable fuels industry,

the number of corn acres planted in the United States will need to remain significantly above the average 77.9 million acres planted over the period 1990-2006. Domestic corn plantings reached 93.6 million acres in 2007 and USDA's latest long-run projections indicate that an average of 91.6 million acres of corn will be planted over the period 2009-2017.

4 WHAT ARE SOME OF THE PROCEDURES TO FOLLOW TO HAVE YOUR SOIL TESTED?

The accuracy of a soil test will determine how helpful your results will be. Soil testing is recommended every one to four years. Several samples should be taken to a depth of three to four inches in areas where topography and soil type are similar and then combined into one well-mixed sample for analysis. Soil samples can be taken at any time, but it is most important that they be taken prior to fertilization and at least 30 days since your last fertilizer application.



KEY MESSAGES ABOUT FERTILIZER

1. Fertilizers are drawn from nature — they are not man-made.
2. Farmers are not adding fertilizers to the ground. They are replacing nutrients that are lost at each harvest.
3. The world has no choice but to use fertilizers. Without them, more than two billion people would starve.
4. By helping conserve land, fertilizers safeguard recreational land and wildlife habitats.
5. Farmers care about the environment as much as anyone.



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TFI SERVES TO PROMOTE AND PROTECT THE FERTILIZER INDUSTRY, REPRESENTING THE PUBLIC POLICY, COMMUNICATION AND STATISTICAL NEEDS OF PRODUCERS, IMPORTERS, WHOLESALERS AND RETAILERS OF FERTILIZER, AS WELL AS THOSE COMPANIES THAT PROVIDE VITAL SERVICES TO THE FERTILIZER INDUSTRY.