At the beginning of University of Florida “Palm School,” Dr. Monica L. Elliott and her husband Dr. Timothy K. Broschat explain that malnutrition is the main reason that Palm Trees die. Nutrition is necessary for plant growth and metabolism and it is part of a broad field of plant physiology that also includes plant response to the environment and toxins such as incorrect fertilizer and pesticides.

**Nutrients Required By Plants, Animals and Humans**

It can be said that plants, animals and humans require about two dozen similar nutrients. Amazingly, Tim’s presentation on palm nutrient deficiencies included more than a dozen nutrients. This is unusual because in most state agricultural school settings, it is politically incorrect to mention more than three: nitrogen, phosphorus and potassium, or “NPK” which are the letters of their atomic symbols. Nitrogen, phosphorus and potassium are the three main ingredients in synthetic fertilizer. The United States and China are leading consumers of synthetic, or nitrogen-based fertilizer.

**History of Inorganic Fertilizer**

Now that Bill Gates has legitimized concern over climate change with a billion dollar investment, it may be time for consumers to understand the political history of NPK fertilizer. After World War I, Nobel prize-winning chemists Carl Bosch of IG Farben and Fritz Haber turned inert nitrogen gas into highly reactive ammonia (NH3) used in the American and European munitions industry. During World War II, the United States built 10 large-scale nitrogen factories to make bombs. After the war, “Big Ag” sold cheap inorganic fertilizer to farmers who abandoned crop rotation as a natural method of adding nitrogen to soil. Farmers were brainwashed into believing that nitrogen, phosphorus and potassium are the only elements that plants need. Weak plants are vulnerable to disease and the same fertilizer manufacturers were more than willing to supply pesticides. Chemical companies have prospered at the expense of the environment. In addition to toxic residues from pesticides, nitrogen runoff from fertilizer has created dead zones, acidified lakes, and major habitat degradation around the world. When excess nitrogen seeps into oceans and streams the result is often an algae bloom that blots out sea life and emits nitrous oxide, a greenhouse gas 300 times more potent than carbon. The American fertilizer industry also uses cheap natural gas extracted by fracking, the controversial process of extracting gas from rock formations by bombarding them with water mixed with toxic chemicals.

Agricultural schools in the United States are “land grant universities” formed from the Morrill Acts of 1862 and 1890. Ag research at these schools was considered to be in the public domain and not patented by any company. However, with the Bayh-Dole Act of 1980 (Birch Bayh of Indiana and Bob Dole of Kansas), non-profit institutions are allowed to pursue ownership of an invention in preference to the government. This resulted in a huge deluge of cash funneled into land grant schools.

Although inorganic fertilizer companies would argue that synthetically produced products are responsible for maintaining current levels of overall food production, researchers at Iowa State University, Cornell and Rodale Institute have demonstrated that farmers could return to more natural methods of crop rotation and still maintain production. Most of the world’s nitrogen fertilizer is used on animal feed crops where there is little incentive to shift to crop rotation.

**Organic Requirements**

Palm Trees are also grown for food. Coconuts harvested from Coconut Palms, grown mostly in Indonesia, have become a superfood for animals and humans due to numerous nutritional benefits. The central bud of the Sabal Palm is edible and known as heart of palm. Organic farmers cannot use
synthetic fertilizers. Tim co-authored a University of Florida Extension bulletin titled “The Coconut Palm in Florida” with Jonathan H. Crane that includes a section on harvesting.

Palm Tree with leaves that are yellow, orange, or brown are in need of nutrition. Steps for applying environmentally friendly nutrients will be covered in the next article.

Photo

Filename: coconut_green.jpg
Caption: Full-size green coconuts that weight about 3.2 pounds each. Health writers such as Sally Fallon, Dr. Bruce Fife and Dr. Mark Hyman have been educating the public about the many benefits in coconut products. Coconut meat and coconut milk are both naturally sweet, but low in carbohydrates. Coconut oil contains medium-chain fatty acids that are easy to digest and lauric acid that is an antiparasite.